

## Appendix 1: Translocation project form

### Purpose of the form

- To provide a checklist of the issues to consider and address when planning conservation translocations in Scotland
- To summarise the key information needed to underpin consultation with other people or organisations that may be affected by a translocation
- To serve as a formal Project Proposal Form where translocations require permissions from Scottish Natural Heritage (including the granting of species licences)
- To provide a mechanism to document and record translocations to help inform future projects

### What is in the form?

The form is structured as follows:

Sections 1-4	Contact details, the species involved and the purpose of the translocation
Section 5	Details of the donor and release sites
Section 6	Translocation methodology
Section 7	Summary of the benefits
Section 8	Permits and legal issues
Section 9	Assessment of biological risks
Section 10	Assessment of socio-economic risks
Section 11	Details of monitoring and ongoing management plans
Section 12	Summary of communication plan
Sections 13-14	Data confidentiality statement and declaration

### Do I have to fill it in?

- Completion of this Translocation Project Form is recommended for all conservation translocations in Scotland as part of 'best-practice' planning
- Completion is mandatory for all conservation translocations which require licences from SNH

### How to fill it in

This *Translocation Project Form* is based on the [Scottish Code for Conservation Translocations](#) and associated [Best Practice Guidelines for Conservation Translocations in Scotland](#), and the Code/Guidelines should be consulted when completing the form. If further assistance is needed, contact [Scottish Natural Heritage](#).

For low risk and uncontentious translocations, filling in the form should be straightforward. For instance, in sections 8-10, where your responses fall into the 'green light' category, just a few words are needed explaining that there are no appreciable risks or legislative issues.

Where risks or legislative constraints are identified, additional information should be provided. There is no set word-limit to this. The guidance is to succinctly express sufficient detail to enable the issues to be evaluated and understood in a clear and transparent fashion. Text boxes in the form can be expanded as required. Where translocations require a licence, but the translocation itself is intrinsically 'low risk', then the licence application process can be very straightforward. In the case of unusually complex and/or controversial translocations additional supporting information can be appended to the form.

A 'WORD' version of the form can be downloaded at [www.snh.gov.uk/translocation-code](http://www.snh.gov.uk/translocation-code). An example of a completed copy of the form for a relatively 'straightforward' translocation is available in Appendix 2 of the Best Practice Guidelines for Conservation Translocations in Scotland.

**What to do with this form**

For projects requiring a licence from SNH, send the completed form to:

Licensing Team  
Scottish Natural Heritage  
Great Glen House  
Leachkin Road  
Inverness  
Email: [licensing@snh.gov.uk](mailto:licensing@snh.gov.uk)

The licensing team will then respond to the application.

All other completed forms should be sent to: [translocations@snh.gov.uk](mailto:translocations@snh.gov.uk)

**What happens next?**

The form will be added to the Scottish Conservation Translocation database which will be accessible from 2015 (environmentally sensitive information and personal data will not be made public).

### 1. Lead applicant details

Name Robert Coleman RSPB Scotland
Address RSPB Loch Lomond, High Wards Farm, Gartocharn, Alexandria, West Dunbartonshire, G83 8SB
Telephone number 01389 830670
Email robert.coleman@rspb.org.uk
Organisation RSPB Scotland
Position Area Manager

### 2. Project partners (add more boxes as required)

Name Alan Bell
Organisation Loch Lomond and the Trossachs National Park
Email alan.bell@lochlomond-trossachs.org
Role in project Partner in the NNR and supportive of the translocation
Name Ian Bray
Organisation NatureScot
Email ian.bray@nature.scot
Role in project Partner in the NNR

### 3. Project details

Project title Beaver Reinforcement to Loch Lomond NNR
Focal species Eurasian beaver ( <i>Castor fiber</i> )
Desired outcome(s) To provide a suitable release site, within current range, for beavers translocated from conflict sites following Scot Gov steer to reduce lethal control rates of beavers within Scotland.
To establish beavers within the reserve to encourage natural floodplain functioning and species diversity.
To raise awareness within the local community of the biodiversity benefits of beavers.
Expected timescale for outcome(s) to be achieved Autumn 2022/ spring 2023
Goals To release a pair/family of beavers at RSPB Loch Lomond nature reserve by autumn 2022
Proposed start date (capture/collection date(s)) Oct- Nov 2022
Proposed release date(s) Oct- Nov 2022 - spring 2023
Type of translocation (reinforcement, reintroduction, assisted colonisation, ecological replacement) Reinforcement
Donor source type (wild or <i>ex situ</i> or both) Wild

### 4. Rationale

Overview of the project To provide a suitable release site, within current range, for beavers translocated from conflict sites in Scotland and following the Scottish Government steer to reduce lethal control rates of beavers within Scotland. Additionally, increase the range of beavers in Scotland both through natural colonisation and assisted translocations as set out in Scotland's Beaver Strategy 2022-2045.
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Why is a translocation necessary? Beavers are a European Protected Species in Scotland since 2019, but under certain circumstances landowners can apply to NatureScot for a lethal control license if beavers are causing significant damage, particularly to agriculture on PAL (Prime Agricultural Land) and in which no alternative mitigation is currently possible. In 2021, 84 beavers were killed under license, with a further 30 individuals translocated to projects. To help resolve both difficulties facing certain landowners and allow the Scottish beaver population to retain favourable conservation status and appropriate genetic diversity, the Scottish Government has clarified a strong determination to see more beavers translocated within Scotland to directly reduce current cull figures. The Scottish Government has also set ambitious and impressive climate change and biodiversity targets. Beavers have a scientifically recognised role as a keystone species and ecological engineer, because of this the RSPB strongly believes that beavers could play a vital part in addressing the climate and nature emergency and should be facilitated to expand their numbers and range throughout Scotland. Alternative solutions to lethal control are of significant public concern and should be sought to ensure healthy beaver populations. Beavers are already present within the Loch Lomond National Park over several years, and have been recorded on the Endrick Water in 2020 through natural dispersal. Therefore confirming this area will be naturally colonised in time. This application is predominately to facilitate NatureScot to deliver on Scotland's Beaver Strategy 2022-2045 by presenting a low conflict project within current range

What other options have been considered, and why have they been discounted (see Chapter 3)?

Beaver/s have previously occupied the Endrick Water immediately downstream of the Aber Burn within the last 2 years. This presence was widely reported on social media, including via the National Park and NatureScot. Beaver activity was monitored through field sign monitoring. No strong objection by local residents was expressed. Therefore there is a continued recognition by the RSPB that this reserve, regardless of proactive translocation, will become colonised naturally in time. The decision to be proactive instead of passive has been made to support the wider Scottish Government steer on beaver translocation as set out in Scotland's Beaver Strategy 2022-2045 which promotes an increase in the range of beavers in Scotland both by natural colonisation and assisted translocations. By presenting an ecologically suitable site, within current natural colonisation range which has also a low conflict and management requirement, the RSPB are providing a suitable site to translocate beavers that would otherwise be lethally controlled. The RSPB recognises this species as a valuable key stone species and welcomes the habitat modifications beavers could provide within this wetland fen habitat.

*The level of detail provided should be proportionate to the potential impacts of the translocation*

*Please expand text boxes or provide additional information as required, to enable a thorough and balanced evaluation of the translocation*

## 5. Population information

### 5.1. Donor population details (add additional pages for each donor population)

<b>Donor Population 1</b>
Population name Tayside and Forth beaver population
Population location (region, country) Tayside catchment
Grid reference / coordinates (including details of coordinate system, datum etc) Landowner locations are sensitive, any trap and removal would only take place under licence (169760) issued to Dr R Campbell-Palmer, Beaver Trust, working with permission from landowners issued with lethal control licences by NatureScot
Date(s) of removal ongoing 16 August 2022 - 15 March 2023

<b><i>If sampled from the wild</i></b>
Land owner name Confidential information. Beavers would be sourced from landowner sites engaging with the NS Beaver Mitigation Scheme where typically lethal control licences have been issued and have therefore agreed to trial trap and removal as alternative mitigation.
Licence holders are known to NS but further details remain sensitive and confidential.
Actual trap site would not be known until suitable beaver candidates have been trapped and deemed suitable for release.
All trapping is undertake with landowner permission under trapping and translocation licence issued by NS to Dr Roisin Campbell-Palmer, Beaver Trust.
Land owner contact details N/A
Land manager name (if different to above) N/A
Land manager contact details N/A
Land owner / manager permission granted? (including date permission granted) Landowner permission granted for beaver trap and removal under the NS Beaver Mitigation Scheme
Conservation protection afforded to the site (if yes, what type) None . Most likely PAL grade 1-3a
Population size of focal species
How population size was estimated (survey method, date(s) of estimate)

<b><i>If sampled from an ex situ collection</i></b>
Name of collection owner
Collection owner contact details
Name of collection
Population size of <i>original</i> donor population
How <i>original</i> population size was estimated (survey method, date(s) of estimate)
Population size of <i>ex situ</i> population
How <i>ex situ</i> population size was estimated (survey method, time of estimate)
<i>Ex situ</i> population consists of captive bred/reared individuals or is the original wild-collected stock?

Number of donor individuals to be removed /sampled One pair with any offspring < 2 years present. Min 2 adults, with 1-4 offspring most likely if present
Nature of donor material (e.g. eggs, seeds, larvae, adults etc) Adults and any young < 2 years
Donor selection method (e.g. random sampling vs selection for specific traits; number of mothers when progeny sampled; collection area etc) Dependent on conflict site where trap and removal has been permitted

Habitat type of donor population (e.g. Phase 1 habitat category, NVC or HIS) PAL
Intra-specific classification of donor population (e.g. sub-species / variety / ecotype / race) N/A

<p>Additional information about donor population relevant to the translocation The Tayside beaver population is recognised as a legitimate donor population, both genetically and locally adapted to Scottish environments. This population has been extensively sampled for health screening with no significant pathogens of concern. Additionally, there is a high translocation survival rate associated with individuals sourced from this population. It should be noted that only animals otherwise subject to lethal control would be sourced, therefore this translocation would play a small part to preserve genetic viability in a Scottish context. This donor population has been deemed suitable for numerous licensed beaver translocation project including Scottish Beaver (Knapdale); Argaty Beaver Project (Doune) and multiple enclosed beaver projects licensed by Natural England and Natural Resource Wales over several years. Data published by NatureScot has demonstrated that population numbers and expansion are not being reduced through lethal control/ trapping in these source areas.</p>
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5.2. *Release site details* (add additional pages for each release site)

<b>Release site 1</b>
Population name Aber Burn
Population location (region, country) Loch Lomond
Grid reference / coordinates (including details of coordinate system, datum etc)
Inside or outside of native range of translocated species or type? Inside
Inside or outside of natural range of translocated species or type? Inside
Date(s) of release Autumn 2022 to spring 2023

Land owner name RSPB Scotland
Land owner contact details Robert Coleman RSPB Loch Lomond, High Wards Farm, Gartocharn, Alexandria, West Dunbartonshire, G83 8SB
Land manager name (if different to above)
Land manager contact details
Land owner / manager permission granted? (including date permission granted) Applicant
Conservation protection afforded to the site (if yes, what type) Yes, the release site is located within the Endrick Mouth and Islands SSSI and the Loch Lomond NNR. The release site is in close proximity to the Loch Lomond SPA and the Loch Lomond Ramsar. A small part of the SAC (Endrick Water) overlaps with the RSPB Loch Lomond nature reserve and is around 700 m (as the crow flies) from the proposed release site.

Habitat type (e.g. Phase 1 habitat category, NVC or HIS, or general description) G2 running water, with adjacent habitat F1 swamp and A2 scrub (wet woodland)
Proximity and context to other populations of the focal species See map

Which donor populations are being released at this site? Tayside
Distance of donor population(s) to release site
Is the donor population in the same country as release site? Yes
Number of individuals to be released 2-6 according to family unit composition
Nature of released material (e.g. eggs, seeds, larvae, adults, sex ratios etc) Adults with any juveniles present / one family group
If multiple donor sources are used, what are the proportions of the mix?

<b><i>If an existing population is present at the release site (reinforcement)</i></b>
Population size of resident population
How population size was estimated (survey method, date(s) of estimate)
Reason for reinforcement Population augmentation, geneflow, animal welfare, following Scot Gov steer
Intra-specific classification of <i>resident</i> population (e.g. sub-species / variety / ecotype / race) N/A
Intra-specific classification of <i>donor</i> population(s) (e.g. sub-species / variety / ecotype / race) N/A

Release strategy summary (including details of <i>what</i> is released <i>where</i> )
All beavers will be live trapped and transported by the Beaver Trust according to established best practice protocols via experience gained in other translocations over several years. Following negative health screening results and being signed fit for release by a specialist wildlife vet. Each

individual will be microchipped enabling permanent identification. Beavers will be crated in specifically designed travel crates at Five Sister Zoo on morning of release. Each crate will be provisioned with a deep straw layer and apples for food and moisture. Crates will be covered with light sheets to keep animals calm and darkened, but ensuring good ventilation. On site beavers will be transferred to a quad for a journey of <10mins to the release point. A visual examination will be undertaken before animals are released. Each travel crate will be positioned in close proximity to the water line so that beavers can immediately seek the water. Beavers would be released simultaneously as a pair/ family unit. Only a small number of people will be present for the release (10 max) and will be positioned at a distance behind the travel crates. Noise and disturbance will be kept to a minimum. There will be no public access on the day of release. Signage and visitor engagement will discourage the public from walking along this burn especially for several weeks after release.

Release site preparation ahead of the release will include the felling of a selection of trees along the burn to form a series of shelter opportunities to encourage release site usage. It is also hoped these trees will allow water to be partially impounded to create a series of deeper pools again to increase release site fidelity. This work will be undertaken in the next two weeks to allow pools to mature before any beaver release. Several camera traps will also be placed in likely used areas ahead of the release to reduce disturbance - it is proposed these are baited with food items and used bedding from the beavers again as a monitoring and settling in tool.

Additional information about the release site relevant to the translocation

A feasibility assessment of the site was undertaken by Dr Roisin Campbell-Palmer and RSPB Scotland staff. This assessed the suitability of the site for habitat quality, potential benefits and conflict areas, release site locations and discussion of possible mitigation options that may present themselves in the future e.g. selective tree protection.

This site was found to be highly favourable and importantly highly likely for future beaver colonisation. There is suitable hydrology, with the Aber Burn area dominated by small channels suitable for beaver damming. Placing of trees within the channel which will occur in advance of the release should enable deeper pooled areas to develop further increasing the habitat suitability. Riparian areas have a mix of woodland, sedges, grasses and aquatic vegetation, this mix of vegetation is suitable to provide forage and building materials to support a breeding family of beavers year round. The banks of the Aber Burn are highly suitable for shelter and for canal construction.

Importantly the site has the capacity to allow beavers to expand and modify these habitats.

The full feasibility assessment can be found in Appendix 1.



## 6. Methodological summary

Outline the approaches that will be used in undertaking the translocation, including key relevant aspects of the species' biology and any specialist advice received. This should provide sufficient information to demonstrate that achieving the desired conservation outcome is feasible (see Chapter 6 for more details of relevant issues) Beavers would be trapped and transported according to existing best practice protocols and those approved in existing trap and relocation licensing attributed to Dr Roisin Campbell-Palmer.

Any beavers used in this project will be responsibly sourced and undergo any pre-agreed health screening in line with any statutory requirements, following procedures previously employed by similar beaver projects. The veterinary and animal care team at Five Sisters Zoo are highly experienced in beaver handling, captive care and have been undertaking beaver translocation work for a number of years in collaboration with RCP.

Particular attention will be given to the proximity of trapping locations in order to maximise the trapping of a complete family unit whilst minimising the risk of trapping potentially related neighbouring territories in order to ensure both good welfare and as far as possible increasing genetic diversity.

Release candidates will be temporarily held in purpose built beaver holding facilities at Five Sister Zoo to ensure that a family unit is maintained and enable veterinary assessment prior to release. Sample collection or any health screening requirements can be undertaken by the zoo's experienced veterinary and animal husbandry team. Any translocated beavers will be individually tagged for future identification and monitoring purposes before being transported to the release site. Single individuals could be released as and when they are trapped, a flexible approach, according to best animal welfare outcomes, on a case by case basis, is proposed.

Beavers would be transported to the release site in specific transport crates on the day of release. To try to increase release site fidelity, food and used bedding from the individuals being released will be placed at various points around the water's edge of the release pond. This does not guarantee successful retention but has worked well at other releases. All noise, movement and number of people present will be kept to a minimum with observation from a distance behind the crates. Animals will be allowed to exit crates in their own time and move around freely. Remote cameras will be placed around the release ponds in advance and baited feeding points maintained over the first few weeks to check for beaver presence. Any walking in and around each beaver pond will be prevented as far as possible for the first few weeks, apart from camera trap checks during the day, so as to allow beavers to settle, hopefully establish, and not flush them from the pond area.

Monitoring of the beavers post-release would involve routine checking for fresh field signs along the Aber Burn as well as deployment of several remote camera traps to cover the winter and spring period. All monitoring would be undertaken by RSPB Scotland staff and volunteers. Additional adhoc surveys will be carried out on site as part of regular reserve duties and open dialogue will be maintained with neighbours in the event that any beaver signs are reported off reserve.

Any dead beavers recovered could be sent for full post-mortem examination by an accredited pathologist as part of any wider monitoring study if deemed of interest. After recovery they would be kept cool until collection arranged. Standardised post-mortem procedures exist.

As identified in the feasibility assessment (Appendix 1.), as the beavers will not be enclosed, it is possible that even with the mitigation taken to make the Aber Burn as attractive as possible (establishment of pools and short-term feeding) the beavers may choose to leave the site soon after release and set up home elsewhere in the local area. If this occurs it will not be seen as a translocation failure and following three months of an absence of fresh field signs conversations will be held with NatureScot regarding the opportunity to extend the licence and source replacement animals for release.

Prior to release RSPB Scotland will install at least one remote water depth logger on the Aber Burn. This will issue a text message to the reserve team if the water level rises above a certain trigger level which will be determined taking into account normal water levels and the mAOD of neighbours areas of concerns. This will give the reserve team early notice of damming activity on the Aber Burn and enable them to rapidly assess the situation on site and determine if any mitigation measures, e.g. use of flow device or dam removal, are required to protect neighbouring property.

### How to fill in the benefits, legislation and risk sections

The following sections of the Translocation Project Form include tables summarising benefits, legislative considerations, biological risks and socioeconomic risks.

For the benefits table, indicate the types and levels of benefit.

For the tables of legislation/biological risk/socio-economic risk, delete and edit the pre-entered text to capture the relevant issues for your translocation. Use the Best Practice Guidelines to assist in this process.

Add additional rows as required if important issues for your translocation are not captured in the templates.

Where there is an appreciable benefit, legislative issue or risk (e.g. a response in the 'medium' or 'high' columns for any row in any table), use the text box below each table to expand on each individual issue:

- Benefits: explain the nature of the benefits
- Legislation
  - Where a species licence or a non-native species licence is required complete the additional *Species or Non-native species Licence Application Information*
  - List other permits/permissions required and obtained and the steps taken to ensure the translocation is legal
- Biological risks: outline the steps taken to mitigate against risks
- Socioeconomic risks: outline the steps taken to mitigate against problems

## 7. Benefits

### 7.1. Benefits Table (tick as appropriate) \*

Beneficiary	Benefit type	Level of benefit*		
		Low	Med.	High
<b>Focal Species</b>	<b><i>Reducing extinction risk and/or improving the conservation status of a species by:</i></b>			
	Increasing the number of individuals, improving population structure, and/or increasing the number of locations at which a species occurs	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Improving the genetic health and resilience of a population by directly introducing genetic diversity	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Establishing 'bridging populations', to facilitate migration and /or gene flow	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Establishing populations in areas where the species will experience reduced levels of threat (e.g. by moving organisms into more suitable 'climate space', disease-free areas, or localities with suitable management)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Habitat / Ecosystem</b>	<b><i>Improving the conservation status of an ecosystem, habitat and/or other species by:</i></b>			
	Increasing the overall species richness of a habitat to enhance its biodiversity value	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Increasing habitat quality (e.g. translocating species to change grazing regimes)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Improving ecosystem services and functions (e.g. translocating species to provide pollinator services)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>People</b>	<b><i>Additional socio-economic benefits that may arise as a result of conservation translocations through:</i></b>			
	Enriched human experiences and environmental awareness due to increased contact with biodiversity	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Increased benefits to humans from ecosystem services (e.g. pollination)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Increased income (e.g. revenue from ecotourism where the translocated species leads to increased visits or spend)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Low value benefits are those which make little appreciable difference to people or the conservation status of the species/habitats/ecosystems concerned. Medium value benefits are those which bring some gains, such as improving the local or regional conservation status of a species or habitat, or socioeconomic benefit to a small number of individuals. High value benefits are those which improve the national/international conservation status of a species or habitat, or bring appreciable socioeconomic benefits to communities or wider groups of society.

- 7.2. Details of benefits (expand on the 'medium' and 'high' benefits identified above) Conflicts exist in the Tayside region due to beavers activities (predominantly damming, burrowing and foraging) in prime agricultural land. Some landowners have been granted lethal control licenses to deal with these issues where no alternatives exist. Translocation within current range to empty territories provides a low-conflict solution to such issues. It will allow the beaver population to grow outside of prime agricultural areas and encourage population connectivity.
- 7.3. Any beavers used in this project will be responsibly sourced and undergo appropriate health screening in line with any statutory requirements, following procedures previously employed by similar beaver projects. Note: beavers can only be trapped and

translocated from Scotland under strict license conditions issued by NatureScot.

Particular attention will be given to the proximity of trapping location of these individuals to try to minimise capturing neighbouring territories. The aim of avoiding this is to increase genetic diversity as far as possible and avoid inbreeding.

- 7.4. Released beavers would be free to remain in the Aber Burn or colonise downstream areas as they see fit. As the species is already colonising the water course downstream, individuals dispersing from this site could readily augment other dispersing individuals representing natural beaver colonisation patterns.
- 7.5. Beavers are widely recognised as keystone species and ecosystem engineers. At RSPB Loch Lomond they are likely to benefit the wetland habitats by introducing a level of dynamism that is currently missing. This dynamism should lead to an increase in habitat heterogeneity which would be particularly beneficial in the currently Phalaris dominated fen, helping to slow or reverse succession and providing new niches for a range of key wetland species.
- 7.6. Should beavers remain on site there would be significant public engagement opportunities.

## 8. Legislation

8.1. Legislation table (delete/edit as applicable to present the legislation relevant to your translocation – see Chapter 5 for further details on legislative issues)

Degree of constraints (statutory and non-statutory) on:	Low	Medium (should involve consultation with SNH or other relevant body)	High (covered by formal legislation)
Translocated species			EPS, protection under the Wildlife & Countryside Act 1981 or equivalent All freshwater fish species
Release site (current)			Release site is (or is in proximity to) a SSSI, SAC, SPA, NNR, Ramsar site Release site contains protected species which may be affected by the translocation
Release site (post-release)	No change likely		
Source population site	No formal conservation protection - landowner permission should be sought		
Animal welfare		Handling and movement of vertebrates	
Quarantine/biosecurity	Local movements of species not covered by biosecurity legislation and not known to pose a biosecurity risk		
Dangerous species		Organisms that could potentially harm humans during the translocation process	

8.2. Species or Non-native Species Licences - Additional Information (see Chapter 5)  
*Only complete section 8.2. if a Species or Non-native Species licence is required*

When do you need a licence/licences for (start & end dates)? Oct 2022 - 30 <sup>th</sup> March 2023
Provide names, addresses and organisations (if applicable) of any additional persons you want to include on the licences (either as Agent or Assistant) Roisin Campbell-Palmer Beaver Trust, South Haugh Cottage, Pitlochry PH9 0NN
Provide your previous experience in carrying out species translocations or related activities (including details of any previous licences held in Scotland or the wider UK for similar work) Current licence holder
Please provide the contact details of a referee (Name, address, telephone number, email, plus licence numbers held by the referee if applicable) - only complete this if the applicant has not held a licence for similar work in the last five years Current licence holder

#### 8.2.1. Species licences

List the species for which a 'species licence' is required (e.g. focal species, and/or any other species that may be affected - see Chapter 5 for more details) Eurasian beaver Castor fiber
What activities require a species licence? (Capture, injure, kill, pick, uproot, take, disturb, possess, transport, etc.?) Possession, release
What other solutions have been considered and why have these been discounted (i.e. why can't you undertake the work in a way which does not require a licence)? The release of beavers currently requires a licence by NatureScot, an existing trapping and translocation licence issued to Roisin Campbell-Palmer would cover any trapping and transportation aspects for this project if permitted
What will the impact of the proposed translocation be on the conservation status of the population/species concerned? The translocation will improve the conservation status of beavers in Scotland as well as provide non-lethal mitigation options.

#### 8.2.2. Non-native species licences

Do you need a 'non-native species licence' for the species you wish to translocate (see Chapter 5 for more details)?
What alternative options have been considered and why have these been discounted (e.g. promoting natural recolonisation)? (give further details in Section 4)
<i>Summarise</i> any threats the translocated species poses to the release site and wider environment? (give further details in Section 8 and 9)
<i>Summarise</i> actions that will be taken to reduce the risk of the translocated species causing negative impacts, how any risks will be monitored and how remedial action will be implemented if any risk is realised? (give further details in Section 8, 9 and 11)

### 8.3. Legislation other than Species or Non-native Species Licences

Provide a summary of permits/permissions obtained, consultation undertaken, and the steps taken to ensure the translocation is legal. This should include details of any consents needed for protected places (see Chapter 5). A 10 week engagement process as part of this application was carried out which aimed to include all local neighbours, community councils, local stakeholders and the wider community. A full report of the engagement process can be found in Appendix 2. SSSI consent will be required for the release of animals to the NNR.

## 9. Biological risks

9.1. Biological risk table (delete/edit as applicable – see Chapter 7 for further details)

Risk attribute	No/Low risk: Self-certification	Medium risk: Advisory (should involve consultation with SNH or other relevant body)	High risk: Detailed evaluation (and specialist advice)
Distance of the translocation	Local movement (e.g. within local authority area), typically covering distances that are within dispersal potential for the species under 'ideal' habitat conditions		
Threat to the source population		Individuals are sourced from moderately sized populations of species of conservation importance, or from one of only very few remaining large populations	
Establishment following the translocation may cause loss/reduction of important habitat		May result in moderate changes in species composition (e.g. some small generalist herbivores)	
Establishment may cause loss/reduction of important species	Very unlikely (e.g. most bryophytes)		
Translocation may spread pests and diseases	No known significant problems (e.g. small cow-wheat)		
Hybridisation threat (intra-specific races or inter-specific)	No known problems (e.g. translocating individuals of a self-pollinating plant species which does not hybridise with other species of conservation concern)		
Species is likely to spread beyond the confines of the release site		Species has potential for effective spread beyond the release sites	
Potential for animal welfare concerns to released animals or those they interact with		Moderate concern (e.g. invertebrates) and/or general concerns associated with handling and movement	



9.2. Details of steps taken to mitigate any biological risks and an appraisal of whether it is 'safe to proceed'. Also detail any consultation undertaken and specialist advice received. Only animals that would otherwise be subject to lethal control would be sourced, donor sites have already therefore been assessed and licenced by NatureScot. Numerous years of healthscreening of Scottish beavers, including the DRA (Girling et al 2019) suggest beavers can carry native pathogens but are low risk in spreading these and any risk can be mitigated through established health screening practices.

Best practice trapping, handling, screening and transportation protocols, including specialised equipment via experienced personnel.

RSPB Ecologist Dr Heather McCallum and RSPB Principal Ecologist Dr Neil Cowie have carried out an assessment of the potential impacts of beavers on all designated features (SSSI/SPA/SAC/Ramsar) for the designated sites that overlap with the RSPB Loch Lomond nature reserve (Appendix 3). The risk to designated habitats and species were generally assessed as trivial to slight, with potential for more positive than negative effects, particularly for the hydromorphological mire range, where beaver activity should reduce the suitability of this area for *Phalaris arundinacea* and help to slow / reverse succession. Beaver activity may also create more opportunities for many of the species of the Vascular Plant assemblage which may currently be limited by a lack of management in some of the wetland areas. Herbivore impact assessments on key woodland habitats already occur and will be supplemented with monitoring of beaver coppicing to determine the impact of deer on regrowth, deer control will be implemented in response to monitoring as far as practicable.

Dr Heather McCallum also assessed the potential impacts of beavers on 140 notable species that have been recorded on the RSPB Loch Lomond nature reserve (Appendix 3). This assessment includes 66 nationally rare or scarce species, an additional 30 GB Red List Endangered, Vulnerable or Near Threatened species, with the remaining 44 notable species all included on the Scottish Biodiversity List (but not rare or scarce, or endangered, vulnerable or near threatened). Out of these 140 species none were evaluated as potentially experiencing only negative impacts of beavers, 15 were assessed as potentially experiencing negative or positive benefits, with a further 38 species potentially experiencing positive impacts, 64 species were considered unlikely to be impacted due to their location or ecological needs, with the final 23 species unable to be evaluated due to a lack of information on their ecological requirements. For the seven rare or scarce species which may experience negative or positive benefits, six (three flowering plants, one moss, one beetle and one fly) will be monitored directly or their habitat will be monitored to assess impacts. Any mitigation needs (e.g. dam management) will be determined based on the results of monitoring.

The RSPB Loch Lomond Site Team and additional members of the UK Ecology team were consulted on the assessments of designated features and notable species.

Beavers are anticipated to impact in a mainly positive way on the important conservation features of RSPB Loch Lomond and where potential negative impacts have been identified, appropriate monitoring will be used to evaluate the need for mitigation of any negative impacts.

## 10. Socioeconomic risks

10.1. Socioeconomic risk table (delete/edit as applicable – see Chapter 8 for further details)

Risk attribute	No/Low risk: Self-certification	Medium risk: Advisory (should involve consultation with SNH)	High risk: Detailed evaluation (and specialist advice)
Likelihood of strong social resistance by some to translocation		Some minor concerns (e.g. bats - concerns that roosts would impact on building permits)	
Harm to human health and well-being		Presents a minor risk to human health (e.g. stings, irritation) or rare occurrence of serious impact (e.g. bats and rabies)	
Harm to human livelihoods	Unlikely		
Insufficient resources may prevent successful implementation of the translocation plan		Translocation is expensive but well resourced	
Major financial costs once the translocation has been completed (e.g. control measures if the population has greater impacts than envisaged)		There is a concern that the translocation may have impacts which require ongoing management	

10.2. Details of steps taken to mitigate socioeconomic problems and an appraisal of whether it is 'safe to proceed' (including information on stakeholder consultation, specialist advice received, and

how any concerns have been addressed) The release site has been surveyed by Dr Roisin Campbell-Palmer and no significant risks have been identified. As this area is not designated as prime agricultural land (1-3a), and because beavers are already within range and highly likely to colonise naturally in time, this proposal should bring no additional socio-economic risks. Conversations with neighbouring landowners are ongoing and along with the public consultation have revealed some concerns around risk to flooding of properties and septic tanks. These have been ruled out given likely beaver behaviours, hydrology of the site and accessibility of any dam mitigation, though concerns on potential of septic tank drainage is taken as a measure for further engagement. Prior to release RSPB Scotland will install at least one remote water depth logger on the Aber Burn. This will issue a text message to the reserve team if the water level rises above a certain trigger level which will be determined taking into account normal water levels and the mAOD (meters above ordnance datum) of neighbours areas of concerns. This will give the reserve team early notice of damming activity on the Aber Burn and enable them to rapidly assess the situation on site and determine if any mitigation measures, e.g. use of flow device or dam removal, are required to protect neighbouring property. It should be noted that winter flooding in this area is a common feature of the ecosystem and that the likelihood of beavers raising water levels beyond what is typically tolerated is low, although currently winter flooding generally dissipates fairly rapidly whereas beaver activity could lead to more sustained raising of the water table. Other objections have been raised by local anglers and some local land managers voicing concerns about beaver reintroductions in general. These were addressed during the engagement period including some on-site visits. Beavers have colonised this catchment in low densities and so populations may require mitigation in the future regardless of any translocation work.

## 11. Monitoring and adaptive management (see Chapter 9)

Outline the type, frequency, and duration of planned monitoring As stated in Section 6 monitoring of post release animals along the Aber Burn will be carried out by RSPB Scotland staff and volunteers. Monitoring will involve the recording of field signs and animals through direct observation and camera traps. In addition to this adhoc monitoring for signs of beaver activity across the entire reserve will be carried out as part of day to day duties.

To monitor the beavers' effect on the local vegetation and fen habitats fixed point photography will be used to document the changes brought about by the beavers presence to the reserve.

As identified in section 9.2 a programme of monitoring for the assessment of any potential negative impacts of beavers on designated features on the reserve and seven notable species will be implemented, this will enable any mitigation requirements for the conservation interests of the site to be identified.

As identified in sections 6 and 10.2 remote water level monitoring will be installed pre beaver release, this will trigger any early warning to allow site staff to check the situation on the ground and assess the need for management of dams to protect neighbouring infrastructure.

Outline the arrangements for ongoing management, including an appraisal of the feasibility of reversing the translocation should unacceptable outcomes occur A process of open dialogue with immediate neighbours has been initiated. Advice on mitigation options can be provided through ongoing communication and on a case by case basis but immediate conflicts are not expected given land ownership in association with the release pond areas. It is noted that beaver already exist at several points within the Loch Lomond catchment and so conflicts in the wider area are always a possibility and would be feasible for assistance under the NatureScot beaver mitigation scheme. Though the project would be happy to engage and assist in any mitigation requirements for immediate neighbours such as tree protection, water monitors and flow device installation in collaboration with Roisin Campbell-Palmer. Taking into consideration dialogue with neighbours and advice from RCP, water monitors will be installed onsite prior to any translocation.

Will biological specimens (e.g. DNA samples, museum specimens) be collected during the translocation and monitoring? Health screening occurs, as per current protocol for translocations according to NatureScot requirements. Blood, faecal and hair samples are stored by Romain Pizzi and Roisin Campbell-Palmer for potential future retrospective disease screening and genetic analysis

If so, describe the nature of the specimens 1-2ml whole blood in EDTA, faecal matter and hair all frozen at at least -20

Where will they be housed? (institution and contact person) Five Sisters Zoo, Romain Pizzi and Roisin Campbell-Palmer

## 12. Communication plan (see Chapter 9)

Outline the plan for communicating the process and outcomes of the translocation (including steps to inform future translocations, stakeholder communication, and public engagement) During the consultation and preparation of the licence application, communications focused specifically on the local communities that live, work and visit the Loch Lomond National Nature Reserve as these were the priority groups to seek views from during the engagement process.

Once the application is submitted, communications will be extended to include more national audiences through social media, videos and other digital media, press releases and visits. This will also include interpretation at the RSPB Loch Lomond nature reserve, though the scale and nature of this will be dependent on the beavers' behaviour following release.

Alongside this we will continue to keep neighbours, local communities including community councils and stakeholders informed of progress and any updates through emails, posting on community social media etc. We will also provide feedback and any lessons learned to anyone looking at future translocations as and when requested.

## 13. Data confidentiality (delete/edit as applicable)

I give my permission for the information in this form to be included in the Scottish Translocation Database ☒

I give my permission for the information in this form to be included in the Scottish Translocation Database with the following exceptions: specify ☒

*Note that personal information and geographically sensitive information will not be made public*

#### 14. Declaration

- I declare that this translocation will be undertaken in accord with the [Scottish Code for Conservation Translocations](#) and associated [Best Practice Guidelines](#).

- For translocations which require SNH to grant a Species and/or Non-native species licence, I agree to the terms of the licence application:
  - *Applicants should note that it is an offence under Section 17 of the Wildlife and Countryside Act 1981 and under Regulation 46 of the Conservation (Natural Habitats &c) Regulations 1994 to knowingly or recklessly provide false information in order to obtain a licence.*
  - *I understand that failure to comply with any conditions included on any licence granted in respect of this application may constitute an offence.*
  - *I declare that the particulars given in this application and any accompanying documents are true and accurate to the best of my knowledge and belief, and I apply for a licence in accordance with these particulars.*
  - *If a licence is granted, I agree to send to SNH a written report of the licensed activities within one month of the expiry of the licence.*

Signed Robert Coleman

Date 7 October 2022



# RSPB Aber Burn, Loch Lomond Beaver Feasibility



Dr Roisin Campbell-Palmer & Dr Alan Puttock  
June 2022



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## Executive Summary

- Scope of this report was to assess the Aber Burn as a potential release site for one pair/ family unit of Eurasian beavers on behalf of RSPB, following a clear steer from Scot Gov for alternative mitigation to lethal control within Scotland under licence from NatureScot.
- Loch Lomond catchment is within natural dispersal range from known populations on the Tayside and Forth catchments, and have already been recorded on the River Endrick and main Loch Lomond.
- Any application for beaver release would be via the Scottish Translocation Code, though which a thorough assessment is undertaken by NatureScot. This document assesses the ecological feasibility of the Aber Burn as a release site to assist RSPB in undertaking this application.
- Beaver modelling tools, habitat suitability (typical foraging range 20-30m from water but up to a maximum of 100m including) and dam capacity (likelihood of beavers physically damming a water course and dam number range at population carrying capacity), were ground truthed with sites visits looking at vegetation (type and cover), hydrology, connectivity and bank structure, along with potential for likely conflicts and any pre-release management.
- Aber Burn area has sporadic woodland and diverse vegetation availability, modelling suggests the majority of the reaches within the bog (78 %) contain access to highly suitable habitat that would support beaver residence. Suitable year-round vegetation to support a breeding family was confirmed through site visit.
- Aber Burn area is dominated by small channels with a high dam capacity (ca 85 % of length having a pervasive or frequent classification). Therefore, damming activity is likely in this area and banks are highly suitable for shelter and canal construction. Note damming of the River Endrick is not possible given width and winter flooding events.
- As for any translocation beavers may leave the Aber Burn, therefore release considerations include creating temporary areas of deeper water along the burn through felling trees into the water course and leaving piles of brash by the shoreline to provide immediate shelter. Given proximity to the lower River Endrick with highly suitable banks, deeper water and depth of willow, it seems this area is the most likely to be colonised should beavers relocate.
- Potential future mitigation may include proactive protection of trees in close proximity to boardwalks, tracks or private gardens within likely foraging range. Damming in very upper section of Aber Burn immediately downstream of private residents with septic tanks may require additional proactive mitigation, including water level monitors, to determine if dam mitigation required.
- Aber Burn would constitute a highly suitable release site with low conflict. It is also surrounded by highly suitable habitat immediately downstream and throughout the wider catchment. Note beavers are highly likely to naturally colonise the Loch Lomond catchment further in time without any beaver releases.

## Project Overview

This document has been prepared to support an application by RSPB Scotland to NatureScot, for the Aber bog to act as a release site for beavers translocated from conflict sites elsewhere in Scotland. If permitted, this project aims to achieve multiple goals including environmental benefits and to encourage the local community to engage with nature. The principal goals include;

- Act as a receptor site to provide alternative mitigation to lethal control.
- Demonstrate the importance of beaver activities in creating sustainable landscapes which deliver ecological services including water storage, reducing flood events, improving water quality and retain silt discharges.
- Encourage the wider restoration and distribution of this native species.
- Biodiversity enhancement through the creation of a broad range of onsite habitats ranging from dam or pool complexes; the provision of more standing, fallen and submerged dead wood environments.
- Public engagement of local communities with nature, biodiversity and nature-based solutions/ ecosystem services.

Two site surveys were undertaken on the 25<sup>th</sup> of April and the 26<sup>th</sup> of August 2022 by Dr Roisin Campbell-Palmer. A previous survey of the lower Endrick Water was also undertaken with RSPB Scotland and NatureScot to survey previous beaver activity on the 6<sup>th</sup> of May 2021. Site surveys have been further supported with the mapping of habitat suitability and modelling of potential beaver dam capacity.

## Site Background

The Aber burn is included as part of the Loch Lomond National Nature Reserve (NNR) situated in the southeast section of Loch Lomond and managed by RSPB Scotland. This area was formerly farmed, with some woodland production, now it largely consists of mixed wet woodland, wetlands and grassland. The Endrick Mouth and Island is a Site of Special Scientific Interest (SSSI). Numerous species and habitats in the NNR are protected or managed for conservation purposes including multiple bird species, otter (*Lutra lutra*), Brook and River lamprey (*Lampetra planeri*, *L. fluviatilis*), Atlantic salmon (*Salmo salar*), Pipistrelle bat species (*Pipistrella pipistrellus*, *P. pygmaeus*), brown hare (*Lepus europaeus*) and water vole (*Arvicola terrestris*); Atlantic oakwoods, vascular plant assemblage, basin fen, and wet woodland.

The Aber Burn is part of the River Endrick floodplain, connecting directly before the river drains into Loch Lomond. Site management includes previous scrub removal, predominantly willow, and some small-scale vegetation management but with an ambition to re-introduce grazing animals to the area. Beaver presence has been previously recorded in the lower River Endrick, and presumed to be at least one dispersing individual from lower River Forth breeding populations. Hence the general Lomond area is within the Tayside population dispersal range and hence will be naturally colonised in time even without any proactive translocation efforts. No fresh beaver activity has been observed for at least a year, making it likely that this was a dispersing individual that has since moved on. Survey data from 2020/21 of the nearest known beaver population is given below (Campbell-Palmer et al., 2021).

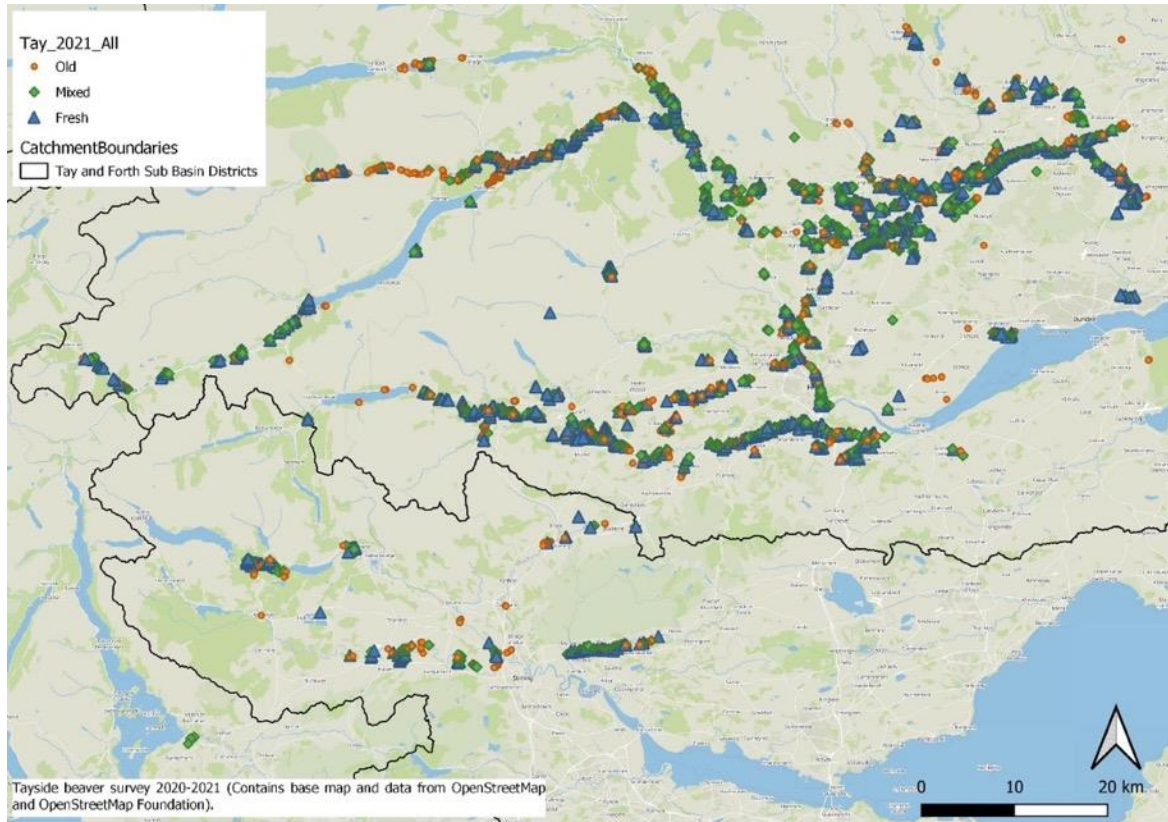
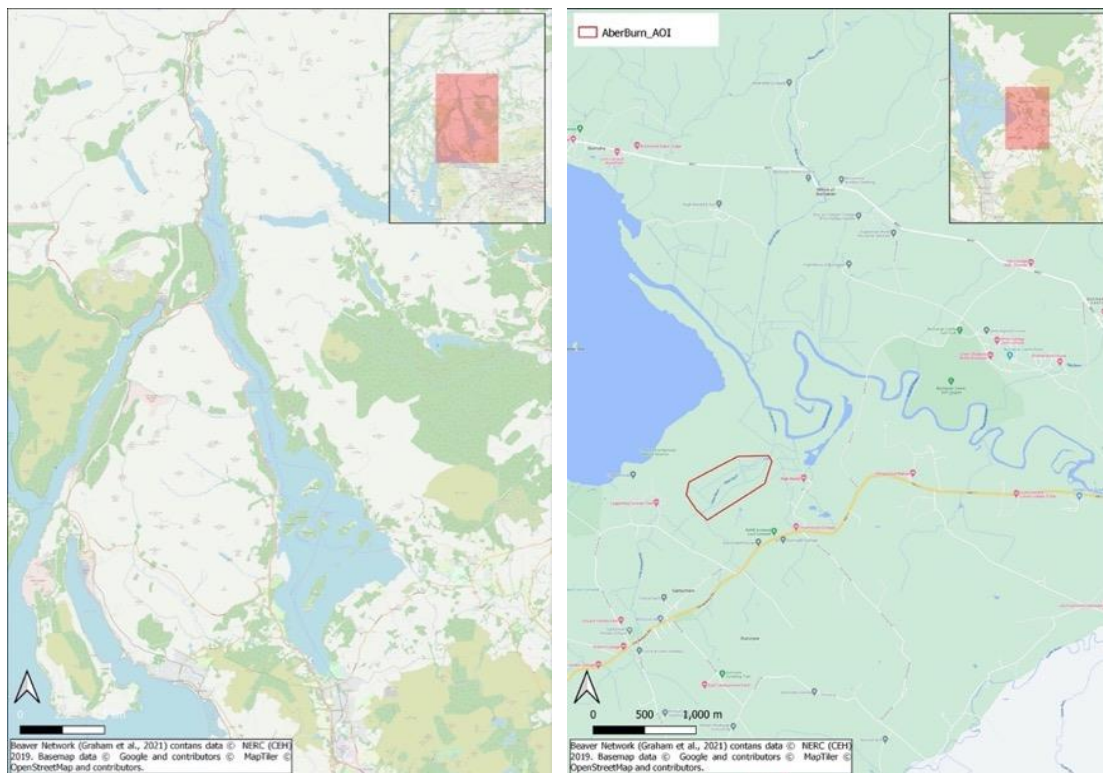


Figure 1. Tayside and Forth catchment beaver survey findings. Age of all confirmed beaver signs. Note key does not reflect sign density. RSPB and NatureScot recorded beaver foraging signs in 2020 but no evidence of a breeding territory. A survey undertaken by RCP and Paula Baker in May 2021 found no fresh field signs. No further beaver reports have occurred since.



Figures 2 and 2. Loch Lomond overview map (left). Aber Burn and Endrick Water at southern end of Loch Lomond. Please note area of interest boundary in red is an approximation of Aber Bog extent (right).





Figure 3. Aber Burn area of interest. Please note area of interest boundary in red is an approximation of Aber Bog extent.

## Site Assessment Methods

This feasibility work seeks to demonstrate the suitability of this area to act as a beaver release site along with some of the impacts and natural processes they could generate. These were assessed and documented using a combination of ground survey, experience, and knowledge along with the deployment of models developed at the University of Exeter to determine habitat suitability and beaver dam capacity.

Based on experience and knowledge of beaver ecology, a visual assessment of various key features including vegetation coverage, diversity and regenerative ability to determine long-term food resources, water permanence, extent and connectivity, capacity for wetland extension, bank structure and capacity to form shelter, and likely human-wildlife conflicts were ground truthed by Dr Roisin Campbell-Palmer.

Mapping and modelling work draws upon existing high-resolution datasets which describe:

- Habitat Suitability Modelling (with a focus on water and vegetation availability)
- Dam Capacity Modelling
- Site designations

These datasets were mapped within a GIS framework and presented as output figures to visualise and compare the variability of existing hydro-geomorphological habitat.

The habitat suitability for any future beaver colonisation across the whole site was quantified using a Beaver Habitat Index (BHI) model developed by the team (Graham et al., 2020). BHI modelling details where vegetation availability creates suitable beaver habitat as determined via food and building resources within 100m of a waterbody. The BHI model not only provides a useful tool for designing effective, empirically based, restoration strategies but it also indicates where beaver presence might cause potential management conflict issues.

Additionally, Beaver Dam Capacity (BDC) modelling estimates the capacity of river systems to support dams at the reach-scale (c.a. 150m). The model also highlights reaches that are more likely to be dammed by beavers and estimates the number of beaver dams that could occur for a catchment at population carrying capacity. As such, this highly detailed tool would provide understanding of where dams are most likely to occur and in what densities, supporting future work on the conflicts and opportunities that might accrue from beaver presence. BDC outputs are extremely useful for informing management at catchment-scales in the long-term. Outputs will be provided as high resolution pdfs for the study area and incorporated into reporting.

## Field Site Assessments

Methods for identifying the suitability and key habitat characteristics for beavers have been widely studied and published (including Allen 1983; Bergman et al., 2018; Dittbrenner et al., 2018; Halley et al., 2009; Hood, 2020; Macdonald et al., 1997). The main features to consider in any site assessment for beavers are:

- The initial composition and structure of the vegetation within ~30 m of the water's edge
- The distribution and abundance of palatable riparian trees
- The character of the riparian edge habitat

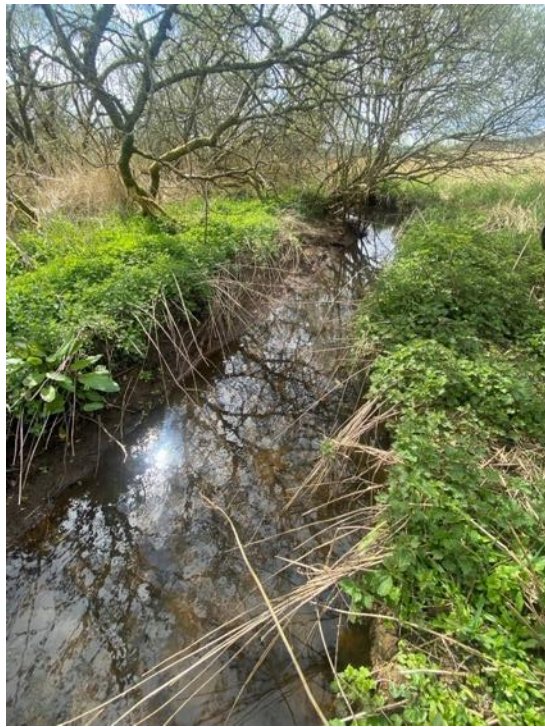


- The hydrology of the water bodies available to the beavers, including flow speeds, level stability and shoreline features
- Water management and where beavers may cause conflict i.e. flood banks/low-lying farmland/agricultural drainage
- Topography – gradient of land, substrate type, valley shape
- Associated land-use – disturbance and land-management practices, infrastructure, water use



*Figures 4. Upper end of Aber Burn looking downstream, this section directly associated with wet woodland (southern shoreline) and wet meadow (northern shoreline) with some associated burns throughout. All highly dammable throughout, with easy access to diverse forage and banks that could readily hold burrow and lodge shelters.*





*Figures 5 and 6. Typical habitat along the upper Aber Burn, lined by wet woodland.*



*Figure 7. The northern shoreline of the Aber Burn is predominantly wet meadow, into grassland and fen habitat. It would be highly likely, along with dam building, that in time beavers extend a series of canals into this wet meadow to increase forage area but also in association with impounded water, extend wetland areas. Substrate is readily diggable.*





*Figures 8 and 9. Typical upper sections of Aber Burn and associated wet woodland, banks have deeper sections that could support burrows and lodge construction. Damming and canal building in such areas would also serve to re-wet areas and push water out laterally, significantly increasing wetland areas. Additionally, damming and felled trees in this water course would increase stream complexity and re-meander this water course.*



*Figure 10. Sections of the burn in which trees are already falling into could readily be felled into/ over the water course to act as foundations of beaver dam analogues and brash piles for shelter on release without putting significant structures into the water course to encourage damming. This is recommended to provide beavers with shelter and deeper areas of water with the aim to encourage release site fidelity. Note this should be viewed as a settling in tool, would not be permanent structures or need to be continually provisioned.*





*Figures 11 and 12. More open sections of the burn between patches of woodland would act as suitable foraging areas especially in the summer but would also be readily dammable. Again, the presence of fallen trees and tree stumps could act as starter foundations to encourage damming and /or where RSPB staff could add additional material to create areas of deeper water ahead of any releases.*



*Figure 13. Associated side ditches to the Aber Burn have diverse forage, readily dammable but also provide access to fringing woodland. In time beaver activity would increase wetland coverage in these areas.*

## Beaver Suitability Mapping

Mapping of beaver habitat (beaver habitat index, BHI) and capacity for beavers to dam the current river network (beaver dam capacity, BDC) is presented. Model outputs can be used to inform surveys and subsequent recommendations and are included below for key areas of interest. Maps were prepared by Dr Alan Puttock for Dr Róisín Campbell-Palmer to support the wider beaver feasibility work being considered in the Loch Lomond area.

## Beaver Habitat Suitability Modelling

The habitat suitability of the area was assessed using beaver modelling tools developed by researchers at the University of Exeter (Graham et al., 2020).

### Summary Description

Involves production of a continuous description of habitat suitability for beaver. First a vegetation suitability index is created using multiple high-resolution spatial datasets combined to provide detailed land cover/vegetation information which is classified based on empirical field observation of beaver habitat and preference. Vegetation suitability (scored from unsuitable to highly suitable) is combined with additional parameters describing stream networks and water bodies. Whilst beaver habitat suitability is primarily defined by vegetation suitability, beavers also require water for security and movement. Therefore, accessibility to water bodies (i.e., channels, ponds, and lakes) will also determine the viability of beaver occupancy and therefore are required to classify habitat accurately. For this model 100 m was taken as the maximum likely distance from water that beavers will utilise. Full details of the model and its development can be found in Graham et al., 2020.

### Outputs

This product provides a high-resolution (5m cell size) resource for describing habitat suitability for beaver. This dataset can allow the user to explore which landscapes were most (or least) suited to beaver reintroduction and also to understand where habitat enhancement might be useful to support future reintroduction.

## Beaver Habitat Index (BHI) Model Summary

Vegetation is important for classifying beaver habitat (Hartman, 1996; John et al., 2010; Pinto et al., 2009; St-Pierre et al., 2017). It was therefore critical to establish a reliable Beaver Vegetation Index (BVI) using nationally available spatial datasets. No single dataset contained the detail required to depict all key vegetation types. Therefore, a composite dataset for such modelling work has been created from The Centre for Ecology and Hydrology (CEH) 2019 land cover map (LCM) (Morton et al., 2020). This provides landcover classification at a resolution of 20m, derived from Sentinel 2 data using a random forest method. This dataset has been updated from the 2015 landcover map, used in previous modelling work (Graham et al., 2020). Copernicus 2018 10 m tree cover density (TCD) (Copernicus, 2020) provides a percent tree cover density estimate which is derived from sentinel 2A + B satellite imagery using a random forest classification system. This dataset has been updated from the Copernicus TCD 2015, used in prior modelling work. Additionally, The National Forest Inventory (NFI) Woodland Map (Forestry Commission, 2019) which includes woodland areas with an area > 0.5 ha and a minimum width > 20m. It is a partially derived from digitised Ordnance Survey (OS) MasterMap data but also includes additional woodland areas identified from other remotely sensed data sources. The

(OS) VectorMap District (Ordnance Survey, 2021) is a digitised spatial vector product, from which we extract the surface water areas, which include larger river channels (c.a. >4 m wide) and still water bodies. This dataset and the NFI replaces the OS VectorMap Local data (Ordnance Survey, 2018b) used in Graham et al., (2020).

Vegetation datasets were assigned suitability values (zero to five). Zero values were assigned to areas of no vegetation i.e., buildings, and values of five were assigned to favourable habitat i.e., deciduous woodland. Values were assigned based on a review of relevant literature (Haarberg & Rosell, 2006; Jenkins, 1979; Nolet et al., 1994; O’Connell et al., 2008), field observation and comparison with satellite imagery. Vector data were converted to raster format (resolution of 5 m). TCD data were resampled to 5m and aligned with converted vector layers. An inference system was used to combine these four raster datasets to create a vegetation index. The workflow prioritises the reliability followed by the highest value data.

Examples of highly suitable land (graded 5) include broad-leaf woodland, mixed woodland and shrub; examples of suitable vegetation (graded 4) include shrub and marsh; examples of moderately suitable (graded 3) include coniferous woodland, marsh, shrub and unimproved grassland; examples of barely suitable (graded 2) include reeds, shrub and heathland and boulders, neutral grassland; examples of unsuitable (graded 1) include heather, acid grassland, unimproved grass and boulders, bog; examples of no accessible vegetation (graded 0) include shingle and sand, buildings, rock, urban, freshwater and saltwater.

Whilst vegetation is a dominant factor in determining habitat suitability for beaver, so is proximity to a water body (Gurnell et al., 2008), with beavers being strong swimmers, using water bodies both to provide security, as a means of escaping predators and to access foraging areas. It is thought that most foraging occurs 10 m of a watercourse/body (Haarberg & Rosell, 2006), and rarely above 50 m (Stringer et al 2018). However, greater foraging distances have on occasion been observed and as in Macfarlane et al., 2015, 100m has been accepted as a maximum distance in which the vast majority of foraging occurs. Therefore, to determine suitable habitat for beaver incorporating both BVI vegetation suitability and water accessibility a 100m buffer was applied to water bodies as a maximum possible impact of beaver area. To do this the OS mastermap river network and OS vector in land water bodies were combined to get the best readily available national waterbody and water course coverage.

BHI use a scoring system of zero to five (Table 1). Scores of five represent vegetation that is highly suitable or preferred by beavers and that also lies within 100 m of a waterbody. Zero scores are given to areas that contain no vegetation or are greater than 100 m from a waterbody. It is important to note that the habitat model considers terrestrial habitat where foraging primarily occurs and that watercourses themselves are also scored zero. It is also important to note that all scores above 1 contain suitable vegetation.

Table 1. BHI value definitions. It is critical to note that all values above 1 are suitable for beaver.

BHI Values	Definition
0	Not suitable (no accessible vegetation)
1	Not suitable (unsuitable vegetation)
2	Barely Suitable
3	Moderately Suitable
4	Suitable
5	Highly Suitable

### Beaver Dam Capacity (BDC) Model Summary

The Beaver Dam Capacity (BDC) model estimates the capacity of river systems to support dams at the reach-scale (c.a. 150m). The model also highlights reaches that are more likely to be dammed by beaver and estimates the number of beaver dams that could occur for a catchment assuming population carrying capacity. As such, this highly detailed tool would provide understanding of where dams are most likely to occur and in what densities, supporting future work on the conflicts and opportunities that might accrue from beaver reintroduction. Full details of the BDC model and its development can be found in Graham et al., 2020.

The Beaver restoration assessment tool (BRAT) was developed in North America (Macfarlane et al., 2014, 2015) to determine the capacity for river systems to support Beaver dams. The BRAT model has been further deployed in a range of different river systems to aid both Beaver recolonisation and beaver dam analogue led restoration. The BRAT model not only provides an invaluable tool for designing effective, empirically based, restoration strategies but it also indicates where Beaver dams might be constructed and therefore where they may cause potential management/conflict issues. The BRAT model structures the framework of the model around the river network itself and using a fuzzy logic approach which builds in the considerable uncertainty that is associated with beaver habitat/damnable reaches. Furthermore, it provides a range of output values to predict the dam capacity which has implications for beaver preference towards a given location.

We have therefore used the BRAT framework to develop an optimised beaver dam capacity (BDC) model for Great Britain; and although many of the datasets used are specific to GB, these could readily be adapted to enable its use globally. The model infers the density of dams that can be supported by stream reaches ( $111.1\text{m} \pm 52.5$ ) across a catchment. Using low-cost and open-source datasets, the following attributes are calculated for each reach: (i) stream gradient, (ii) low (Q80) and high flow (Q2) stream power, (iii) bankfull width, (iv) stream order, and (v) the suitability of vegetation, within 10m and 40m of the bank, for beaver dam construction. These controlling variables are combined using a sequence of inference and fuzzy inference systems which follow an expert-defined rules system that allows for the considerable uncertainty often associated with these types of complex ecological processes.



Each reach was classified for damming capacity using five categories from none, defined as no capacity for damming to pervasive where a maximum capacity of 16-40 dams could theoretically be constructed in a km of channel. It is important to note that the model assumes both reach and catchment population carrying capacity for beaver. Therefore, in reality the maximum number of dams indicated in a category class is unlikely to occur. A full list of BDC classifications is included in Table 2.

*Table 2. BDC classifications and definitions.*

BDC Classification	Definition
None	No capacity for damming
Rare	Max capacity for 0-1 dams/km
Occasional	Max capacity for 1-4 dams/km
Frequent	Max capacity for 5-15 dams/km
Pervasive	Max capacity for 16-40 dams/km

### Beaver Habitat Summary

Figures 14-15 give an overview of modelled Beaver Habitat for the key Aber Burn area of interest before giving an overview of the wider landscape for context Table 3 provides summary statistics for the riparian habitat bordering the channel network in the core area of interest. As can be seen from Figure 4, modelling suggests the entire loch riparian zone scores highly for accessible riparian vegetation and ground truthing/satellite imagery confirms the presence around the loch of extensive woody vegetation suggesting there is plentiful habitat for wild living beavers in Loch Lomond. The Endrick Water flows into the eastern end of Loch Lomond and as can be seen from Figure 5, contains extensive areas of high quality beaver habitat. Within this area, the Aber Burn drains Aber Bog within the Loch Lomond National Nature Reserve. In the Aber Burn area as illustrated in Figure 6, vegetation availability, particularly woody vegetation is sporadic, however modelling suggests the majority of the reaches within the bog (78 %) contain access to highly suitable habitat that would support beaver residence.

*Table 3. Beaver Habitat Index summary statistics for length of channel bordered by each habitat class*

Site	Beaver Habitat Class	Channel Length (km)	%
Aber Burn	Moderate	0.39	12.18
	Suitable	0.32	10.07
	Highly Suitable	2.49	77.75

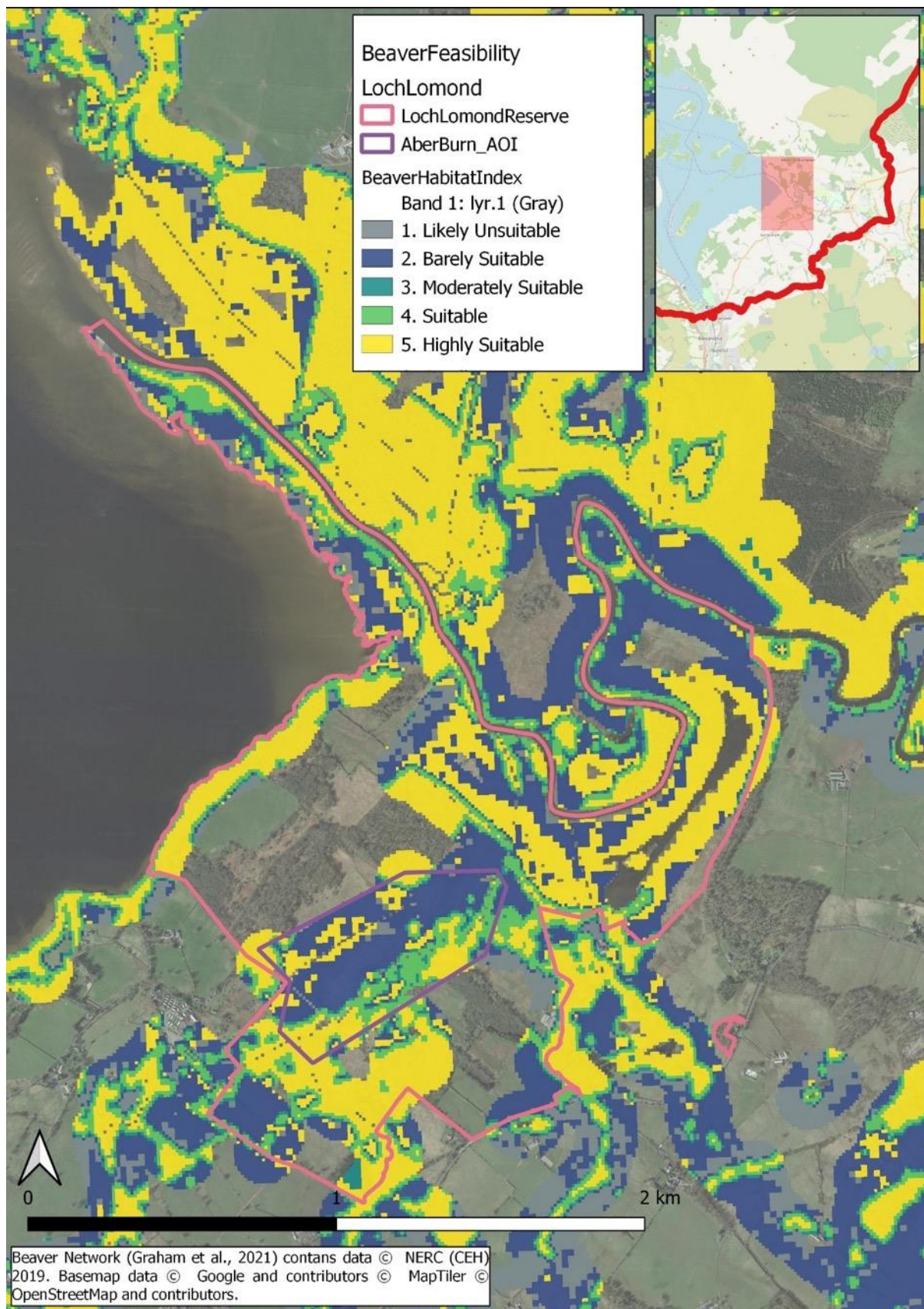


Figure 14. Aber Burn BHI. Please note area of interest boundary in purple is an approximation of Aber Bog extent which was the key area of interest whilst the reserve boundary is shown in pink. Contains data derived from Ordnance Survey data © Crown Copyright 2007. Some features derived from digital spatial data licensed from the Centre for Ecology and Hydrology © NERC (CEH).



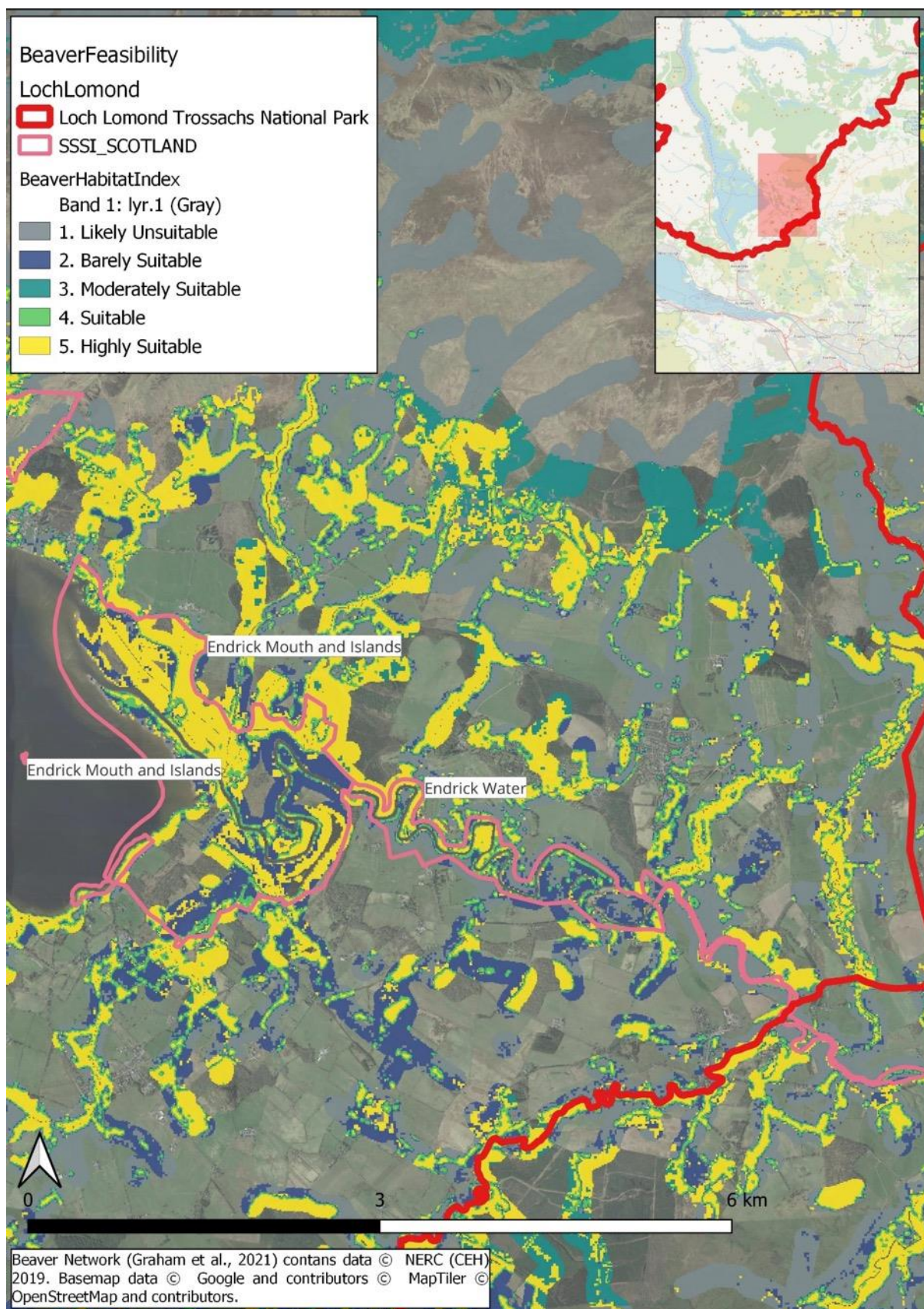


Figure 14. BHI for Endrick Water area of Loch Lomond. Contains data derived from Ordnance Survey data © Crown Copyright 2007. Some features derived from digital spatial data licensed from the Centre for Ecology and Hydrology © NERC (CEH).



## Beaver Dam Capacity Summary

Figure 16 gives an overview of modelled dam capacity and as with habitat modelling, this is presented for the core Aber Burn area of interest and the Endrick Water area at the eastern end of the loch is also presented for context. For the wider loch area, as would be expected, the loch itself is far too big to support damming and dam capacity is also typically limited in the contributing uplands, which as with most areas in Britain is limited by a lack of vegetation and also the steep, flashy nature of the channels (i.e see report: Stirling Council, 2009, [https://www.stirling.gov.uk/media/4338/\\_final\\_endrick\\_report\\_-2009.pdf](https://www.stirling.gov.uk/media/4338/_final_endrick_report_-2009.pdf)). In contrast the less steep and well vegetated channels bordering the loch have a much higher dam capacity. To the east of the loch the main Endrick Water channel is too large to be dammed for much of its length (a sixth order stream where it enters the loch), but the smaller contributing stream network exhibits a higher dam capacity, particularly in the agricultural, wooded and wetland lowland areas of the catchment. As an example of this the Aber Burn area is dominated by small channels with a high dam capacity (ca 85 % of length having a pervasive or frequent classification).

*Table 4. Beaver Dam Capacity summary statistics*

Site	BDC Capacity	Channel Length (km)	%
Aber Burn AOI	None	0.1	2.8
	Occasional	0.4	12.2
	Frequent	0.6	17.6
	Pervasive	2.2	67.4



Figure 16. BDC for Aber Burn AOI. Contains Ordnance Survey data © Crown Copyright 2007. Some features derived from digital spatial data licensed from the Centre for Ecology and Hydrology © NERC (CEH).

## Caveats for Model Use

### Use of Beaver Habitat Index (BHI)

BHI provides a resource for quantifying beaver forage suitability with national coverage. A high (10 m) spatial resolution can inform detailed local decision making. Examples of BHI presented in the results section overlaid on satellite imagery reflect its ability to provide a useful classification of beaver habitat, based upon a vegetation suitability ranking and access to water (including both river network and waterbodies such as ponds and lakes). However, it is critical to note that BHI is a model rather than an absolute reflection of reality and the below caveats should be considered when using the BHI model outputs.

- Remote sensing/mapping vegetation/landuse datasets are not to species level. However, beavers are generalists; foraging and utilising a wide range of vegetation so these more generalised datasets are appropriate. However, if more detailed information is required (i.e. protected plant species) supplementary local studies and data sets may prove beneficial.
- Each dataset is essentially a snapshot in time. Areas of vegetation removal or land use change may degrade vegetation suitability whilst conversely replanting and conservation schemes may improve vegetation suitability. However, a combination of datasets and methodology for ranking vegetation suitability minimise the risk of areas of suitable/unsuitable vegetation being missed currently.
- Some small channels i.e. agricultural ditches and ponds may be missing or outdated in the dataset meaning beavers could access or exist in such areas but not be correctly classified by BHI model as falling within 100m of a water body.
- Most literature cites 50 m as maximum foraging range of beaver (i.e. Stringer et al., 2018) however, to incorporate uncertainty, site development (i.e. beavers damming or canal building allowing them to extend their foraging range) and due to reports of further foraging we have adopted 100 m as shown by Macfarlane et al. (2017). There are extreme reports of beavers moving up to 250m from channel (Macfarlane et al., 2015) but this is thought to be incredibly rare and not applicable to a general widely deployed habitat model.
- BHI focused on vegetation suitability and distance to channel/waterbody as a computationally efficient model that can be deployed nationally. However, other local factors that will restrict access to water/vegetation particularly human infrastructure culverted/constrained sections walls/fences may locally limit beaver habitat suitability.
- Due to the above considerations, it is always recommended that if making important and detailed decisions at the local scale, supplementary site visits are undertaken. For this report only the Aber Burn area was surveyed in detail as per project scope.

## Use of Beaver Dam Capacity (BDC)

The BDC model estimates the capacity of river systems to support dams at the reach-scale (c.a. 110m). The model also highlights reaches that are more likely to be dammed by beaver and estimates the number of beaver dams that could occur for a catchment at population carrying capacity. As such, this highly detailed tool would provide understanding of where dams are most likely to occur and in what densities, supporting future work on the conflicts and opportunities that might accrue from beaver reintroduction. However, as with BHI, it is important to remember BDC is a model and for all critical decisions, particularly at the local scale, understanding from modelling results should be supplemented by site visits. The following caveats in-particular should be considered for interpretation of BDC results:

- BDC is heavily dependent on the input channel network. In some areas, flow pathways can be complex and not always accurately represented by even detailed river network mapping. This is particularly the case in heavily modified urban environments.
- BDC modelling is a snapshot in time and will not reflect any subsequent alterations to channel networks.
- Flow conditions display a high degree of temporal variability, short term fluctuations due to rainfall events patterns and seasonal trends will alter the suitability of a channel for damming.
- A channel classed as having a rare capacity for damming, might see this capacity increase during drought periods, but conversely reduce to none during the wet/winter season.
- BDC does not consider the exact spatial distribution or configuration of dams, which is also likely to be heavily dependent on beaver population dynamics.
- BDC reflects the capacity of a given reach to support beaver dams (assuming catchment is at beaver population carrying capacity) rather than the actual number of dams that are likely to occur. In isolation, BDC cannot predict the likely number of dams in a catchment.

## Release Considerations

The proposed site would act as a suitable site for the release of a pair or family unit (a pair with any dependent offspring). Given that the Aber Burn connects directly to the River Endrick it is entirely feasible that dispersal from the release site could be a realistic possibility. This is not reflective on habitat suitability but could rather reflect dispersal and exploratory behaviours. The River Endrick also provides highly suitable beaver habitat, including deeper water and earthen banks providing immediate shelter. It is lined with willow, reeds and a diverse range of emergent plant species providing very suitable forage. Additionally, the river is associated with a series of off channel marshes, ponds and bog areas, all of which will be attractive especially as summer forage. These areas may also act as a refuge point during flood events as the Endrick is a naturally functioning floodplain with the lower stretches often bursting their banks during winter.





*Figures 20 and 21. River Endrick with long stretches of highly suitable habitat Water level fluctuations including long-periods of flooding during winter months may be challenging and/or encourage retreat into associated water bodies during such periods. Note evident previous beaver foraging on willow stems.*

Dispersal distances following release and fidelity to a release site vary greatly. McKinstry & Anderson (2002) determined that 51% of the 114 beavers translocated in a project in Wyoming dispersed > 10 km from their initial release site. However, this is highly dependent on the hydrology and connectivity of a release site along with individual animal motivation. Beavers have large territories and can disperse great distances through catchments before settling. As wild animals, translocations can be stressful with some individuals immediately moving away from a release site as a reaction to avoidance of perceived stress; a flight response. Therefore, the identification of suitable release sites does not guarantee animals will remain there and be successful.

Numerous projects have implemented habitat suitability models to identify favourable release sites, only to experience high rates of dispersal (McKinstry & Anderson, 2002; Brick & Woodruff, 2019; Pollock *et al.*, 2015). To try to encourage beavers to remain at a release site, a few techniques have been used including creation of release ponds, supplementary feeding, herbivore exclusion/ tree planting and building artificial lodges to hold animals on site. To provide deeper water and protection, ponds have been physically dug or created by building temporary artificial beaver dam analogues (BDAs). These features are typically constructed by driving several willow stakes in a line across the burn then weaving finer willow horizontally through the vertical posts. Straw bales, stones and additional brush have all been used behind such structures to impound more water. Note these do not form a solid barrier or hold large amounts of water, but can slow its passage slightly. They are not permanent structures. For this site, it is highly recommended that beaver dam analogues are installed to provide a temporary structure to impound water and create both deeper ponds for release but also to act as foundations to encourage beavers to dam against themselves.



Figures 22 and 23. Temporary dam structures put into beaver enclosures to encourage damming and create areas of deeper water as a settling in tool.

Habitat quality can be improved by planting beaver-favoured tree species, such as willow, aspen which are all readily sourced, propagated, and planted cheaply and which establish quickly (Hall *et al.*, 2015). Any planting should obviously be associated with the riparian strip, taking into account areas likely to be flooded by beavers and where new resultant water levels are likely to lie (Pollock *et al.*, 2015). New planting should be protected from beavers and herbivores while it establishes, but, in general, grazing by large herbivores (including deer and livestock) especially can generate competition for vegetation. The fastest way to improve habitat for beavers is to allow riparian strip to recover by preventing livestock from grazing to the water's edge. This is not required for this site, though monitoring of deer impacts on beaver coppice is highly recommended. Deer and livestock will selectively forage on beaver generated coppice and management would be recommended as high deer levels are known in the Loch Lomond area. If deer foraging becomes significant it could encourage beavers to abandon the site.

Artificial lodges have been constructed by some projects, either to release the beavers directly into and potentially hold for a few hours to allow them to settle or just to have a shelter if needed (Jones & Campbell-Palmer, 2014; Scottish Beaver Trial). The creation of artificial burrows has been promoted in a small number of beaver manuals—potentially leading to the confusion by some that this is a release requirement. The Methow Beaver and Yakima Beaver Projects in Washington state routinely construct artificial lodges and food supplies at release sites, typically cut aspen, for example (Babik & Meyer, 2015; Woodruff, 2015). The most common use of artificial burrows/lodges is as an aid to increase release site fidelity, but these must be built robustly enough to hold the animals for a day or two to acclimatise them to the area and let them relax (Schwab, 2014). However, the vast majority of releases, across numerous countries, do not create any shelter provisions on release. This is because release sites in which suitable banks enabling shelter construction by the beavers themselves should be selected. Beavers readily and quickly build their own shelter, not often using artificial ones. It would be recommended that ahead of release brush piles of willow are placed at the water edges of any release pool to provide the beavers with immediate shelter but also a hiding place after transportation which may prevent them immediately moving continually downstream.

## Mitigation Considerations

### Potential Public Impacts

Loch Lomond is a popular visitor site, with walking, engagement with nature and bird watching all popular activities throughout the year. There are a series of public footpaths throughout the site, though people are discouraged to follow the extent of the Aber Burn, with two crossing points forming part of a circular walk. The release of beavers may attract further foot fall in this area and potentially result in more people leaving the paths to try and see them and/or their activities. Therefore, this may provide an opportunity for interpretation. Overall the likelihood of beavers directly impacting on or causing conflicts with visitors is low. The main potential issues may be impacts on path access, either through tree felling, flooding, undermining by burrowing or direct gnawing of walkways.

Of these, infrequent felling of a tree onto a path way is the most likely. If this was a serious concern any trees assessed within likely felling distance could be either proactively or reactively protected. Note any trees felled should be moved off the path but otherwise left in place so beavers can return to forage. Any dams that do regularly cause path flooding could be managed through pass raising (e.g. Kinnordy RSPB reserve and Sustrans near Loch Earnhead) either early and constant removal or through installation of a flow device to reduce amount of water impounded. Direct beaver impact on walkways is known from other sites, typically arising if animals regularly cross over or under them in order to access forage, in such circumstances beavers may chew them in order to facilitate the movement of branches for example. As they leave obvious forage trails, should this arise as an issue, that section of walkway could be re-enforced and protected with metal wire mesh secured over that area. Similarly, if the beavers become interested in the walkway and test any stilts, these should be wrapped in mesh, though this is not perceived as a given issue.



*Figures 24 and 25. Path areas and raised walkway associated directly with the Aber Burn and sluice gate infrastructure that could be subject to gnawing or limited tree felling may fall on path but could be easily protected.*





*Figure 26. Tree guards properly constructed and applied can be very effective in preventing beavers from felling trees that are to be retained. Note light gauge weld mesh should be used, not flexible wiring such as chicken mesh. Chicken mesh is ineffective as beavers can easily manipulate it. In addition, it is important to give trees space to grow. Aesthetics are important in areas regularly used by visitors.*

### Neighbouring Land-use

The Aber Burn is predominantly surrounded by reserve habitat with only connectivity for the beavers downstream into the river and loch areas, with grassland and woodland bordering each side of this burn. The top end does have a small residential area neighbouring it and hence the main potential source of conflict immediate to the release site. These include properties, access tracks and gardens, along with associated amenities. Theoretically beavers may be able to access gardens in which they may forage, this however is unlikely and low risk, as the site is forage rich and due to the presence of some structures such as walls and garden fences. There are existing concerns about flooding of property and septic tanks which may be raised through the release of beavers in such close proximity. Beaver damming activity especially immediately downstream of septic tank outflow pipes can lead to back up. However, water level monitoring gauges can be installed to pre-warn of any rising water levels that may impact properties and septic tank function, so that management actions can be implemented ahead of any issues developing. Noting under current regulations in Scotland, dams can be removed without requiring a licence if under two weeks of age.

Pre-release communications with residents would be prudent, including the establishment of an ongoing monitoring protocols and assurances of fast responses to any concerns. Given the lack of upstream foraging along this ditch system and low gradient banks it seems unlikely beavers would immediately form dams along this stretch, rather just utilise for sporadic foraging and exploration. What could materialise may be the cumulative effect of multiple dams over time, holding water for longer in this upper burn area especially after periods of heavy rainfall which may exacerbate perceptions. Over time hydrological patterns are likely to demonstrate a lack of risk to properties but this may take time to demonstrate and reduce concerns. It would be highly recommended that water level monitors are installed to establish if and what scale of water rises constitute a concern. These immediately trigger



an electronic feedback and following conversations with neighbouring landowners, could then signify the implementation of an agreed mitigation protocol as and if required. Part of this protocol could be the removal of dams in this immediate area and/or installation of flow devices if repeated damming becomes an issue. Monitoring and early detection would enable discussions with local landowners to establish if any dams are likely to cause risk or if damming in the burn and associated wetland can be considered low risk and tolerated.



*Figure 27. Water level monitoring used as an early warning system to alert to water level rises associated with regularly dammed areas in agricultural drainage ditches in Perthshire. This indicates when dams may be present and removed quickly before impacting on crops. Such a system could be installed to alert if damming is potentially risking neighbouring property flooding and trigger mitigation protocols.*

### Migratory Salmonids

The key benefits of beaver activity for salmonids that are commonly cited include increased habitat heterogeneity (Hägglund & Sjöberg, 1999; Smith & Mather, 2013) and quality (Pollock et al., 2003). In particular, ponds created upstream of beaver dams provide juvenile overwintering and rearing habitat (Cunjak, 1996; Needham et al., 2021), and can be a critical refuge for larger fish (Hägglund & Sjöberg, 1999; Needham et al., 2021). The beneficial response from a fisheries perspective is usually quantified in terms of increased fish abundance (Hägglund & Sjöberg, 1999; Jakober et al., 1998; Needham et al., 2021), condition and growth (Sigourney et al., 2006; but see Rabe, 1970, and Johnson et al., 1992; Needham et al., 2021), and overall productivity (Mitchell & Cunjak, 2007; Nickelson et al., 1992; Pollock et al., 2004). Conversely, the principal negative consequence of beaver activity often cited is the potential for dams to impede or delay salmonid migration, particularly for upstream moving adults during their migration to the spawning grounds (Lokteff et al., 2013; Rupp, 1955; Taylor et al., 2010). Furthermore, dams may reduce the availability of suitable spawning habitat in impounded areas, where there may be insufficient flow velocity to purge the gravels, which salmonids use for spawning and egg

incubation, of the fine sediments deposited (Knudsen, 1962; Taylor et al., 2010). Malison & Halley (2020), however, found that beaver dams did not block the movement of juvenile salmonids or their ability to use upstream habitats and suggest that it is unlikely that dams negatively impact the juvenile stage of salmon or trout populations. Kemp et al. (2012) reviewed 108 studies of beaver dams on fish. Dams were cited as “barriers to fish movement” in 43% of papers and was the most common adverse effect discussed. However, these negative effects were speculative at best in that 78% of the studies did not support this claim with data.

To grossly assess the potential impact of beavers on migratory salmonids, desk-based surveys were undertaken to establish the current and historic presence of salmonid species at the site. Included in the desk-based searches for brown trout were 1; *Salmo trutta* 2; *Salmo trutta trutta* and 3; *Salmo trutta fario*, this was to ensure that the freshwater resident and the anadromous morphotypes were included. The desk-based survey revealed multiple records of Atlantic salmon and brown trout present on Endrick Waters, with no recorded presence in the Aber Burn.

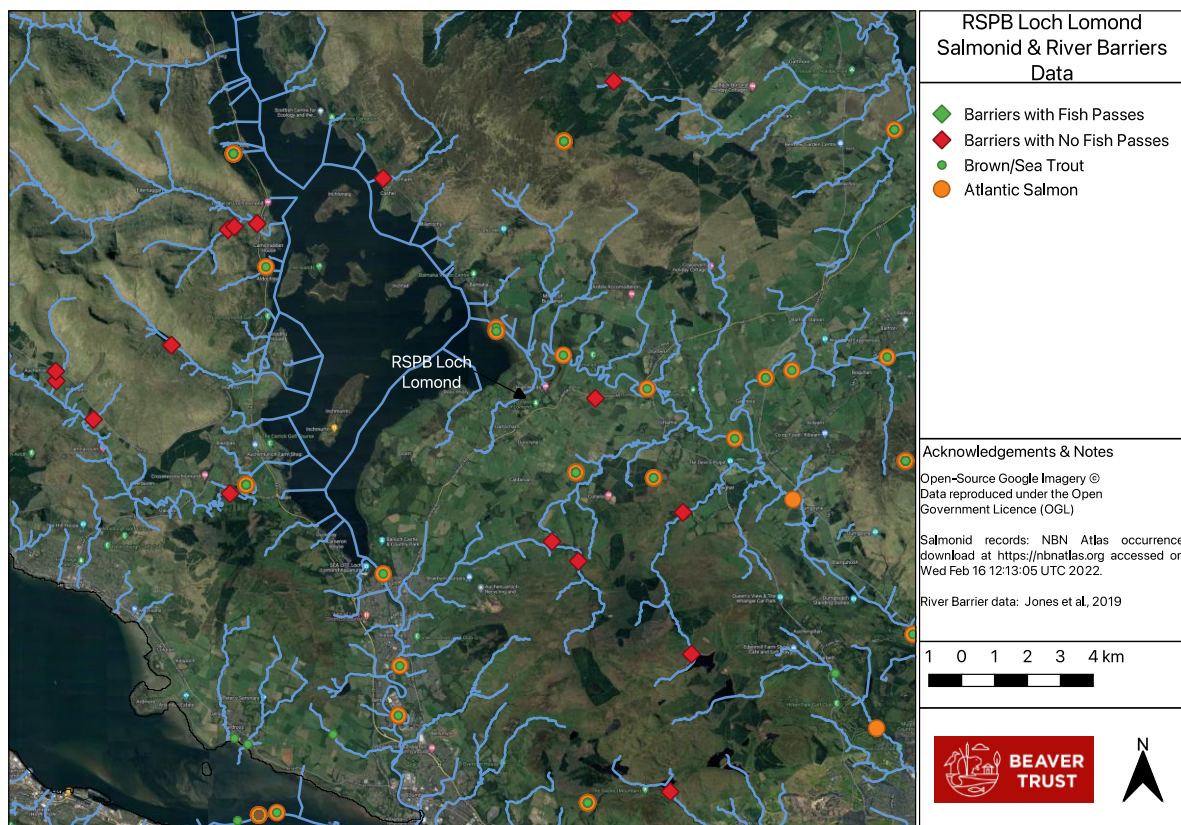


Figure 28. Fish record data, noting no migratory salmonids have been recorded in the Aber Burn but are present on the river Endrick.

Based on the desk-based survey results it is extremely unlikely that beavers at this location will cause any issues for salmonids. In fact, beaver activities with generation of additional wetland will only serve to increase fish diversity and abundance through the provision of significantly increased shelter, feeding and breeding opportunities.

## Discussion and Conclusions

### Beaver as an agent of restoration in Aber Burn and associated fen

If beavers were resident in Aber Burn it is highly likely they would create beaver dam sequences. If a restoration goal was to block or renaturalise these highly modified and straightened channels, dam capacity model results suggest beavers could play a significant role in reconnecting the river and bog and creating complex ponded wetland areas. Research across Europe and North America has demonstrated the ability of beaver dams to increase lateral hydrological connectivity within a landscape (Puttock et al., 2017, Brazier et al., 2021, Pollock et al., 2014) and result in both local wetland creation and downstream flow attenuation (Westbrook et al., 2020, Puttock et al., 2021). If it was decided beavers could also complement existing ditch blocking restoration efforts, their behaviour could be incentivised by the installation of 'starter dams' or 'beaver dam analogues' in areas where damming is most desirable. Beaver dam analogues in coordination with beaver release have been used to great effect to restore incised river systems in North America and encourage beaver dam building (Pollock et al., 2017, Bouwes et al., 2017) and are increasingly being considered and trialled at British sites. The combination of these activities along with selective foraging, modification of water levels and canal digging would all serve to increase plant diversity from what is currently a *Phalaris* dominated homogenous fen.

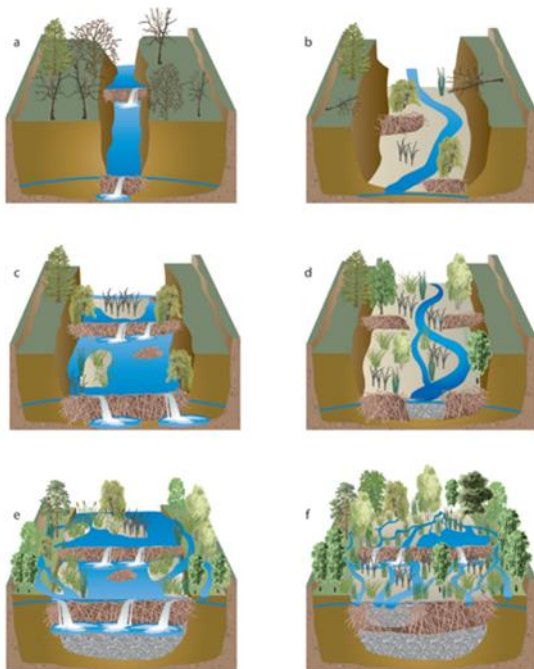


Figure 29. Use of beaver dams to restore incised river systems. Adopted from Pollock et al., 2014.





Figure 30. Example of beaver wetland creation at a wooded British site (c) Alan Puttock, University of Exeter.



Figure 31. Example of a site in Britain where beavers have dammed drainage ditches creating extensive wetland areas.

### Findings on Site Suitability and Release

The Aber Burn is highly suitable for beaver release. Beaver activities could deliver on wider site objectives, such as scrub management and have positive biodiversity benefits for a range of species. It

is recommended that one pair or a small family unit should be released together. Such a release should be into the upper (wooded end) of the burn, release site fidelity should be increased through the installation of 2-3 temporary dam structures to create deeper pond areas and brash pile cut for shelter. There is a realistic chance beavers may disperse from the Aber Burn, either as part of natural dispersal behaviours and lack of other beaver territories which also strongly influence patterns of colonisation. The Aber Burn is also directly linked to the River Endrick which scores highly on the habitat suitability modelling, it also provides deeper water with banks which could readily be modified by beavers for shelter provisions. There are also large amounts of willow lining the shorelines. Public engagement should include discouragement of walking directly along Aber Burn to avoid disturbance especially while animals are setting in. Neighbouring land owner mitigation protocols should include water level monitoring and resources for fast response to concerns. More widely neighbouring farm land and bank erosion may be an issue and collaboration on wider existing species monitoring within Lomond with any resultant beaver impacts should be identified quickly – using existing lines of communication. This proposal could act as a model site going forward for wider application.

## References

- Allen, A. W. 1982. Habitat Suitability Index Models: Beaver. Washington, DC: US Fish and Wildlife Service.
- Brazier, R. E., Puttock, A., Graham, H. A., Auster, R. E., Davies, K. H. & Brown, C. M. 2021. Beaver: Nature's ecosystem engineers. *WIREs Water*, 8, e1494.
- Bouwes, N., Weber, N., Jordan, C. E., Saunders, W. C., Tattam, I. A., Volk, C., Wheaton, J. M., & Pollock, M. M. 2016. Ecosystem experiment reveals benefits of natural and simulated beaver dams to a threatened population of steelhead (*Oncorhynchus mykiss*). *Scientific Reports*, 6, 28581. <https://doi.org/10.1038/srep28581>
- Brick, P. & Woodruff, K. 2019. The Methow beaver project: the challenges of an ecosystem services experiment. *Case Studies in the Environment*, 3, 1–14.
- Copernicus, 2020. Tree Cover Density 2018 — Copernicus Land Monitoring Service.
- Cunjak R.A. 1996. Winter habitat of selected stream fishes and potential impacts from land use activity. *Canadian Journal of Fisheries and Aquatic Sciences*, 53, 267-282.
- DeVries, P., Fetherston, K.L., Vitale, A. & Madsen, S. 2012. Emulating riverine landscape controls of beaver in stream restoration. *Fisheries*, 37, 246-255.
- Dittbrenner, B. J., Pollock, M. M., Schilling, J. W., Olden, J. D., Lawler, J. J. & Torgersen, C. E. 2018. Modelling intrinsic potential for beaver (*Castor canadensis*) habitat to inform restoration and climate change adaptation, PLoS ONE, 13, e0192538.
- Forestry Commission, 2019. National Forest Inventory Woodland GB 2018.
- Graham, H. A., Puttock, A., Macfarlane, W. W., Wheaton, J. M., Gilbert, J. T., Campbell-Palmer, R., Elliott, M., Gaywood, M. J., Anderson, K. & Brazier, R. E. 2020. Modelling Eurasian beaver foraging habitat and dam suitability, for predicting the location and number of dams throughout catchments in Great Britain. *European Journal of Wildlife Research*, 66, 1–18. <https://doi.org/10.1007/s10344-020-01379-w>
- Gurnell, A. M. 1998. The hydrogeomorphological effects of beaver dam-building activity. *Progress in Physical Geography*, 22(2), 167–189. <https://doi.org/10.1177/030913339802200202>

- Haarberg, O. & Rosell, F. 2006. Selective foraging on woody plant species by the Eurasian beaver (*Castor fiber*) in Telemark, Norway. *Journal of Zoology*, 270, 201–208. <https://doi.org/10.1111/j.1469-7998.2006.00142.x>
- Häggglund, Å., & Sjöberg, G. 1999. Effects of beaver dams on the fish fauna of forest streams. *Forest Ecology and Management*, 115(2), 259–266. [https://doi.org/10.1016/S0378-1127\(98\)00404-6](https://doi.org/10.1016/S0378-1127(98)00404-6)
- Hartman, G. 1996. Habitat selection by European beaver (*Castor fiber*) colonizing a boreal landscape. *Journal of Zoology*, 240, 317–325.
- Howard, R. J. & Larson, J. S. 1985. A stream habitat classification system for beaver. *Journal of Wildlife Management*, 49, 19–25.
- Jakober M.J., McMahon T.E., Thurow R.F. & Clancy C.G. 1998. Role of Stream Ice on Fall and Winter Movements and Habitat use by Bull Trout and Cutthroat Trout in Montana Headwater Streams. *Transactions of the American Fisheries Society*, 127, 223–235.
- Jenkins, S.H., 1979. Seasonal and year-to-year differences in food selection by beavers. *Oecologia*, 44, 112–116. <https://doi.org/10.1007/BF00346408>
- John, F., Baker, S. & Kostkan, V. 2010. Habitat selection of an expanding beaver (*Castor fiber*) population in central and upper Morava River basin. *European Journal of Wildlife Research*, 56, 663–671. <https://doi.org/10.1007/s10344-009-0361-5>
- Kemp, P. S., Worthington, T. A., Langford, T. E. L., Tree, A. R. J., & Gaywood, M. J. 2012. Qualitative and quantitative effects of reintroduced beavers on stream fish. *Fish and Fisheries*, 13(2), 158–181. <https://doi.org/10.1111/j.1467-2979.2011.00421.x>
- Knudsen G.J. 1962. Relationship of beaver to forests, trout and wildlife in Wisconsin. *Wisconsin Department of Natural Resources Technical Bulletin*, 25, 1–50.
- Lokteff R.L., Roper B.B. & Wheaton J.M. 2013. Do beaver dams impede the movement of trout? *Transactions of the American Fisheries Society*, 142, 1114–1125.
- Macdonald, D.W., Maitland, P., Rao, S., Rushton, S., Strachan, R. & Tattersall, F. 1997. Development of a protocol for identifying beaver release sites. Scottish Natural Heritage Research, Survey and Monitoring Report No. 93.
- 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 riverscapes to support beaver dams. *Geomorphology* DOI: 10.1016/j.geomorph.2015.11.019
- Malison R.L. & Halley D.J. 2020. Ecology and movement of juvenile salmonids in beaver-influenced and beaver-free tributaries in the Trøndelag province of Norway. *Ecology of Freshwater Fish*, 29(4), 623– 639.
- McKinstry, M. C. & Anderson, S. H. 2002. Survival, fates, and success of transplanted beavers, *Castor canadensis*, in Wyoming. *Canadian Field-Naturalist*, 116, 60–68.
- Mitchell S.M. & Cunjak R.A. 2007. Stream flow, salmon and beaver dams: roles in the structuring of stream fish communities within an anadromous salmon dominated stream. *Journal of Animal Ecology*, 76, 1062–1074.
- Morton, R.D., Marston, C.G., O’Neil, A.W., Rowland, C.S., 2020. Land Cover Map 2019 (20m classified pixels, GB). <https://doi.org/10.5285/643eb5a9-9707-4fbb-ae76-e8e53271d1a0>
- Needham, R. J., Gaywood, M., Tree, A., Sotherton, N., Roberts, D., Bean, C. W., & Kemp, P. S. 2021.. The response of a brown trout (*Salmo trutta*) population to reintroduced Eurasian beaver (*Castor fiber*) habitat modification. *Canadian Journal of Fisheries and Aquatic Sciences*, 78(11), 1650–1660.



- Nickelson T.E., Rodgers J.D., Johnson S.L. & Solazzi M.F. 1992. Seasonal Changes in Habitat Use by Juvenile Coho Salmon (*Oncorhynchus kisutch*) in Oregon Coastal Streams. *Canadian Journal of Fisheries and Aquatic Sciences*, 49(4), 783-789.
- Nolet, B.A. & Rosell, F. 1998. Comeback of the beaver *Castor fiber*: an overview of old and new conservation problems. *Biological Conservation*, 83, 165–173.
- Nolet, B. A., Hoekstra, A. & Ottenheim, M. M. 1994. Selective foraging on woody species by the beaver *Castor fiber*, and its impact on a riparian willow forest. *Biological Conservation*, 70, 117–128.
- O’Connell, M.J., Atkinson, S.R., Gamez, K., Pickering, S.P., Dutton, J.S. et al. 2008. Forage preferences of the European beaver *Castor fiber*: implications for re-introduction. *Conservation Science*, 6, 190.
- Ordnance Survey, 2021. OS VectorMap® District
- Pinto, B., Santos, M. J. & Rosell, F. 2009. Habitat selection of the Eurasian beaver (*Castor fiber*) near its carrying capacity: an example from Norway. *Canadian Journal of Zoology*, 87, 317–325.
- Pollock, M. M., Beechie, T. J., Wheaton, J. M., Jordan, C. E., Bouwes, N., Weber, N., & Volk, C. 2014. Using Beaver Dams to Restore Incised Stream Ecosystems. *BioScience*, 64(4), 279–290. <https://doi.org/10.1093/biosci/biu036>
- Pollock M.M., Heim M. & Werner D. 2003. Hydrological and Geomorphic Effects of Beaver Dams and Their Influence on Fishes. In: The Ecology and Management of Wood in World Rivers (eds S.V. Gregory, K. Boyer & A. Gurnell). *American Fisheries Society Symposium*, 37, 213-233.
- Pollock M.M., Pess G.R. & Beechie T.J. 2004. The Importance of Beaver Ponds to Coho Salmon Production in the Stillaguamish River Basin, Washington, USA. *North American Journal of Fisheries Management*, 24, 749-760.
- Pollock, M. M., Lewallen, G. M., Woodruff, K., Jordan, C. E., & Castro, J. M. 2017. The Beaver Restoration Guidebook: Working with Beaver to Restore Streams, Wetlands, and Floodplains. (2nd ed.). United States Fish and Wildlife Service. <https://www.fws.gov/oregonfwo/promo.cfm?id=177175812>
- Puttock, A., Graham, H. A., Cunliffe, A. M., Elliott, M., & Brazier, R. E. 2017. Eurasian beaver activity increases water storage, attenuates flow and mitigates diffuse pollution from intensively-managed grasslands. *Science of the Total Environment*, 576, 430–443. <https://doi.org/10.1016/j.scitotenv.2016.10.122>
- Puttock, A., Graham, H. A., Ashe, J., Luscombe, D. J., & Brazier, R. E. 2021. Beaver dams attenuate flow: A multi-site study. *Hydrological Processes*, 35(2), e14017. <https://doi.org/10.1002/hyp.14017>
- Rowland, C., Morton, D., Carrasco Tornero, L., McShane, G., O’Neil, A. & Wood, C., 2017. Land Cover Map 2015 (25m raster, GB). <https://doi.org/10.5285/bb15e200-9349-403c-bda9-b430093807c7>.
- Rupp, R. 1955. Beaver-Trout Relationship in the Headwaters of Sunkhaze Stream, Maine. *Transactions of the American Fisheries Society*, 84(1).
- Scholefield, P., Morton, D., Rowland, C., Henrys, P., Howard, D. & Norton, L., 2016. A model of the extent and distribution of woody linear features in rural Great Britain. *Ecol. Evol.* 6, 8893–8902. <https://doi.org/10.1002/ece3.2607>
- Sigourney D.B., Letcher B.H. & Cunjak R.A. 2006. Influence of Beaver Activity on Summer Growth and Condition of Age-2 Atlantic Salmon Parr. *Transactions of the American Fisheries Society*, 135, 1068–1075.

- Smith, J. M., & Mather, M. E. 2013. Beaver dams maintain fish biodiversity by increasing habitat heterogeneity throughout a low-gradient stream network. *Freshwater Biology*, 58(7), 1523–1538. <https://doi.org/10.1111/fwb.12153>
- Stringer, A. P., & Gaywood, M. J. 2016. The impacts of beavers *Castor* spp. on biodiversity and the ecological basis for their reintroduction to Scotland, UK. *Mammal Review*, 46, 270-283.
- St-Pierre, M.L., Labbé, J., Darveau, M., Imbeau, L. & Mazerolle, M.J., 2017. Factors Affecting Abundance of Beaver Dams in Forested Landscapes. *Wetlands*, 37, 941–949. <https://doi.org/10.1007/s13157-017-0929-x>
- Taylor B.R., Macinnis C. & Floyd T.A. 2010. Influence of rainfall and beaver dams on upstream movement of spawning Atlantic Salmon in a restored brook in Nova Scotia, Canada. *River Research and Applications*, 26, 183-193.
- Touihri, M., Labbé, J., Imbeau, L. & Darveau, M. 2018. North American beaver (*Castor canadensis* Kuhl) key habitat characteristics: review of the relative effects of geomorphology, food availability and anthropogenic infrastructure. *Ecoscience*, 25, 9.
- Westbrook, C. J., Ronnquist, A., & Bedard-Haughn, A. 2020. Hydrological functioning of a beaver dam sequence and regional dam persistence during an extreme rainstorm. *Hydrological Processes*, hyp.13828. <https://doi.org/10.1002/hyp.1382>





# **RSPB Scotland Loch Lomond**

## **Eurasian beaver translocation**

### **Community engagement report**

*September 2022*



This community engagement report has been compiled to support RSPB Scotland's application to NatureScot for the translocation of a family of beavers to the Loch Lomond National Nature Reserve, with RSPB Scotland Loch Lomond as the proposed release site.

The report has been compiled by RSPB Scotland, with support from Loch Lomond and the Trossachs National Park and Wild Intrigue CIC.



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## 1. Background

RSPB Scotland are applying for a licence to translocate a family of beavers from areas of conflict elsewhere in Scotland, to the Loch Lomond National Nature Reserve (NNR), with RSPB Scotland Loch Lomond nature reserve as the release site.

In 2019 a beaver was recorded foraging on the Loch Lomond National Nature Reserve (*Image 1*). Since then, RSPB Scotland has carried out extensive surveys on their Loch Lomond nature reserve to identify areas where beavers are likely to return to, and to assess any potential impacts beavers and their activities may have on existing species on the reserve. A recent (2021) survey undertaken by Dr Roisin Campbell-Palmer and Dr Alan Puttock assessed for the presence of fresh and old beaver activity in the NNR, and throughout the wider National Park. Mixed signs of beaver activity (old and new) were recorded in the NNR (*Figure 1*), along with sites across the National Park, in particular the north and east (*Figure 2*).

RSPB Scotland is leading work to apply for a licence to translocate a family of beavers, including stakeholder engagement as featured in this report, with support from Loch Lomond and the Trossachs National Park and external consultants Wild Intrigue CIC.

***All stakeholder involvement/ responses to the consultation have been anonymised throughout this report.***



*Image 1. Trail camera photo of beaver on Loch Lomond NNR (2019).*



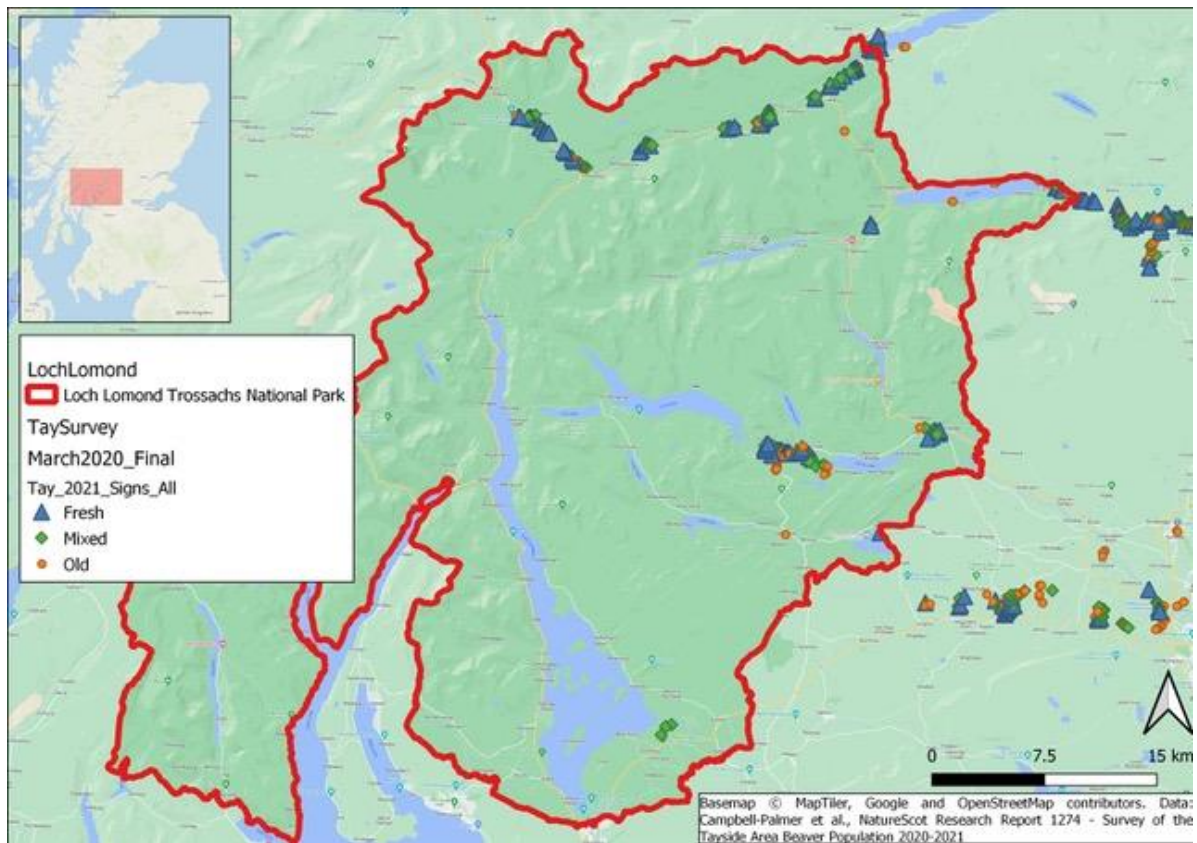


Figure 1. Map of beaver activity across Loch Lomond and the Trossachs National Park (Dr Roisin Campbell-Palmer and Dr Alan Puttock, 2021).

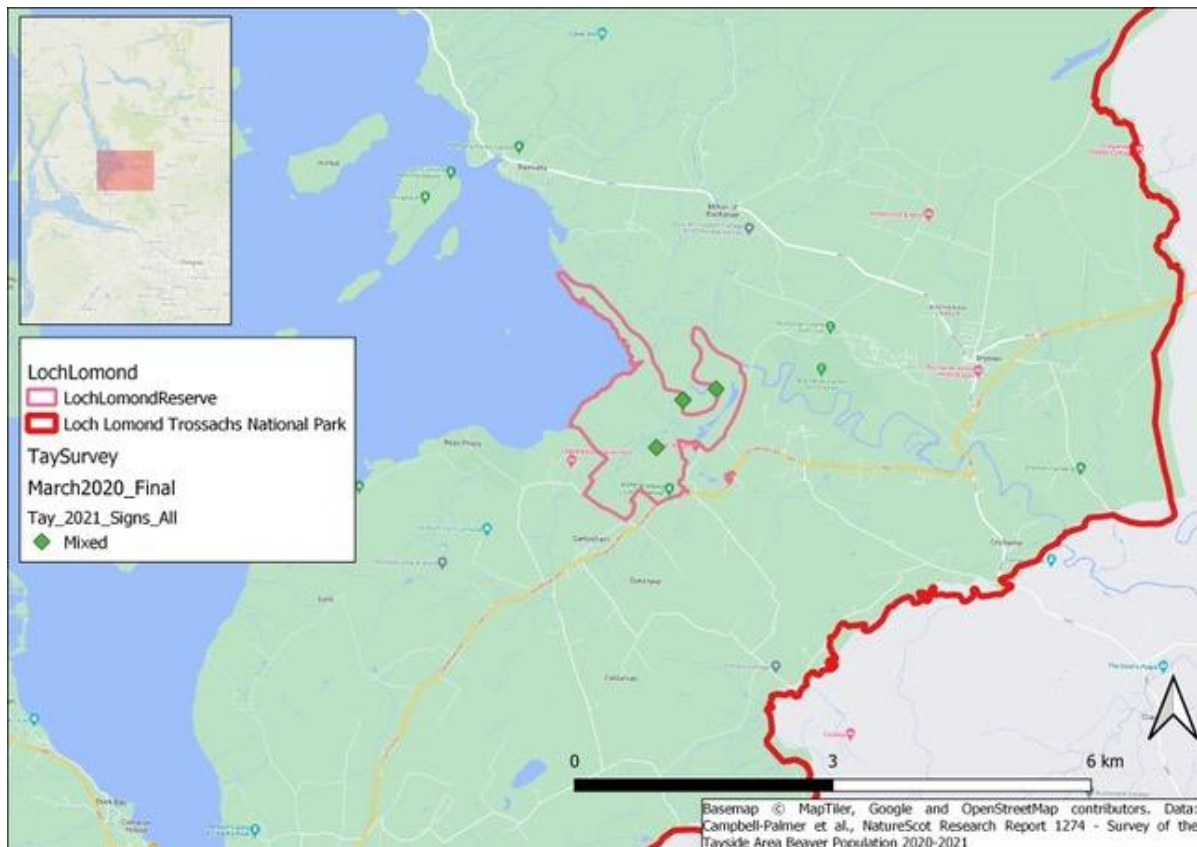


Figure 2. Map of beaver activity within Loch Lomond National Nature Reserve (Dr Roisin Campbell-Palmer and Dr Alan Puttock, 2021).

## 2. Public engagement

### 2.1 Announcement and public resources

The proposal to translocate a family of Eurasian beavers (*Castor fiber*) to Loch Lomond National Nature Reserve, with RSPB Scotland Loch Lomond nature reserve as a release site, was launched on 14 June 2022. To support this public announcement the following resources were developed and launched together by project lead, RSPB Scotland:

- Beaver translocation proposal webpage\*
- Beaver project email address (accessible by all project members)
- FAQs PDF
- Four public online and F2F events\*
- Online questionnaire\*
- Local press release
- Social media announcement (RSPB Loch Lomond)

*\*Details can be found below.*

Public engagement and consultation continued for 10 weeks, before the online questionnaire closed on Monday 22 August. Although this engagement period has now been completed, RSPB Scotland will continue discussions about beavers with local land/property owners, and visitors to RSPB Scotland Loch Lomond. Progress with this is detailed in *Appendix 12*.

An online report of the consultation results can be accessed [here](#).

In advance of the public announcement, an email notification (*Appendix 1*) was also sent to local property owners by RSPB Scotland Loch Lomond Site Manager Paula Baker, to inform residents of the upcoming public launch of the proposal. An outline of the proposal and an attached FAQ document were included, as well as a link to the beaver translocation webpage, beaver email address and a prompt to get in touch.

An online event was also hosted for RSPB Loch Lomond staff/ volunteers on 24 May, sharing an overview of the upcoming engagement plans, the translocation process, and a Q&A session on beaver ecology.

#### 2.1a Beaver translocation webpage

A [webpage](#) (screenshot in *Appendix 2*) was launched on RSPB Scotland's Loch Lomond blog on 14 June 2022 to share information on the translocation proposal, events and project updates. The page also contained links to the [FAQs](#), online questionnaire and [Loch Lomond beaver suitability assessment](#) (added on 28 July following feedback from public meeting).

Webpage information included details on a beaver previously found living in the south Loch Lomond NNR, beaver ecology insights from peer-reviewed books and journals, and



expectations of the translocation for visitors, the community and on-site ecology. The webpage and FAQs were updated when required throughout the engagement period to reflect upcoming events, new questions and feedback from the community.

As the webpage structure is a blog format, members of the public were able to share their feedback here. Many positive comments were shared, along with several enquiries, which can be accessed on the webpage, or referred to in *Appendix 3*.

## 2.1b Public engagement events

Four engagement events were organised to introduce the local community to beaver ecology and the Loch Lomond translocation proposal, as a starting point for ongoing discussions. In total there were **67 attendees at events**, with some people attending more than one event.

Events were promoted through the pre-announcement emails, press release, RSPB Scotland Loch Lomond blog, on social media (including Twitter and local Facebook groups) and with posters (*Appendix 4*).

*Table 1. Calendar of public events to discuss RSPB Scotland Loch Lomond beaver translocation*

Event	Date	Location	Hosts*	Attendees
Online talk	21 June	Zoom webinar	Paula Baker & Heather Devey	14
Face to face talk <i>Kilmaronock Millennium Hall</i>	11 July	Kilmaronock Millennium Hall	Heather Devey	3
Online talk <i>Zoom webinar</i>	12 July	Zoom webinar	Paula Baker & Heather Devey	18
Face to face talk	21 July	Kilmaronock Millennium Hall	Heather Devey & James Silvey	32
				<b>67</b>

\*Host profiles: Paula Baker (Loch Lomond Site Manager, RSPB Scotland), James Silvey (Senior Species & Habitats Officer, RSPB Scotland) and Heather Devey (Consultant, Wild Intrigue)

Events were hosted to offer a consistent understanding of beaver ecology, impacts, status, and mitigation/ support available, in addition to introducing attendees to the RSPB Scotland Loch Lomond proposal. A Q&A session was hosted at the end of each event, with the intention to gather feedback and act as the starting point for ongoing collaboration and discussion. Each event contained repeated information, offering multiple opportunities for individuals to gain access to the education and information required to complete the questionnaire.

## **2.1c Webinar events**

Two evening webinars were hosted, for which attendees registered via Zoom.

Attendees were encouraged to submit questions before and throughout webinars, through a Q&A chat box function. Every question was responded to by the event hosts; those which hosts were unable to answer (e.g. relating to the upcoming national beaver strategy) were noted for further exploration and discussion. Attendees were muted with cameras disabled throughout webinars to ensure as many questions as possible could be inputted and responded to. A video recording was made of each online talk, which attendees were made aware of (enabling the option of anonymity), and which were sent to those who couldn't make the event upon request.

The full list of questions was downloaded at the end of each event, the (anonymous) transcripts of which can be found in the *Appendix 5*.

Webinars were hosted on 21 June and 12 July at 7.30pm.

## **2.1d Face to face events**

Two public information talks were also organised, both taking place locally at Kilmaronock Millennium Hall, Gartocharn. The first was hosted by Wild Intrigue Consultant Heather Devey, with Cain Scrimgeour of Wild Intrigue also in attendance. The second was also attended by an RSPB Scotland representative, James Silvey. An overview of feedback and questions from each meeting, can be found in *Appendix 6*.

Face to face talks were hosted on 11 July and 18 July (7pm)

## 3. Public feedback

### 3.1 Questionnaire

An online questionnaire was launched on 14 June 22 to gauge feedback from the local community on RSPB Scotland's proposal to translocate a family of beavers to the RSPB Scotland Loch Lomond nature reserve. Overall, the questionnaire received 112 responses in the 10 weeks it was open, prior to closing on 22 August.

The questionnaire could be accessed by the public via the RSPB Scotland Loch Lomond beaver blog page and attendees of events were encouraged to complete this to input their feedback. The link was also shared on local Facebook groups including Gartocharn Community and Drymen Community, and on the websites of Loch Lomond Angling Improvement Association (LLAIA) and Vale of Leven District Angling Club (VOLDAC) on Saturday 21<sup>st</sup> August. A full report of the questionnaire results can be accessed online [here](#), and the results are broken down below.

Online questionnaire data collection complied with the principles of the General Data Protection Regulation (GDPR). In particular, respondents were made aware prior to completing the questionnaire that responses would be submitted to NatureScot as part of RSPB Scotland's licence application, outward postcodes were collected (however this section could be skipped), and all questionnaire responses were anonymous unless the respondent chose to declare their name or involvement with a group/ business.

#### 3.1a Local responses

21 of the 112 respondents identified themselves as living locally, answering "Yes" to the question, "Do you live beside Blairennich Burn, Endrick Water or tributaries of the Endrick?". The details of these responses can be found in the following sections.

##### *3.1ai Local support for Loch Lomond translocation*

Of the 21 local respondents, 11 were **supportive** of a translocation to RSPB Scotland Loch Lomond.

All respondents also stated to be supportive of beavers living in Scotland, and of translocation as an alternative to killing in conflict areas.

**A breakdown of points from qualitative responses from this group can be reviewed below; all points of feedback have been included, compiled and listed.**

- Beavers are a native species
- Beneficial complex wetland creation and maintenance
- Ecosystem services such as flood control

- Environmental improvements for other species
  - Enhanced visitor experience and ecotourism potential
  - Possibility of research opportunities
  - Loch Lomond as a suitable habitat for beavers to live
  - Benefits to fish populations
  - Increased carbon capture
  - Coppicing benefits
  - Reference to Knapdale and Argaty as positive examples
  - Confidence in mitigation measures
  - Possibility of additional learning and volunteering opportunities
- Also stated: Supportive of Loch Lomond translocation, but some concerns about river bank erosion and flooding of woodland (*neighbouring land owner*).

### ***3.1a ii Local objections to Loch Lomond translocation***

10 respondents who live in the area stated to be **unsupportive** of the translocation proposal.

Of these, 70% were also unsupportive of beavers living in Scotland in general, and 80% were unsupportive of translocating beavers in conflict areas as an alternative to killing.

One respondent declared to be completing the questionnaire on behalf of their farm business.

**A breakdown of points from qualitative responses from this group can be reviewed in Table 2, where all points of feedback have been included, compiled and listed.**

*Table 2. Feedback points from local objections to translocation. These have been identified as being either of “National” (occurring frequently throughout Scotland) or “Local” (unique to Loch Lomond translocation) level, with each reflected upon in the action taken section.*

<b>FEEDBACK</b>	<b>LEVEL</b>	<b>Action taken</b>
Beavers are not native to area	National/ <b>Local</b>	Engagement sessions, blogs and other media articles produced as well as links to published materials have been provided to explain the history of beavers in Scotland and the local area as well as their current status in Scotland.
Impacts on migratory fish	National	Engagement sessions contained sections about the benefits beavers can bring to fish and the management and mitigation available to address impacts. We plan to have a continued open dialogue with Loch Lomond Fisheries Trust to help address any ongoing concerns.



References to negative impacts on the River Tay	National	Engagement sessions explained the management and mitigation hierarchy that is available should any similar impacts be found on the Endrick.
Detrimental to surrounding countryside / impacts on farm drainage and associated grazing	National	Engagement sessions explained the management and mitigation hierarchy that is available should any similar impacts be found in the local area. RSPB Loch Lomond staff are prepared to offer advice to direct neighbours should any negative impacts be experienced.
Suggestion that proposal is “unlawful” (due to Endrick’s SAC status)	National/ <b>Local</b>	Engagement sessions explained the licence process and the due diligence that both we and NatureScot would have to complete in order to assess the risks to designated features. RSPB ecology staff have also completed a risk assessment of all designated features and rare and scarce species that will be publicly available to ensure that all potential risks have been assessed.
Impacts on local flora	<b>Local</b>	The potential impacts of beavers on all rare and scarce species recorded on the reserve has been assessed. The majority of these are likely to see either no impact or positive benefits. A small number of species may be impacted in their current locations but have more niches created in new locations, these will be included in RSPB Scotland’s monitoring schedule allowing for mitigation to be carried out if deemed necessary.
Riverbank erosion	National	Local staff are aware of issues around bank erosion due to the Endrick’s sandy banks and lack of trees. Engagement sessions and subsequent communication have explained the nature of beaver burrowing i.e. unlikely to burrow in very loose, friable soils due to the risk of collapse and what management and mitigation options are available should such activity prove to become an issue in the future.

Tree felling (reference to recently planted trees by Loch Lomond Fisheries Trust)	National/ <b>Local</b>	Engagement sessions explained the ecology of beavers and the relationship they have with riparian trees i.e. most felled trees coppice rather than die. Fencing is an option as it is for deer but it was shared that high deer numbers in the area could impact beaver induced coppicing and this will be monitored on the RSPB Scotland nature reserve.
Concerns about (local) septic tanks and raised water levels in wetland	<b>Local</b>	Through direct correspondence and the engagement sessions it was explained that the impact of beavers would unlikely be any greater than what already occurs in winter flood conditions. However, it has been recommended by RSPB ecologists that water level monitoring should be installed at RSPB Scotland Loch Lomond prior to beaver release and this will be undertaken. Management will then be undertaken by RSPB Scotland if/ when necessary to prevent damage to neighbouring properties.
Concerns regarding costs of management (also lack of compensation)	National	Explained the current management system and that this is publicly funded at a national level. Scottish Government have made a commitment to funding this scheme as recognition as the overall good that beavers do for biodiversity.
Beavers should be added to General Licence	National	Explained that beavers are designated as a European Protected Species, species still recovering in Scotland. Beaver management hierarchy available where issues occur.
Beavers should be prevented from dispersing from RSPB land	National	Explained that this was not an enclosed translocation and that beavers are wild, native animals which are recolonising former habitat. Also explained that beavers are already in the current area and that this will form a reinforcement to an existing population.

### 3.2 Overall questionnaire respondents

Of the 112 people in total who responded to the questionnaire in total, 40 people (35.7%) stated they were supportive of the Loch Lomond translocation. All (anonymous) positive quantitative feedback submitted through the questionnaire can be found in *Appendix 6*.

The remaining 72 people (64.3%) declared themselves unsupportive of translocating beavers to Loch Lomond. Of those who objected:

- 65 (90%) were also opposed to translocating beavers from conflict sites as an alternative to killing and,
- 55 (76%) were also unsupportive of beavers living in Scotland generally.

Therefore, the majority of respondents who were unsupportive of a beaver translocation to Loch Lomond also object to beavers living in Scotland in general.

The majority of these objections (66/72) were submitted within a few hours on the penultimate day of the questionnaire's availability; Saturday 21 August.

66 new responses were submitted in total that day, with 62 respondents selecting "No" to supporting a translocation of beavers to Loch Lomond.

Of these 62 respondents who selected "No" to a translocation of beavers to Loch Lomond on 21 August:

- 59 (95%) also claimed to be unsupportive of translocating beavers in conflict areas as opposed to killing, and
- 51 (82%) also claimed to be against beavers living in Scotland in general
- 48 (77%) also stated they had not attended an information event, or discussed the proposal with a member of the project team

The qualitative feedback of the 62 respondents who selected "No" to a translocation of beavers to Loch Lomond demonstrates an involvement/interest in angling, with the majority referencing specific concerns on impacts upon migratory fish and impacts on existing and recently planted bankside trees (*Appendix 6*).

Ongoing communication and discussions with angling groups will continue to be a vitally important aspect of beaver recovery, and will coincide with RSPB Scotland's existing relationships with each of the groups. More awareness, education, and in-field studies of beaver impacts upon fish are required at a national level, along with enhanced awareness of the research and guidance available to angling societies and their members.

Prior to the influx of responses on 21 August, 36 out of 46 respondents **(78%) of the questionnaire were in support** of the proposed beaver translocation to Loch Lomond.

## 4. Individual discussions

### Drymen Community Council (DCC)

On 11 July Heather Devey met with two representatives of Drymen Community Council (DCC), following email correspondence, to discuss in more detail the beaver translocation proposal.

One representative explained that DCC had, following RSPB Scotland's public announcement, undertaken their own research on beaver ecology to coincide with the council's own small-scale consultation to gauge opinions within the local community; the results of which were described to be **overwhelmingly positive**. Much of this feedback was received via a public post on DCC's [Facebook](#) page, which received 59 reactions and 18 comments (all positive), the details of which can be found in *Appendix 7*.

This individual also shared their belief that the publicity of a family of beavers being translocated to the area could help boost the local tourism economy, by providing an exciting new draw to an area often by-passed by Loch Lomond's primary tourists. They suggested that this would enable local business to offer linked services (such as accommodation, sustainable transport and food) to support this nature-based tourism offer, with beavers being the key attractant.

The individual expressed that – to represent the overall community – **Drymen Community Council would be supportive** of the translocation of a family of beavers to Loch Lomond, with ongoing monitoring and management on site when/ where required.

### Kilmaronock Community Council (KCC)

KCC were included in the initial tranche of emails sent out to stakeholders and neighbours on 10 June. Various responses were received from members of the committee asking specific questions and requesting more information about events.

On 10 June, the Kilmaronock Community Council Vice Chairman, acknowledged receipt of the email sent by Paula Baker informing stakeholders of the upcoming public launch of the beaver translocation proposal.

Three members of the committee attended the first online webinar and asked a number of questions (*see anonymised transcript in Appendix 6.5*)

Additionally, on 27 June, a further email was sent to both KCC and DCC with full details of the three remaining information sessions including a link to the blog.

One individual from the KCC committee attended 3 of 4 of the formal events and has been in contact with the project team about a number of concerns. During the second webinar, the individual submitted over 60 questions and statements, which the hosts answered in the webinar. Both during and after the second online event, the community councillor was contacted multiple times by consultant Heather Devey to encourage and arrange a face-to-



face meeting to discuss their concerns in more detail, however these requests were not responded to.

One area of concern raised was the potential for beavers to act as hosts for Giardiasis and causing impacts on water quality (referring to North American studies). This has been expressed during events and via email. These concerns have been responded to by the project team, with research and experience shared by Dr Roisin Campbell-Palmer, and information shared on the prior arrival of a beaver to south Loch Lomond, and the presence of beavers in north Loch Lomond, as well as livestock and domestic animals (also hosts) already being present in the water catchment.

To date, this individual has not agreed to a meeting with any members of the beaver translocation project team.

Many of the concerns shared by this individual focus on national considerations for beaver restoration, which are planned to be addressed in a meeting which KCC have organised to discuss the national strategy for beaver management on 5 September (*overview in Appendix 12*). RSPB Scotland Loch Lomond, NatureScot and Loch Lomond & Trossachs National Park representatives are attending.

## **Buchanan Estates**

Buchanan Estates own a large proportion of the land on the north side of the NNR and are also owners of the Buchanan Golf Club. RSPB Scotland has had some limited previous contact with the estate managers but no previous contact regarding beavers. A representative of the estate got in touch to ask for joining instructions for the 21 June webinar, they were then sent full details of all planned stakeholder engagement events, including a link to the blog. They were also sent a link to the recorded webinar session.

On 21 July a representative of Buchanan Estates attended the face-to-face talk at Kilmarnock Millennium Hall to find out more about the proposal. Concerns were raised about beaver impacts on particular areas of the estate, including blocking drainage ditches, flooding the golf course and asked about options to exclude beavers from sections of the riverbank. These comments were responded to by event hosts James Silvey and Heather Devey; however it was agreed between all parties that a site visit to discuss these concerns would be beneficial.

A site visit was arranged for Friday 26 August 2022, which was attended by Paula Baker (RSPB Scotland Loch Lomond Site Manager), James Silvey (RSPB Scotland Species and Habitats Officer), Dr Roisin Campbell-Palmer (Beaver Trust Beaver Restoration Manager), Luke Wake (Warden), and hosted by the same representative of Buchanan Estates.

The team were shown areas of particular concern along the riverbank and within the golf course. Broadly these included ditch blocking, flooding, felling of specimen trees and damage to a paved riverbed. There was also concern raised about possible impacts on a community hydro scheme. The team were also shown areas where there had previously been beaver activity during 2019/20. Each area was discussed, and the mitigations highlighted. These included use of flow devices, removal of dams, protection of trees, and devices that were

available to help monitor flood levels (such as remote water level sensors). The team also highlighted areas that would and wouldn't be suitable for beavers, where impacts would be highly unlikely as the riverbed was too shallow or there was not enough suitable feeding habitat. The mitigation hierarchy was explained in detail, including what would happen should beaver numbers reach the point where they had to be further translocated in the distant future. Additionally, the option to have permission to remove dams from waterbodies on the golf course indefinitely was explained. Buchanan Estates representative expressed that further catchment management discussions were required, including a request for a resourced, catchment-wide management plan, but that broadly they could learn to live alongside them depending on the level of impact.

The team agreed to keep communications channels open regarding beaver activity and our proposal.

## Local residents

Following the initial email sent to local stakeholders six responses were received (four from neighbours and two from local groups), no other responses were received, one local resident who received the letter did not respond but attended a meeting. Concerns raised included the following:

- Aber Burn already choked with branches
- Fields already difficult to walk on during winter months and further damming could worsen this
- General concerns about impacts experienced in Tayside and desire to speak to beaver experts about this

All residents received responses from the RSPB Scotland team highlighting the FAQs, blog and upcoming webinar/ in person event dates.

One local resident (herein Resident 1) has maintained contact with the project team since the announcement of the translocation proposal. Resident 1 has expressed concerns for the impacts of wetlands developed by the beavers, and potential increased water levels, on the septic tank systems of neighbouring properties.

In response to this, the project team has explained that prior to any translocation remote water level monitoring stations are to be installed to monitor this, and that any required management (such as flow device installation/ dam removal) on RSPB Scotland land will be organised by RSPB Scotland, under guidance and licencing where appropriate from NatureScot. On land outside of RSPB Scotland Loch Lomond, landowners will be encouraged by RSPB Scotland to apply for support and appropriate mitigation under NatureScot's beaver management framework, where necessary.

Resident 1 has also shared concerns regarding impacts upon *Callitriche palustris*. In response, RSPB Scotland Loch Lomond Site Manager Paula Baker shared additional information of the Risk Assessment completed with regards to designated features, and the ecological assessment for all rare and scarce species on site. The potential habitat niches that

beavers will create for *Callitriche palustris* was also explained, along with a plan for monitoring these impacts.

Resident 1 has also expressed concerns about impacts on trees along the banks of the River Endrick. This was responded to with the explanation of beaver/ tree impacts being a lost natural process, mitigation options, and that a translocation offers the opportunity to prepare for any impacts on specific trees which the community would like to protect. The catchment has been identified as highly suitable for beavers, and so another instance of natural dispersal and residence is highly likely. In addition, Site Manager Paula Baker has offered to visit areas of concern along the Aber Burn with residents.

## **Loch Lomond Fisheries Trust (LLFT)**

LLFT were included in the initial tranche of emails sent to local stakeholders and residents on 10 June. A response was received by one of the LLFT staff on 14 June expressing support for the proposal and asking if there would be public engagement activities. RSPB Scotland responded on 16 June with full details of the engagement events, link to the blog and requesting this information be passed on to other LLFT members and local angling groups, including Loch Lomond Angling Improvement Association (LLAIA). A question was also raised about the resource available for tree protection along riparian corridors. The beaver project team responded to this, directing LLFT to the NatureScot Beaver Mitigation fund.

An additional response from another member of LLFT was received on 21 June. This highlighted that previous discussions with anglers regarding beavers had not been positive. The LLFT representative also suggested that current ScotGov advice was counter to our proposal. They also requested the provision of further information for the LLFT board and expressed additional opinion regarding beaver activities witnessed on the Earn but also an understanding of the potential benefits.

The project team responded on 27 June and expressed a desire to meet with local angling representatives to hear views. We passed on Heather Devey's direct email address and asked for a list of contacts to be passed to her [NB no list was received]. We also highlighted and shared relevant links relating to the change in ScotGov advice and how that now favoured translocations. We reshared the FAQ document and expressed that it would be useful for board members to attend one of our information sessions (at least one representative made themselves known at F2F events) or that we could arrange something separately. Dates and joining details for F2F and webinar events were shared.

## **Loch Lomond Angling Improvement Association (LLAIA)**

A representative of the Loch Lomond Angling Improvement Association (LLAIA) attended a face-to-face public event and was encouraged to arrange a follow up discussion at the end of the talk. An email was sent from the LLAIA representative following the talk to the beaver project email address, which was responded to by Heather Devey on 28 July 2022, where it was recommended that LLAIA compile members' concerns so these could be discussed in more detail prior to completing the questionnaire. This email was not responded to.

## **NatureScot (NS)**

Throughout project development, various members of the NatureScot team have been kept informed about the project. This has included specific meetings with members of the Licencing Team before and after the stakeholder engagement period; quarterly meetings with members of the NNR management team and special meetings including relevant Area Officers.

## **Loch Lomond and the Trossachs National Park (LL&TNP)**

As with NS, LL&TNP have been engaged with the application process throughout as one of the key partners in the NNR. Funding towards the delivery of stakeholder engagement activities was provided to enable the project to move forwards. To date, no concerns have been raised by LL&TNP regarding the proposal.



## 5. Summary

Throughout the consultation period, all questions posed by local stakeholders have been responded to by the project team with the most current information on beaver ecology, impacts and management – on both a local, and national level, where possible.

The majority of people who expressed concerns, primarily through the online questionnaire, have referred to wider national beaver management considerations. Consultation with certain groups – in particular those with angling interests – has therefore focussed on a small number of key beaver management concerns, such as riverbank erosion and tree felling, which fall under the scope of NatureScot's national beaver management framework. Comments regarding impacts upon migratory fish have been expressed by some members of the angling community, which can be remedied through ongoing monitoring, communication and the application of national and international research on beavers/ salmonids.

Any localised impacts will continue to be monitored by RSPB Scotland, and advice and guidance will be provided to other local landowners if required in the future.

Regarding the specific local aspects of the consultation, all queries have been responded to and actioned where possible. For example, queries regarding potential impacts on septic tank systems have been well considered through a pre-release management plan, including the installation of remote water level monitors.

Many members of the community have expressed their support of the project, with some sharing aspirations to access new educational experiences on beavers by volunteering with RSPB Scotland Loch Lomond or visiting the reserve, to better understand beavers and the wider natural environment.

It is clear that continued communication and education is needed regarding beavers and their impacts locally, and more widely throughout Scotland; something which RSPB Scotland considers an important aspect of the RSPB Scotland Loch Lomond translocation.

## 6. Appendices

### 6.1 Appendix 1 | Pre-launch email notification text

**Text from email notification submitted to local residents and stakeholders, from RSPB Scotland Loch Lomond Site Manager Paula Baker.**

*The RSPB Scotland Loch Lomond team are embarking upon an exciting project in the coming months, at the end of which we hope to translocate a small number of beavers from other areas of Scotland to the Loch Lomond National Nature Reserve (NNR). As a key stakeholder in the NNR, we wanted to ensure you are amongst the first to know about this and have the opportunity to ask us any questions. We are aware that there can be concerns related to beaver impacts, along with many misconceptions about their ecology, behaviour and management. To help with this, I have included an **FAQ document** which contains information about the project and about beavers in general.*

*We have employed an independent contractor, Heather Devey, who will be leading on providing information and answering questions about the project. She will be running face to face and online meetings, the first of which will take place on **Tuesday 21<sup>st</sup> June at 1900 via Zoom**. She will also be producing a questionnaire about the project which will be available for completion.*

*In the meantime, you can keep up to date with progress on the project by visiting our [blog](#) (the first update will go live next week), and you are welcome to contact us about this project by emailing [beavers.lomond@rspb.org.uk](mailto:beavers.lomond@rspb.org.uk)*

### 6.2 Appendix 2 | Webpage

**Screenshots of the beaver translocation webpage hosted on RSPB Scotland's Loch Lomond reserve blog (launched 14<sup>th</sup> June 2022). Information was updated when required by the RSPB Scotland team.**

*Screenshots were taken at end of engagement period, prior to this, a link to the questionnaire was available, along with details of all events.*



## Our proposal to move some beavers to Loch Lomond



Kirsty Nutt 14 Jun 2022



Today, 14 June, we announced that RSPB Scotland is leading on a proposal to move a small number of beavers to the Loch Lomond National Nature Reserve. This blog explains why we want to bring beavers to Loch Lomond.

## Why we want to bring beavers to Loch Lomond

Last year, beavers in Scotland got some good news when the Scottish Government announced that further beaver translocations would be authorised. Translocations involve moving animals from one area where they are found to another, whereas reintroduction is about putting them back following local extinction/loss.

RSPB Scotland believes that beaver translocations in Scotland should be used to prevent these protected animals being shot in places where their activity might cause issues. So, we strongly welcomed this change in policy, and it was great to see the first translocation of a beaver family (outside of Knapdale) completed by Argaty Red Kites last autumn.

Now, we're excited to announce that we are leading on a proposal to translocate beavers from areas in Tayside to the Loch Lomond National Nature Reserve (NNR) using the RSPB Scotland nature reserve as the release site.



*Trail camera photo of a beaver at Loch Lomond in 2019.*

RSPB Scotland Loch Lomond is an ideal site for beavers. In 2019 an individual was recorded foraging on the NNR. Since then, we have carried out extensive surveys on the reserve looking at areas where beavers will likely choose to live as well as carrying out a risk assessment to make sure none of the other species that share the reserve will be detrimentally affected. All this information will be used in the application we need to submit to NatureScot for a license which is required before a translocation can take place.

We hope to submit the application later this summer. But before we do, we will be talking with the local community, local stakeholders and local organisations to gain views on the proposed translocation. We've already been in touch with many of our neighbours, but also want to involve the wider community. So, we are planning a number of events. The first of these is an online evening talk on Tuesday 21 June, but we will host a variety of other in person and online events and discussions to ensure everyone has their chance to find out more.

Beavers are amazing ecosystem engineers that create habitat such as wet woodland, open water and channels that benefit a whole range of species. Whilst we accept that in certain areas, such as low-lying agricultural land, these activities can be problematic, we believe that, where possible, beavers should be moved rather than resorting to lethal control. So since the Scottish Government announcement last year, we have been looking at our nature reserves as potential translocation areas. RSPB Scotland Loch Lomond is the first of these sites, representing an area within the current range of existing beaver populations.





We are hoping, if the application is successful, to release up to eight beavers (likely a single family group or two pairs) into the Loch Lomond NNR, perhaps as early as this autumn. They will then be monitored to see how they settle in.

With over 100,000 hectares of vacant, suitable wetland habitat for beavers away from high conflict areas, we hope that translocation projects like Argaty Red Kites and our proposed one at Loch Lomond can, in the future, offer beavers in Scotland a chance to fully realise their potential across the country.

**We will be updating this blog on a regular basis, so bookmark this page to keep up to date with details of upcoming events, progress and more.**

## Frequently asked questions

You can read the answers to some frequently asked questions here: [7127.1526.RSPB Beaver Translocation FAQs - updated 28 July 2022.pdf](#) .

The report mentioned in the FAQs is available here: [6114.Report\\_Beaver\\_suitability\\_assessment\\_Loch\\_Lomond\\_Sept\\_2013.pdf](#)

Want to ask us something else? Then you are welcome to email [beavers.lomond@rspb.org.uk](mailto:beavers.lomond@rspb.org.uk).

## Events

We have hosted a number of events, both in person and online. Don't worry if you couldn't make it. Please read the FAQs and please get in touch with any questions on the email above.



16 comments 0 members are here

Leave a comment...

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☒ Enter to Login and Comment

## 6.3 Appendix 3 | Blog webpage feedback

Publicly available comments taken from the RSPB Scotland Loch Lomond beaver translocation webpage (as of 26 August 2022).

PUBLIC COMMENT	RSPB SCOTLAND RESPONSE
I live locally and would wholeheartedly support this proposal. Bio-diversity is key to protecting the climate and all habitats, and the translocation of beavers captures the interest of local communities and enhances overall awareness, respect for, and appreciation of outdoor spaces.	That's great to hear. If you wanted to come along to the first online event next Tuesday (21 June) at 7 pm, the registration link is now live here: (LINK)
Applaud translocation to loch Lomond.	The registration link for the first online event on Tuesday 21 June at 7pm is now available if you wanted to find out more. It's (LINK)
Loch Lomond should provide good habitat for beavers – NBN Atlas <a href="https://nbnatlas.org">https://nbnatlas.org</a> shows that there have already been a small number of records (possibly young animals dispersing naturally) on the Rivers Endrick and Leven at the south end of Loch Lomond around 2019, and the Falloch at the north end in 2021.	We agree entirely. If you would like to find out more about the proposal the link to register for the first online event next Tuesday at 7 pm is now available: (LINK)
I live locally and am a frequent visitor to Loch Lomond and the River Endrick.  So the proposal is to translocate beavers away from areas where their activity may cause issues, which is perfectly reasonable. However, I would be interested to know what issues beaver activity is causing on Tayside that would not also be directly applicable to the Lomond area.  Is the risk assessment that assesses detrimental impact on other species that share the reserve complete yet, and if so is this publicly available?	The potential impacts of beavers on 142 notable species (including 67 rare and scarce species) recorded on the reserve are being assessed. We've just got a couple of spider species still to complete. The vast majority of these species are likely to see either no impact or potential positive benefits. There was only one species, a fly, that may be negatively impacted due to its requirement for shade near wet features. A handful of species may be impacted positively or negatively, for example water starwort might be negatively impacted in their current locations but have more suitable areas created in new locations. These species will be included in RSPB Scotland's monitoring schedule allowing for mitigation to be carried out if deemed necessary.
So removing beavers from one area because of damage to another area were	Hi xxxxx. As the area around Loch Lomond is very different to the areas where issues occur in Tayside, we are not expecting a repeat of the challenges there.

the same will happen then repeat the process...why?	
Why remove beavers to another area when they have already done damage to do the same again?	Hi xxxxx, the issues in Tayside are largely related to beaver activity on prime agricultural land, for example damming field drains which can cause flooding across areas of valuable cropped land. The area around Lomond is not prime agricultural land and the water system is not as highly modified so we are not expecting the same issues here.
Beavers are not native to Loch Lomond. Their dams and negative impacts upon burns and rivers will directly impact in a bad way on migratory fish movements in the system, resulting in a reduction of spawning sites and less fish such as salmon and sea trout. These fish are native to the Lomond system. I will never support a proposal to 25iligence non native species which impact negatively upon native species. I therefore oppose the proposal to introduce beavers to the Lomond system.	Hi xxxxx,  Thanks for your comment. Beavers are native but they have been missing from much of Scotland for around 400 years after they were hunted to extinction in the 16 <sup>th</sup> century (for fur, meat and castoreum). We understand your concerns about potential impacts on fish, particularly salmon and want to assure you that this is considered throughout the beaver restoration process. Salmon are unlikely to be impacted on the main part of the River Endrick because wide rivers aren't suitable for damming and the upper reaches are also not very suitable as beaver habitat due to lack of vegetation, so are also unlikely to be impacted. Our overall assessment is that beavers are unlikely to cause issues for salmon in this location and could increase habitat suitability by increasing shelter, feeding and breeding opportunities. Although they are unlikely to be needed, there are mitigation measures supported by NatureScot for dam management or fish passage that can be used. We appreciate you sharing your feedback with us. If you haven't already, please make sure that you fill out the questionnaire so we can capture your views.

## 6.4 Appendix 4 | Information poster

Poster created and installed locally to increase reach of the translocation proposal, and to encourage attendance on public information events (created after first online event).



# Loch Lomond beaver translocation

Join one of our upcoming events to find out more about beavers, and our proposal to translocate a small number of beavers to Loch Lomond.

### Face to face presentations

**Monday 11 July, 7pm**  
**Thursday 21 July, 7pm**  
*(until approximately 8.30pm)*

Hosted at Kilmaronock Millenium Hall, Church Road, Gartocharn, G83 8NF.  
An illustrated presentation, open for all to attend, no booking required.

### Online webinar

**Tuesday 12 July, 7.30pm**

A webinar hosted online via Zoom. Open for all to attend, registration required.  
Please visit the RSPB Loch Lomond blog, or contact us via email at [beavers.lomond@rspb.org.uk](mailto:beavers.lomond@rspb.org.uk) to access the registration link.

*To read more about our beaver translocation, view our FAQs, and complete our questionnaire please visit the online RSPB Loch Lomond blog. You are also welcome to contact us directly at [beavers.lomond@rspb.org.uk](mailto:beavers.lomond@rspb.org.uk).*



## 6.5 Appendix 5 | Webinar feedback

Transcripts of questions submitted via Q&A function on Zoom webinar events, hosted by RSPB Scotland Loch Lomond Site Manager, Paula Baker and Wild Intrigue consultant, Heather Devey. **Every question was responded to live by the hosts.** Video recordings of each webinar are also available.

Names of attendees and those submitting questions have been removed.

### 6.5i | 21<sup>st</sup> June webinar responses

29 questions/ statements were submitted over a 1.5 hour webinar hosted on 21 June 2022.

Report Generated:	Jun 22, 2022 10:48 AM
Topic	Webinar ID
RSPB Loch Lomond – Beaver Information Session	634 7782 5116
Question Details	
#	Question
1	is there beavers in the loch now?
2	when was the last drought in loch area?
3	what would be the effect of the beavers on planning within 1 mile of a beaver home?
4	hi, can you say how many trees and how much vegetation (maybe in acres) would a family of beavers consume in a year.
5	what is a predator to the beaver?
6	why are we engineering nature when it is doing it naturally can we just not help the ones that are here?
7	The government is under pressure to relocate beavers because of the problems they have created in the areas where they are established eg Tayside, and where they have become a big problem
8	do we know how many are in the loch and where?
9	do you have any early thoughts on what specific places on the NNR might be likely beaver dam sites?
10	what evidence is there of past beavers on Loch Lomond/Endrick River?
11	where are the current LL beaver populations and what experience is there of effects on land around?
12	How large is a family territory?
13	Will the beavers be enclosed in any way initially for monitoring or left to roam free?
14	how far from the release site would beavers be likely to travel?
15	can you publish all questions asked?
16	Will RSPB pay for damage – have you money?
17	The aber burn is already choked at multiple points. What impact is likely upstream with further damming by beavers
18	and all answers
19	How many and why were beavers being culled on the Tay, and how long did it take for the population to grow to a level requiring culling.
20	Why will slowing down the Endrick benefit us, we need to speed it up to prevent flooding.
21	Would beavers eat or reduce balsam or other invasive species we have trouble with?
22	What happens if beavers start cutting down trees of residents in Loch Lomond side?

<b>23</b>	so when they get to many in the loch we kill them as well?
<b>24</b>	Is there any compensation to farmers and landowners for damage caused by beavers
<b>25</b>	What numbers of beavers are planning on being released?
<b>26</b>	You mentioned that beavers can be very determined fighters are there any cases where beavers have harmed other species, pets or even people. Is that a risk to visitors & tourists.
<b>27</b>	Can you estimate how many beavers a site can support?
<b>28</b>	What have you got in mind for public engagement for the licensing
<b>29</b>	Thanks Heather & Paula for an interesting & useful presentation

## 6.5ii / 18 July webinar responses

104 questions/ statements were submitted in total over a 2.5 hour webinar hosted on 18 July 2022; 63 of these were submitted by a single representative from Kilmarnock Community Council, and 23 were submitted by “Resident 1”, both referred to in *Section 4*.

Question Report	
Report Generated:	Jul 18, 2022 11:36 AM
Topic	Webinar ID
RSPB Loch Lomond – Beaver Information Session	
Question Details	
#	Question
1	There are two adult beavers and 2yrs progeny proposed for the NNR. Are these beavers currently causing local difficulties in Tayside or are the animals being captured to order?
2	In the event the community are not satisfied with RSPB management plans will the licence be delayed for enough time to satisfy concerns?
3	Will the RSPB public liability insurance cover damage caused?
4	Can we apply for licences to shoot/kill beavers that are causing risk to property?
5	Wee Beavers proven to be residents here- can you prove it? If not this is not reintroduction but introduction.
6	Have you consulted with Council regarding flooding Trunk Road of National interest? Eg A811 – strategic trunk road between Faslane and Rosyth.
7	Are the farmers in Tayside happy about beavers?
8	Can't the excess beavers from Tayside just be sent to Europe or shot?
9	Have you carried out a full environmental impact given the Endrick Water is a SAC Protected river with Atlantic Salmon one of five qualifying species, as such those species must be fully protected.
10	Are they key stone here? How can you say that?
11	Will the golf course be flooded?
12	Do SEPA agree with this plan?
13	The SG Beaver Strategy Group have produced a document called 'Beaver Strategy for Scotland' which will be publically in two weeks from now. The document covers translocation, requirements for impact studies prior to release into new areas and the criteria for management plans thereafter. Would it be sensible to suggest no further discussion until everyone has had a chance to read the document?
14	A Scot Gov grant has just been given to the Angling Trust to prevent river bank erosion – beavers will wreck the river bank so what's the plan?
15	If a Beaver kills domestic fowl, can we shoot them?
16	Beaver dams will flood A roads, will the cost of police, re routing and carbon cost be paid by RSPB? Have the RSPB got carbon credit available.
17	Has flood model been taken, the Endrick will flood more often.
18	There has no impact and risk study done, so how can you promote this with responsibility.
19	Can you confirm that salmon migration will not be affected on Loch Lomond rivers?
20	Can you confirm that brown trout will not be affected by the dams?
21	Will the public be allowed to remove beaver dams if there is risk of damage to property?
22	The Devon Wildlife Trust have produced a booklet that shows the changes to surface water over 5 years after the introduction of beavers. Over a large area 13 ponds were created the surface area of water went from 90m2 to 1800m2 an increase of 2000%. An impact similar to this will seriously damage the workings of septic tanks in low lying areas, there are quite a number locally, especially the Lagganbeg Caravan Park. Have the RSPB been in consultation with SEPA?
23	The depth of the Endrick will never be deepened by Beavers- fact.
24	Wrong the Endrick need flow speed increased!

25	Loch Lomond Water and Endrick water is clean – no filtering is of benefit.
26	From what you say, the benefits may apply elsewhere but not here, not evidence of proper work has been done in context.
27	Why do RSPB – a bird charity – want to spend money on Beavers – is this in the constitution?
28	Will RSPB be giving the chicken wire to us?
29	Why are the Tayside people not happy if Beavers are so nice? Could these be the same reasons as here? Why not?
30	We are not in the EU, Brexit happened, so not protected here in UK.
31	Heather, are you familiar with the NNR on Loch Lomond? The NNR has an International Ramsar designation for its wet woodland, open water and nutrient loaded fen. We already have the conditions that beavers create.
32	Has the RSPB considered the impact of beaver dams blocking access for migratory fish such as Atlantic Salmon and Sea Trout on spawning streams such as the River Endrick, considering that native migratory fish stocks are becoming increasingly fragile in the face of various environmental factors?
33	Why are the RSPB making this application? When Scot Gov policy was for natural expansion and only in extreme cases relocation.
34	Do RSPB members really support this? If so why are other sourced funds being used? Clearly if members supported it money from member would cover the cost.
35	Is the risk assessment that assesses detrimental impact on other species that share the reserve complete, and if so is this publicly available?
36	Are any species or people's homes on the NNR at risk from this – do you know?
37	If the application takes many months will the reintroduction be delayed?
38	With Atlantic Salmon having SAC protected species as Sean indicates they will block spawning burns and thus prevent access to the natural spawning beds. So the legislation over beavers can't be at detriment to another protected species which are classified as fragile and Scot Gov wishes to expand Salmon populations.
39	If Beavers block septic tanks can they be shot?
40	Paula, where is the proof and evidence for these beavers in the catchment you keep mentioning?
41	If the risk assessment that assesses detrimental impact on other species that share the reserve is incomplete, when is it expected to complete and will this be publicly available?
42	Who will be authorised to control Beavers?
43	Saying beavers will assist Net Zero is a gross simplification of a complex issue.
44	The Beavers if they were ever allowed to be relocated onto the RSPB reserve, what process and mitigation measures are or will the RSPB take to prevent their migration onto other landowners' properties in the Endrick and Blane Valleys?
45	Could we not open the floor and have a 'normal' Zoom meeting, please?
46	Who has provided due on the risks caused by beavers to the environment in this context?
47	Two landowners on the Tay catchment have just spent circa £250K on river bank stabilisation works due to the burrows caused by Beavers expanding in that location, do you think that is appropriate and fair for your neighbours in the Endrick and Blane Valleys? That's the type of damage that is happening as we speak.
48	The blog mentions that the proposal is to translocate beavers away from areas where their activity may cause issues. You have stated that some of the issues which have occurred on Tayside are because the surrounding landscape is agricultural which the Lomond landscape is not. Can this logic be applied to all beaver related issues that have occurred on Tayside or only a subset of issues?
49	Why is the law different in England, do Beavers have maps and respect borders or something?
50	Couldn't the beavers actually improve habitats for fry and parr in the Endrick by creating fish nurseries? Presumably they also create something of a blockage to adults returning, (although salmon have evolved with beavers too haven't they?)
51	Where will Beavers from Loch Lomond be moved to?
52	You have outlined some positives. What negatives have you identified, if any?
53	[Name removed]
54	There are reports of "problem" beavers, how do we avoid them and or send them somewhere else.?
55	In a word no, the bank damage causes silting up of the critical gravel to the detriment of invertebrates and also Salmon must have access to the spawning burns.

56	Why is this happening when people are about to go on holiday?
57	Is this a rush?
58	It seems you are working to your programme NOT community time table?
59	What is the scientific view on the balance of impacts to salmon at different stages of their freshwater lifecycle from across Europe? (Probably too complex to answer here....?)
60	So if our Alsatian dog eats your beavers does the same apply?
61	But it's the RSPB making the application to introduce Beavers so you must take responsibility of those actions.
62	No one has said Beavers eat fish!!!! Why is that being quoted?
63	Will a General Game license apply? Who agrees what is the point of option to kill?
64	If this is "introduction" then RSPB are outwith their
65	How do you know that the beaver that was seen in the Lomond area was not illegally released?
66	The road at Drymen bridge is only a few feet above HW, any reduction in flow will increase flood risk, Royal Navy defence need this road open. Seems important?
67	Paula, you talk about the RSPB land but the Beavers are not going to stay there so it's the impact on the whole Endrick and Blane water courses that you need to do a study on.
68	Will the info the RSPB provide to Nature.scot be made to everyone?
69	Who enforces the EU protected species, UK courts won't?
70	Agree with (name removed). You have talked about far beavers can travel so to assume that they will not spread throughout the Endrick, Blane and entire Lomond system is a gross oversimplification.
71	The reality is Tayside farmers are VERY angry and unhappy.
72	Montrose Estates own the golf course.
73	Will Hydro generating power intakes risk blockage, there are numerous renewable power plants feeding Loch Lomond, if Beavers reduce renewable power then they increase carbon emissions and make added carbon costs.
74	What feedback have you received from the Loch Lomond National Park Authority around your proposal?  I would expect the LLNPA to have highlighted the significance of the River Endrick as the main spawning stream for Atlantic Salmon on the Lomond catchment.
75	But we can't slow down the river flow, it will cause flooding!
76	Where is the money going to come from for the necessary mitigation?
77	Well done Heather for not agreeing with Paula's statement that the River Endrick is too wide for flooding. It is little wider than a burn in places, especially in periods of low water.  Paula – have you walked the length of the Endrick?
78	The Endrick is not too wide to dam higher up...
79	Apologies I meant to say well done for not agreeing with Paula's statement that the Endrick is too wide to dam. That is not true.
80	I don't accept your answer about risk of migration and spawning – the salmon experts remain uncertain, which expert are you using?
81	Apologies as this may have already been covered but do you see capital support, even a limited fund for landowners to manage the land in conjunction with these beavers?
82	KCC are holding a public meeting on 5 Sept and will be holding an opportunity for the public to express an opinion in public, (unlike these meetings) can you confirm the application will not be made until their response is recorded and available?
83	We don't face droughts here, thank fully. What we do have is land that is already boggy, this will be become more boggy. Fields currently used for grazing will become less useful and livestock will have to be moved to better quality land away from water. This then displaces the crop that was grown on that field. We are, as a country trying to become more self sufficient in our food production, land being flooded is not contributing to this aim.
84	Chicken wire is not strong enough, nature.scot video on tree protection, recommends much higher gauge wire, much more expensive.
85	Are there Beavers in Kielder water, can we not send them there?
86	Are you receiving funds from LLNP – public money?



87	Who provides due to RSPB and Nature Scot ?
88	I suggest the RSPB go away and document responses properly when they are ready, we dont have time for this now.
89	One in too! Like foxes.
90	its clear you are miles away from knowing enough to make an informed decision. We wish to present the case to the community on 5 Sept at a public meeting, will you be ready then with a full briefing to be issued before the meeting?
91	why bring beavers to loch when the damage they cause has been seen on tayside
92	I dont have more time, for more than this, we have had two sessions and there are still large.
93	Its pretty ironic (name removed), that you don't have time after YOU have asked about 50 of these questions
94	I disagree the questions should all be in your work to do as part of risk studies. We should not need to ask.
95	But yes I can discuss !
96	Assuming farmers and landowners in the area come onboard with the proposals what kind of management and habitats would Nature Scot and RSPB like to see in the area?
97	Paula, we have a huge human in the UK compared to when Beavers last lived in the UK, this is why we are facing problems with this program. We have planted trees by the Aber Burn. These will be some of the first to be eaten, there are probably 300 – 400 trees in that plantation, it will be a huge job to fence those, time and money. What is the sense of grants being handed out for tree planting the same trees then being destroyed?
98	you are missing out responses to a number of questions!
99	all the original Tyside beavers were illegally released
100	In addition to your proposed monitoring of the beavers themselves, what species present in the area do you anticipate could benefit from beaver presence?
101	<a href="https://www.nature.scot/risk-extreme-droughts-likely-increase-scotland">https://www.nature.scot/risk-extreme-droughts-likely-increase-scotland</a> more droughts to come.....
102	Please confirm you will wait until KCC hold a public open meeting on 5 Sept with other CCs, experts invited and to submit a minuted report.
103	But who does provide due diligence to Nature Scot?
104	Thank you for answering so many questions. Much more to talk about. Very pleased that nature.scot will be funding mitigation but for how long? We really need to see a full management plan with the finances attached, please.

## 6.6 Appendix 6 | Face-to-face talk feedback

### 6.6i 11 July 2022 event feedback

**EVENT:** Face-to-face beaver translocation talk

**LOCATION:** Millennium Hall, Gartocharn

**HOST:**

Heather Devey (Co-Director Wild Intrigue/ Engagement consultant for translocation proposal)

**IN ATTENDANCE:**

Cain Scrimgeour (Co-Director Wild Intrigue)

**ATTENDEES:** 3 people in attendance

*Table. Audience questions/ comments asked gathered the event, and responses/ follow up actions required*

QUESTION/ COMMENT	RESPONSE
Will beavers increase amount of water on the reserve, and risk flooding my neighbouring property?	Explained beaver activity (channelling) can hold more water without too much additional increase in height of water table. Water monitors will be installed. Attendee still concerned of potential impact, Heather suggests on site discussion with RSPB Scotland team.
What happens when beaver become overpopulated?	Shared info beaver dispersal behaviour and beaver population in Scotland, still many catchments to be populated through Scotland and wider Britain. Territorial; natural population management. Beaver management hierarchy available if/ when required.
There is too much (woody) debris in the Aber Burn already.	Natural process, however, where it causes problems, debris can be altered/ removed. Debris helps slow water flow and allow baseflow during droughts. Possible damming by beavers in Aber; impacts will be monitored by RSPB Scotland; management hierarchy if required; remote water monitors.
Impacts of beavers on Atlantic Salmon?	Shared research available on Beaver Trust website, including Norway case studies. Will form part of NatureScot's assessment.

### 6.6ii 21 July 2022 event feedback

**EVENT:** Face-to-face beaver translocation talk

**LOCATION:** Millennium Hall, Gartocharn

**HOSTS:**

Heather Devey (Co-Director Wild Intrigue/ Engagement consultant for translocation proposal)

James Silvey (RSPB Scotland Senior Species and Habitats Officer)

**IN ATTENDANCE:**

Cain Scrimgeour (Co-Director Wild Intrigue/ Transcribed points of meeting)

**ATTENDEES: 32 people in attendance**

Included representatives from Kilmarnock Community Council, Loch Lomond Angling Improvement Association, Buchanan Estates and Luss Estates.

*Table. Audience questions/ comments asked gathered the event, and responses/ follow up actions required*

QUESTION/ COMMENT	RESPONSE/ FOLLOW UP
More information on the project timeframe is needed.	Heather/ James explained NatureScot licencing process and shared proposed timeframe for LL translocation.
Why are you moving beavers from one area to another?	Heather reiterated benefits to biodiversity, carbon sequestration, wetland management as detailed in talk. Explained NatureScot management hierarchy and approval of translocation within Scotland. James explained feasibility study identifying Loch Lomond as a suitable site.
Riverside tree planting – expenditure and expectation to do so (fisheries in particular) – beavers will “cause destruction” to this.	Heather explained beavers and trees co-evolving, and trees (and other vegetation) benefit from natural levels of browsing pressure. Also returned to options for tree protection (featured in talk). James explained NatureScot process/ funding options for tree protection and other management. Explained age of trees taken by beavers will mostly be beyond whips.
Rivers designated at SSSI/ SPA for salmon and lamprey. Has this been taken into account?	James shared that NatureScot will complete an SEA which includes aspects such as habitat designations/ protected species.

When will SEA begin, how does this work?	James explained process, and inclusion of NatureScot's consultation period.
Beavers are a problem along the Tay, why would we move them to Loch Lomond?	Heather reiterated situation behind Tay beavers causing problems, such as unexpected arrival along low lying agricultural land (featured in talk). Not individual beavers which are a problem, it is their impacts in certain locations where repeated mitigation efforts are ineffective. James mentioned that beavers are already present along north shore of Lomond (contested by angler in audience). Government support available to translocate into suitable areas.
No natural predators, will culls happen in the future? (Linked with issues relating to Red Deer)	James explained historic predators, discussion on how these remain in Europe. Both explained that beavers reaching carrying capacity across Britain is a long way off, and highly territorial nature limits this to some extent. Explained this will (likely) be part of NatureScot's and Natural England's plans for more strategic beaver management. Mentioned that shooting beavers under licence remains an option in the management hierarchy, but is currently last option while populations are restored.
A second request to talk through licencing process.	James explained process (from European to local level) in further detail.
Local couple raise issue that no letter/ mail was posted about translocation plans. Concerns from local residents about water levels rising; linked with perception of existing flood risk being increased, and impact of septic tanks.	Both apologised for this, explain this is entirely unintended and will work to ensure their views are heard and they receive updates (UPDATE: couple did not leave contact details upon request, unknown to RSPB Scotland staff). James explained role of water level monitors throughout the project which will be installed prior to beavers arriving.
Concerns around estates with paved riverbeds	Heather mentioned this could be further discussed on site with the Loch Lomond team, and to get in touch to arrange a meeting. (UPDATE: on site meeting held, see <i>Section 4</i> ).
Request for project plan for local stakeholders to contribute to	Both mentioned this is the start of opportunities to discuss project, Heather stated a community-wide plan (not just LL-focussed) would be useful to start considering, as beavers will naturally recolonise in time.

Local landowner stated he would like more information on beaver mitigation/ expected impacts	James suggested a meeting is arranged with Beaver Trust member of staff (UPDATE: site visit undertaken on Friday 26 <sup>th</sup> August, as per <i>Buchanan Estates</i> summary in <i>Section 4.</i> )
How many beavers can LL support?	James shared how this is difficult to confirm but foraging indexes and dam capacity modelling etc can help identify suitable areas for beavers. Mentioned that two beaver families may be supported at RSPB Scotland LL - following concern that 2 families were being translocated James reiterated that one family is planned to be translocated currently, 2 families are the possible carrying capacity for site.
Statement that beavers will cause contamination of rivers (reference to American film?) – Giardia mentioned.	Both explained beavers can be carriers of some diseases, mentioned these are already present in many UK mammals including livestock. Mentioned that beavers are health screened and pathogens of main concern are absent in British population. (UPDATE: email correspondence about this continues)
Why are RSPB working with beavers and not birds?	James explained RSPB's role in restoring functioning ecosystems for birds, and other wildlife; Beavers role as wetland engineers.
Concerns over river bank erosion	Heather explained process of river bank erosion through collapsed burrows being a possible risk. Mentioned protection that can be put in place, also that catchment scale slowing of water (through damming) can reduce risk of existing erosion. Follow on question from landowner about excluding beavers along catchments through fencing; Heather mentioned this wouldn't be preferable as other species would be excluded too, James mentioned water gates designed for beavers.
Concerns of alluvial plain (ref to glacial valley) and risk of compounded water resulting in field flooding/ livestock loss (previous occurrence)	Both mentioned many areas are unsuitable for beavers to dam due to velocity of water, and that most structures are temporary. Mentioned use of flow devices on tributaries/ drainage ditches where needed – highlighted that beavers don't dam unless required/ able. (Site visit recommended at a later date)



Questions on impact on Salmonids and sediment related to beaver activity	(Unable to answer due to other questions/ comments being raised simultaneously)
Request for documents associated to translocation to be made public	Both mentioned documents which can be made available, and that some are still in proofing stage (but may be possible to share when complete). (UPDATE: Beaver suitability assessment PDF uploaded onto webpage)
Has an impact assessment of people's homes been made? Will site visits be made?	James mentioned this would be part of NatureScot's considerations, and reiterated water level monitors would be installed and necessary management (such as flow devices) made.
How is Scottish beaver strategy being formed? Will it follow a template following England?	Heather explained English process is currently different to Scottish. James shared information on some expected inclusions in Scottish beaver strategy, but that it will be released end-July.
Why is RSPB leading this translocation proposal, and not NatureScot?	James explained that NatureScot are the licencing authority and currently landowners are only able to apply to translocate beavers. Reiterated national beaver strategy being developed by NatureScot.
What happens if a beaver fells a tree with an Osprey nest is?	James mentioned that osprey nests that may be susceptible to beaver felling can be protected following effective beaver management guidelines. Also mentioned that nests can naturally fail due to factors such as strong winds, and that trees can be strongly protected from beavers.
Is RSPB looking at existing site protection in the wider Lomond area?	James mentioned this would be part of NatureScot's SEA.
Is there a budget for mitigation, would RSPB hold this?	Both explained NatureScot's role and that NatureScot currently, and plan on continuing to, fund mitigation where it is needed.
Would fish (Salmonid) spawning habitat be afforded protection from beavers?	James explained that NatureScot's SEA would incorporate risk to local spawning grounds.

## 6.7 APPENDIX 7 | Qualitative responses

The option of submitting qualitative feedback (supportive, unsupportive and/ or neutral responses) was available in Question 10 of the public questionnaire; the results of which are listed in three tables below.

### SUPPORTIVE RESPONSES

More wetlands equal better biodiversity
Improvement of the wetland habitats at the mouth of the Endrick water and they will create a variety of diverse freshwater habitats for invertebrates and native fish populations
Native species that worked well with the natural ecosystem previously
Great for creating wetlands Overall increase in biodiversity
Beavers open up the woodland around them allowing pioneering, light-hungry plants to grow. Beaver dams reduce waterflow of rivers and streams and flood the local area, creating the basic requirements for complex wetland habitats to form. They are amazing animals
Beneficial to ecology and waterways
We need natural floodcontrols and reservoirs
Increased biodiversity in and around pools, slow down flood flows
They help to shape the landscape in a natural way
Better water management, additional tourism opportunities
Beneficial, biodiversity and a great place for them to live
Help to maintain the wetlands at Wards, and the surrounding water courses. Improve the environment for several aquatic and insect species. Provide enhanced visitor experience on the reserve. Help to ease pressure on Tayside. Allow better monitoring of activities to allay any possible perceived detrimental issues, and increase research opportunities.

Creation of new wetlands is bound to improve ecology by making new habitat for many species other than beavers eg. insects and the birds that eat them.
Beavers are part of the historic ecology of Loch Lomond. While I grew up on Blairennich and cleared the drainage channels as a farmer; I have read about species reintroduction and I see the value in using beavers to re-wild some of the watercourses. I value that habitat more now that I don't live within it.
From reading the info provided it seems the reserve could be a good place for the beavers to do what they do with any problems having mitigation solutions.
Help to maintain the wetlands at Wards, and the surrounding water courses. Improve the environment for several aquatic and insect species. Provide enhanced visitor experience on the reserve. Help to ease pressure on Tayside. Allow better monitoring of activities to allay any possible perceived detrimental issues, and increase research opportunities.
Beavers will create new wetland habitat, as a result improvements in biodiversity, including benefits to fish populations. The wetlands will also provide further ecosystem services, including flood control.
Will bring benefits to biodiversity and local ecosystem. They will help create a more dynamic ecosystem which can create habitats for a range of other species.
I think they will be beneficial for the area. We are attempting to 'rewild' areas and are learning more and more about the connectivity of everything and the way that beavers can help adjust the landscape for all.
Water storage, increase in inverts, slow flow
Beaver activity enriches aquatic habitat and brings dynamism and diversity to riverbanks
I feel that the reintroduction of beavers in Loch Lomond would be greatly beneficial, as they are currently a missing piece of the ecosystem; the NNR has so much incredible wildlife, and the benefits of reintroducing beavers into this habitat will only make it a greater hotspot for biodiversity and increase the resilience of the wetlands.

RSPB loch Lomond is an ideal habitat for beavers. If not introduced they will find this habitat themselves within a few years. The area is wetland anyway and the ecosystem will be very much enhanced by having beavers. I strongly support the plans to the NNR. There is a lot of misunderstanding about beavers and I would strongly encourage members of the community to attend the information meeting organised by the RSPB
Articles read on positive influence of beaver activity/ reintroduction and general growing interest in rewilding / wild places as a sustainable tourism drawcard
Beavers are fantastic ecosystem and flood managers
Beavers were a key component of these types of places and their activities should be beneficial for a range of other species
will improve wetlands, increase biodiversity, slow down water flow, increase carbon capture, plus coppicing is good too.
I understand that beavers will alter the local ecology. I do not know how this will affect farmers.
I have seen first hand the positive impacts made by beavers
They are beneficial to managing water courses
They will help restore the natural flow of water in a river system and reduce flood risk lower down as well as creating diverse habitats for other species.
Complex wetland / Clear woods
Increased bio-diversity, carbon sequestration, control water levels during flood & drought.

## NON-SUPPORTIVE RESPONSES

Tree damage and aqua ecosystem damage
I've seen photos of other areas they've been reintroduced
Habitat destruction for birds & fish
not native with no natural predators
Not needed in the area
They destroy trees and decimate a resource that was recently planted at very high cost to help protected fish habitat on the r. Endrick. Thus adversely affect the r endrick SAC for a protected fish species
They will remove important cover for salmon and trout parr which keeps the water temperature down. Dan's will mean loss of streamy water which provides oxygen that they need. With the way beavers " migrate" they will more than likely move over to the River Fruin and other important rivers in they system. I find it extremely unlikely that they will stick to the Endrick.
They destroy natural habitats of species already there and already endangered
Dams created in rivers affecting flow, potential flooding. Damage to trees.
I have fallen into the Tay due to beaver damage on the river bank
Who pays for the damage perpetrated by beavers?
Human impact on the region and the specific requirements and consequences do not tolerate the introduction of pre Stuart species.
i have seen the damage they have caused on other rivers
Ive seen the damage they've caused to the tay catchment



<p>There are multiple SAC and SPA on the Endrick and Loch Lomond - no analysis has been completed on the effects.</p> <p>No analysis has been done to show the effects on the migratory fish populations of the Loch Lomond system.</p> <p>No explanation has been given on how the species will be controlled in the future, given that RSPB has said their land will only hold two families, and one family is being translocated to solve a problem elsewhere. Clearly the RSPB do not have the resolve to fix an issue elsewhere.</p> <p>No satisfactory explanation has been given why the natural expansion of the species cannot proceed without this unnatural and unnecessary piece of acceleration.</p> <p>No guarantee or explanation has been given as to how damage by beavers to farmland, golf courses, hydro schemes and such like will be compensated.</p>
Damage to river
I've seen the habitat damage done by beavers on the Tay. The Endrick is a smaller river, and may well be more negatively affected by beaver populations
Their dams will impede salmon migration
<p>There is already an established wetland area at the intended release site, beavers not required to create an environment that already exists.</p> <p>As the Tayside example has shown severe damage to trees on tributary streams and loss of coverage of the streams has allowed temperature of streams to increase. This will potentially cause damage to migratory fish populations. Removal of these trees also leads to increased erosion of riverbanks and localised flooding.</p> <p>The current environment has evolved over the last 400 years without beavers, they're introduction can only have a negative impact.</p>
Impact on trees, blocking rivers affecting salmon spawning
Uncontrolled rehabilitation of other water courses
I think this introduction will decimated the return of Atlantic salmon to the river Endrick and its contributerres
Previous sites are an example of the negative impact they have.

I've witnessed the damage caused to woodland in the Tay catchment
Destruction, flooding, negative impact on the fish population and migratory species being hindered from returning to spawning grounds.
Trees felled by beavers and dams are likely to cause blockages on the River Endrick and provide barriers that migratory fish such as Salmon and Sea Trout may be unable to pass. Migratory fish stocks are under significant pressures and should not be considered as a secondary priority.
Devastating effect on young trees and bank destruction
There is plenty info on the destruction these animals have caused..rspb answer we don't think that will happen on lochlomond? if you don't think it will happen will rspb accept responsibility if it does
I feel it will have a negative effect on fish stock, migration and breeding.
They will cause damage in spawning areas, The Endrick is an SAC river, there is also protected species on the Endrick
I have seen first hand the massive damage beavers have done to trees up and down the Tay. Hundreds of trees killed
Damage to trees and water life
Seen the damage the beavers have done to other eco systems
Beavers block streams and cause damage to trees
Salmon and Sea Trout numbers in the Lomond system need obstacle free migration. Also Beaver faeces are a problem in still water.

Damage and destruction of large specimen trees as has been seen along the River Tay, despite being told this will not happen. Therefore there will be conflict with forestry and ancient woodland regeneration.
I have witnessed first hand the damage they do elsewhere
Well a translocation to loch lomond because they are causing trouble elsewhere, is only translocating trouble to loch lomond, Humans should stop messing with nature. its has only caused trouble when trying.
Seen the damage and destruction caused by beavers on the river Tay
Beavers have damaged other areas they have been introduce to the same will happen to lochlomond
Erosion of river Bank, dams impeding the passage of migratory fish, reduced flows, creation of slower moving water that will help merganser prey on salmon and seatrout fry and smolts
Destruction of trees along riverside meaning less cover and shade for fish
Dams will block salmonid migration routes. Beavers will be targeted by hunters
Park authority kill none indigenous species why introduce a new one they will damage trees block spawning burns flood
Do a lot of damage, have seen it on the river Tay
After the damage done on the River Tay catchment I think they would cause untold damage to an already fragile and mismanaged location

You can't guarantee that they will only build dams were there is little impact on migration of fish already the ecological system is in decline and to put an alien species into a system where they haven't been for hundreds of years

Significant Demonstrable damage by Beavers to River Tay, Erich and other Tay tributaries to river bank being undermined, mature trees felled removing cover for juvenile fish, burrowing into river bank leading to increased erosion and sedimentary deposits negatively impacting spawning redds. River Erich damage to date this year published as over £95,000 alone

I have witnessed beavers cutting branches and trees to the detriment of bank stability and cover for fish.

I regularly visit the River Tay, the Beavers are destroying hundreds of bankside trees and causing damage to riverbanks with their burrows

I have witnessed first hand the damage these animals do to our native trees, the same trees that the "rewilding party" are also worried about and planting in any moor they find. Have also been on a beat and witnessed a bank collapse into the river taking an angler with it. Not to mention the restrictions their behaviour puts on migratory fish.

We are doing so many things to save the Atlantic salmon with mixed effects. Introducing an animal to the area which will without doubt in time come into conflict with the spawning runs.

I have seen in first had the damage that can be done, especially as the L.L.F.T has just spent thousands in government funds planting trees to helps reduce the water temperature.  
As in this present time we must keep the rivers as cool as possible.  
I am not against the animal however it's the amount of damage that they can do to river banks and felling trees is my concern.

They will be to the detriment of the surrounding countryside and to local property including fish ( Atlantic salmon seatrout lamprey eel, as the Endrick is a sssi protected area why is this something that is being considered as the river is SAC ,under gov legislation then the organisation proposals must be unlawful

Leave nature to look after itself, all the money wasted last year with the sea eagle's I'm glad the ospreys got rid, rspb useless

Migratory fish in the system are already struggling, maybe even at their lowest stock density in living memory, the damming of any spawning river will have a catastrophic effect on salmon and sea-trout ability to spawn. History shows quite clearly the detrimental effects of damming a spawning river.

These animals will fell bankside trees and vegetation that protects river banks. They will also dam the pools and runs in the system which will add to the woes of our migratory fish.

I have seen the devastation they have left in the tay system. I have huge concerns about the eco system in and around Loch Lomond given my experience on the tay system.

As they have done in my area, they will destroy mature trees along rivers allowing bank erosion. They will damage migratory fish spawning tributaries as they have in my area. They will breed uncontrolled as they have done in my area, causing the damage listed above.

Destruction of newly planted trees .Flooding of fields. Damage to riverbanks



I have seen first hand the damage to river banks, mature trees, farmers land on the Tay system rivers and burns, to say there will be no similar damage or damage will be less on the Endrick water is simply not true.

Destruction of flora, some unique to Loch Lomond. Destruction of river banks through tunnelling. Threat to designated species. Trees chopped down. Septic tank systems threatened by raised surface water level. Cost of proper management. Undermining of infrastructure by tunnelling into the bank of Endrick and Leven.

Will do so much damage to migrating and spawning fish.

Tree damage Drainage damage

Beavers are not natural to the Lomond system and they will cause a negative impact upon native migratory fish movements. Salmon and sea trout will be impeded in their travels to spawn by dams created by beavers. We must do all we can to protect existing native species, not threaten them.

I think it is naive to think think beavers damage drains on "prime agricultural land" where they are to be translocated from and wont do the same on the River Endrick. All the land along the Endrick has tile land drains just like arable ground that the beavers will be moved from. Your comments on this aspect show a total lack of understanding of agriculture in this area.

1/Erosion of river embankments by tunnelling.  
 2/ Flooding of grazing land due to beaver damming of tributaries to the Endrick.  
 3/Damage to existing trees and damage to new trees being planted by The Loch Lomond Fisheries Trust( recently arranged)  
 4/No measures in place to control their numbers when they inevitably breed.  
 5/ No mention of compensation for damage done to private property.

Just look at the damage that's been done to the banks of the River Tay by the introduction of beavers

Why introduce beavers when they have already done damage on tayside

I am aware of the problems encountered in other locations on the Tay and Earn systems with significant river bank damage, erosion, field collapse and trees. Also concerned re flooding with damming in an established wetland with poor run off and damage to my own trees on my land of 8 acres right next to the reserve. Please note I am an RSPB nature and have been a big supporter of RSPB Loch Lomond and their work so far.

## NEUTRAL RESPONSES

Impact will depend on the success of the beavers in establishing a niche. The ecology and environment change continuously, and I think beavers would be a beneficial element in such changes.

Until they are introduced it is hard to know how they will impact.

The benefits of Beavers were only talked about in general terms without any specifics relevant to the Lomond area.

There are already beavers here, and the impact is negligible. The impact of greater numbers may also be, but the lack of publicly available research and related management plans, means that I am in doubt as to whether this is more than a gimmick. It would be

good and honest if all research and management/mitigation plans were in the public domain before any release takes place.

I am concerned that there has been little thought to and communication with those of us who live and work next to the Endrick, and the effect it will have on our lives.

I would strongly encourage the RSPB to visit everyone on the rivers edges from Balfron downwards, and explain the benefits that the beavers could bring.

Unsure of impacts on salmon migration

I Don't pretend to know much about Beavers

## 6.8 APPENDIX 8 | Drymen Community Council community feedback

**Text and (anonymised) responses from Drymen Community Council's own small-scale consultation of the Loch Lomond beaver translocation via Facebook.**

### **TEXT**

*The RSPB plan to introduce a family of beavers into their bird sanctuary on Loch Lomond near Kilmaronock. They have widely publicised their plans and are holding public meetings. Drymen Community Council would like to know if our community supports the plan. So far, we have received concerns that the beavers will eat fish stocks, even though beavers don't actually eat fish (they are herbivores). People have said that the beavers will cause the land to flood, even though the area in question is wetland (it's already flooded). Some people think that the beavers will attract tourists who will spend money and support local businesses. What do you think? Sensible answers please. Thanks.*

### **RESPONSES (each paragraph represents a separate individual's response)**

This is a brilliant move and the perfect habitat for them. They are already recorded in the area which is great. Look forward to watching their family grow.

Is there not evidence that beavers are already present on the river Endrick further up than Drymen, and a video on Facebook at Balmaha of a beaver? Can't wait to see them introduced to the area 🦫💙🦫

Absolutely brilliant move by RSPB Scotland! The family of beavers will teach folk how to reconnect with nature. Beavers are very useful green engineers. I most definitely will welcome them to Loch Lomond and look forward to watching them grow and rewild the National Park area.

Beavers will be a great addition to the area around the RSPB reserve. Studies of beaver re-introductions typically show that they improve the biodiversity of the area and also improve the habitat for fish. And they're also a great way to get people interested in nature. Looking forward to seeing them!

Beavers are fantastic they control flooding and improve ecosystems. They are a real draw for wildlife enthusiasts and I wish there were more in Scotland. We travel to Perthshire to see their activities

A fabulous idea. Like any introduction, there can be valid concerns and negative impacts when introduced to the wrong habitat. However, the reserve is perfect and this offers a great chance for education on the subject.

Think it's a great idea and presumably that habitat has been researched by RSPB and found suitable for beavers to live in

Fully support introduction of beavers they will enhance the wetland and bring biodiversity - just watch spring watch to see the good they do

The RSPB also have a family of beavers at Kinnordy Loch at Kirriemuir in Angus, in fact they have more than one family as there are four lodges on the Loch which I don't think the RSPB

are aware of. To introduce beavers to Loch Lomond I think is brilliant news as long as the RSPB assign a team to look after them by wiring some suspect trees before the beavers take them down and monitor their daily movements, build hides so that the public can see how the beavers work, play and how they can change a landscape for the good.

This is a great plan from the RSPB and I think the reserve is a great location for this. I fully support this and look forward to seeing them 😊

Like (REDACTED) and (REDACTED) fully support the introduction of beaver. I think it will really increase interest and visitor numbers (and therefore success) of the reserve. I only see the positives of having beaver. 'Mon the beaver!

Awesome idea, all for it. 🙌🙌🙌👍

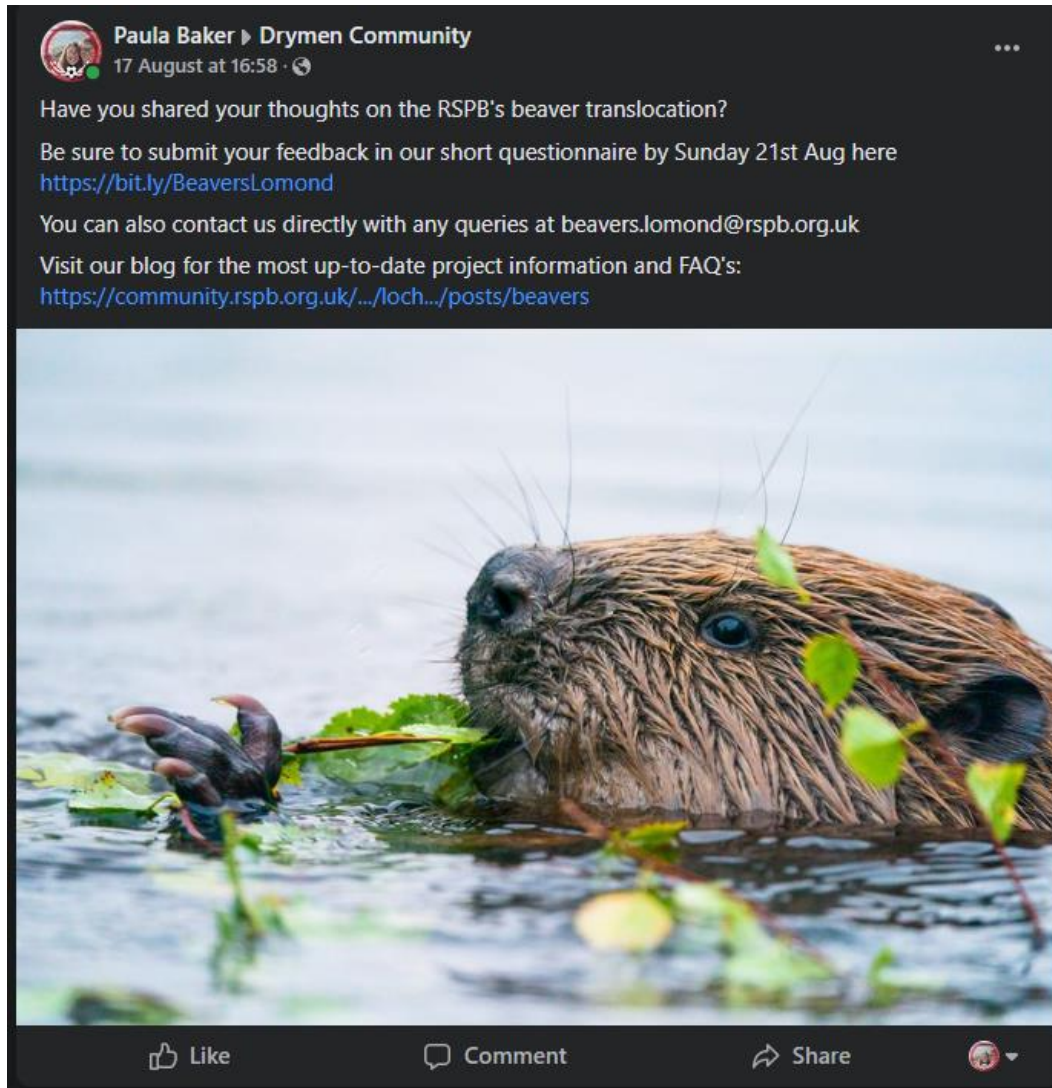
I believe there has already been beavers seen and trees chewed at Kilmaronock, Buchanan Castle Golf Club. How many do you introduce to an area? Will they get tagged to watch their movements which would have let folk know where the ones that are there now have came from. All. very interesting.

Think it's a great idea - adds to the biodiversity

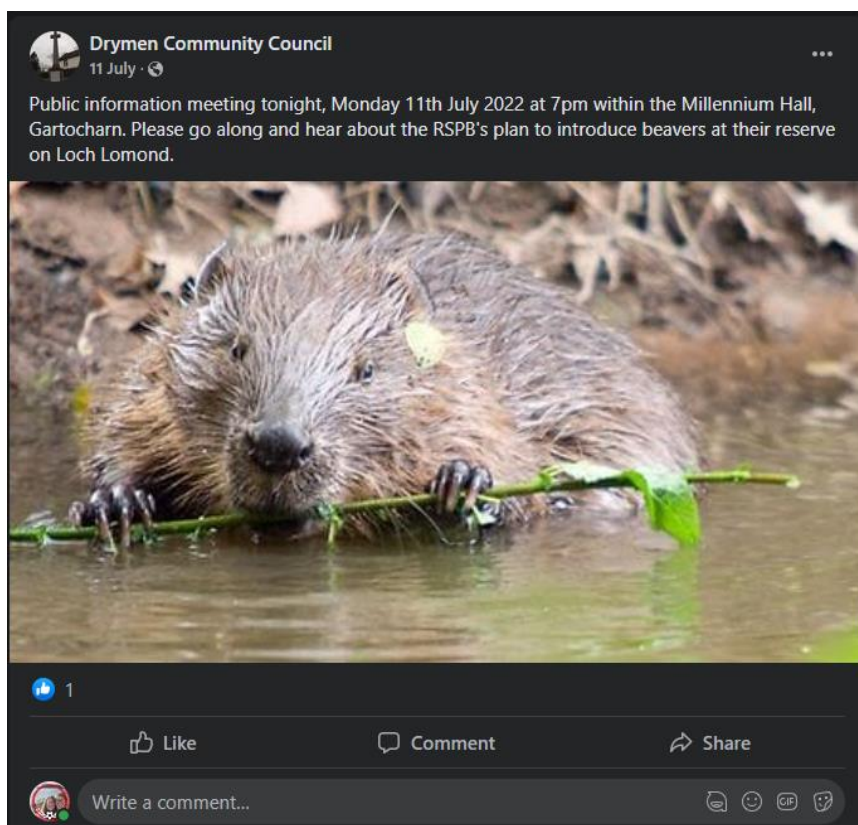
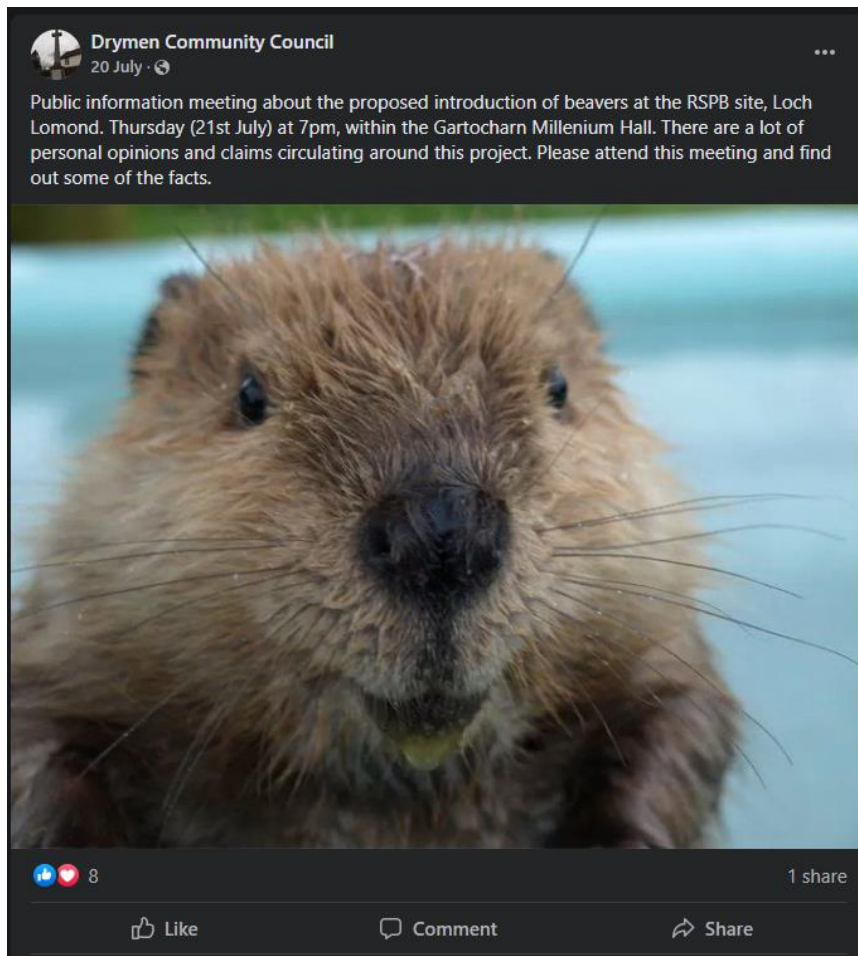
Can only do good!

## 6.9 Appendix 9 | Examples of social media outreach

The following posts featured on the Drymen Community Council Facebook page throughout the engagement period. All posts have been anonymised, excluding “Paula Baker”, RSPB Scotland Loch Lomond Site Manager.







The following posts featured on the Drymen Community Council Facebook page throughout the engagement period.

Some dates to note for community matters...

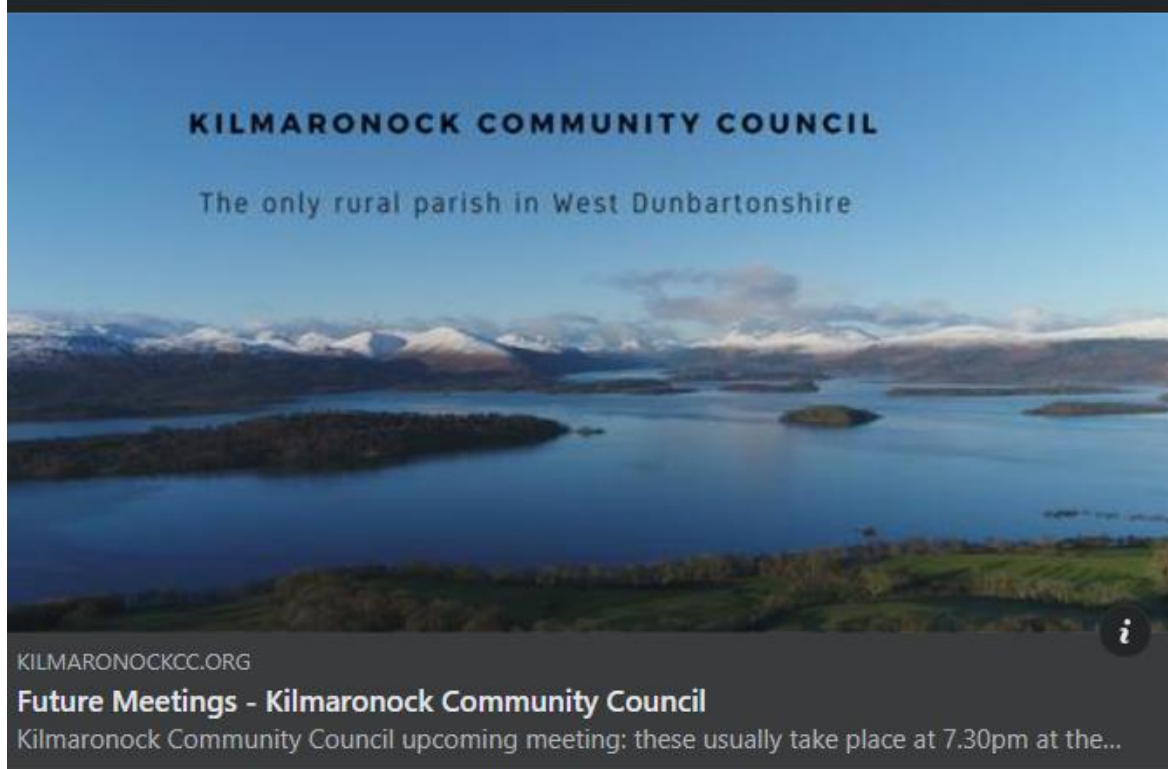
1st September is the closing date for nominations to be a Community Councillor – see West Dunbartonshire Council or Kilmaronock Community Council website for more information or pick up a nomination pack at the library. There will only be an election if there are more than 8 nominated candidates!

5th September there is a special interest meeting in the Millennium Hall regarding the RSPB plan to translocate some of the unwanted Tayside beavers to the Loch Lomond National Nature Reserve.


12th September is the regular Community Council meeting (moved from 5th Sept to accommodate the beaver meeting).

Agendas for both of these are on the KCC website and will also be posted on FB nearer the event date.

[Future Meetings - Kilmaronock Community Council \(kilmaronockcc.org\)](http://kilmaronockcc.org)






**RSPB Scotland** shared a link.  
18 July · 🌐

You may have recently heard about plans to translocate a family of beavers to RSPB Scotland Loch Lomond.

If you would like to discover more about beavers and their behaviour, you're welcome to come along to an information session hosted by Heather Devey, who will share insights into this keystone species.

The public talk will be hosted at Gartocharn Millennium Hall on Thursday 21st July at 7pm. Everyone is welcome, and booking is not required.

For more information on the beaver ... **See more**

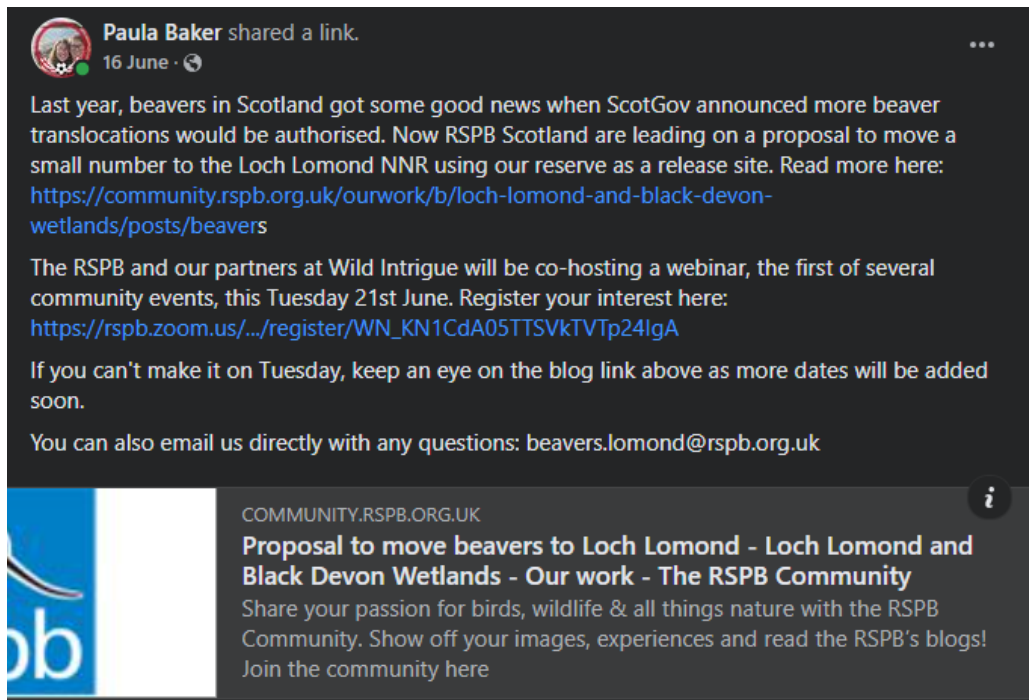


COMMUNITY.RSPB.ORG.UK

**Proposal to move beavers to Loch Lomond - Loch Lomond and Black Devon Wetlands - Our work - The RSPB Community**

Share your passion for birds, wildlife & all things nature with the RSPB Community. Show off your images, experiences and read the RSPB's blogs! Join the community here





## 6.10 Appendix 10 | RSPB Scotland Nature Hub

Throughout summer the RSPB Scotland Nature Hub has been available in the car park of the reserve, to share information on local wildlife with to visitors to the reserve. This year, to coincide with stakeholder engagement about beavers, RSPB Scotland visitor staff included a

section on beavers including a fact sheet, beaver tree chippings, details of engagement events, and a prompt to talk about beavers.

The following comments were noted in the RSPB Scotland Loch Lomond reserve diary by the team operating the RSPB Nature Hub on site.

***Saturday 25 June***

Lady very excited about beaver project, perfect place for them, can't wait and so positive about translocation process

***Sunday 10 July***

Lots of beaver engagement and Inversnaid promotion

***Saturday 16 July***

A few different groups of locals chatted to about beavers and interested in coming to the talk

Gartocharn locals chatted about beavers and very excited, suggested talk at the Primary School

***Sunday 17 July***

Lots of beaver engagement and locals interested in attending the next talk

***Monday 18 July***

Regular visitors from Kippen were keen to come to the beaver talk in the Millennium Hall on Thursday

***Monday 8 August***

Locals said how they'd just missed the last beaver talk (they had unexpected visitors just before it) and were disappointed to miss out and very excited and pro beavers!

***Mon 29<sup>th</sup> Aug***

"So excited to hear about the beavers possibly coming to the reserve! Already such an interesting place."

## **6.11 Appendix 11 Press and local coverage**

Examples of press and media coverage on the RSPB Scotland Loch Lomond beaver translocation proposal.

## Lennox Herald (with press release announcement)

🏠 InYourArea.co.uk

www.lennoxherald.co.uk

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A family of beavers could be moved to Loch Lomond in a bid to support their expansion in the country.

RSPB Scotland is leading the proposal to translocate a family of beavers to the Loch Lomond NNR, which is jointly managed by RSPB Scotland, Loch Lomond and the Trossachs National Park Authority and NatureScot.

Proposals to move beavers within Scotland require a licence from NatureScot.

Ahead of submitting the application to be a potential translocation release site, there will be a number of events, where communities can find out more about what the translocation would involve, ask any questions and share their thoughts.

There will also be a dedicated blog and email address for people who are unable to attend the events and an online questionnaire which everyone will be encouraged to complete.

Eurasian beavers are native to Britain and used to be widespread in Scotland, sharing their waterways with humans for thousands of years until they went extinct in the 16th century.

Their loss was mainly due to hunting for fur, meat and 'castoreum' but also from loss of wetland habitat.

Beavers are nature's engineers, improving habitat to suit their needs and, in the process, creating

wet woodland, open water and channels that benefit a whole range of species including dragonflies and fish.

Their activity can also reduce the speed of water flow, reducing the risks of flash flooding, and

improve water quality, by trapping sediments.

The proposal is for RSPB Scotland's Loch Lomond nature reserve to be a release site for beavers being moved from other places in Scotland to the nature

reserve. This would initially involve a small family group of between two and eight animals being released and then monitored to see how they settle in.

New Scottish Government policy that will come into effect

this summer aims to support the expansion of the beaver population across Scotland into both new catchments and catchments where beavers have already been sighted like at Loch Lomond.



### Dam fine plan to move beavers into Loch Lomond is under review

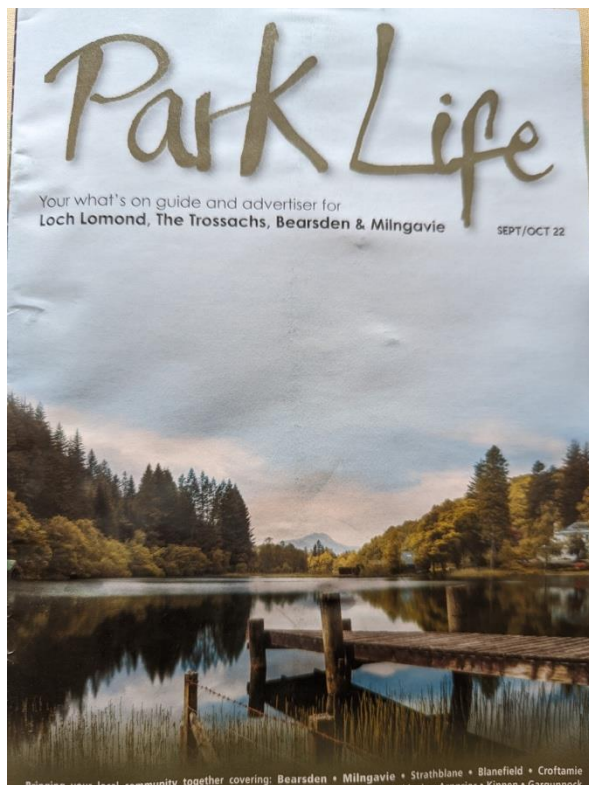
## MP urges Truss to save

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**The Lochside Press:** <https://thelochsidepress.com/2022/06/14/plan-to-move-beavers-to-loch-lomond-reserve-announced/>

**BirdGuides:** <https://www.birdguides.com/news/proposal-to-move-beavers-to-loch-lomond/>





## BACK (TO) LOCH LOMOND



For full details of this project including FAQs visit our website [www.rspb.org.uk/lochlomond](http://www.rspb.org.uk/lochlomond) and navigate to our beaver blog. You can also contact us with any questions: [beavers.lomond@rspb.org.uk](mailto:beavers.lomond@rspb.org.uk)

## BEAVER MYTH-BUSTING

### Myth: Beavers eat fish

**Reality:** Beavers are vegetarians, mainly eating aquatic plants, grasses, tree bark, twigs and leaves. In fact, they can boost fish numbers because the pools they create provide excellent spawning grounds for fish which could help threatened species such as the Atlantic salmon.

### Myth: Beavers destroy trees

**Reality:** While beavers certainly do gnaw down trees the overall impact of this 'coppicing' process on woodland encourages new growth, a greater variety of tree species and increases biodiversity by providing more homes for insects, birds and mammals. There are also a variety of mitigation methods, such as wire around the base of trees, that can prevent damage to trees on private land.

### Myth: Beavers cause damaging floods

**Reality:** This one can be true, especially if beaver activity blocks drains on prime agricultural land but, in the right place, their floods create new wetland habitat that is immensely beneficial for biodiversity. Therefore, the translocation of beavers is important; moving animals from areas where their activity is causing issues to more suitable habitat, rather than using lethal control, is a win-win for both beaver and humans.

plans to number of and, which is ve. persecuted for ed in perfume, humans led to ability to create tions for many species including dragonflies, fish and other mammals like water voles. Frequently coined as an 'Ecosystem Engineer' or 'Keystone Species', because of having significant positive influence on their environment, the benefits of beavers are well documented. Moreover, this enigmatic species attracts great opportunity for wildlife tourism, bringing social and economic benefits to areas where they are found.

In 2009, a reintroduction project, known as 'The Scottish Beaver Trial', took place at Knapdale which saw the first beavers living wild in Scotland for over 400 years. Outwith the official reintroduction there is a well-established population of beavers living in the Tay and Forth river catchments. In 2019, beavers were given European Protected Species status in Scotland with the view that they should expand their range naturally with no need for further reintroductions. Despite this, up until 2021, any beavers that came into conflict with humans, where their activities couldn't be managed through mitigation measures, were killed under licence, or translocated to limited enclosed release locations in England.

In 2021 the Scottish Government made the decision to authorise licenced beaver translocations within the country, to reduce the need for culling.

The first successful licenced translocation took place at Argaty Red Kite Centre in 2021. Now other organisations and landowners are starting to follow suit including RSPB Scotland Loch Lomond which is applying to be a release site.

Loch Lomond National Nature Reserve is a fantastic area for a range of wildlife, and ecological assessments have shown it has potential to be particularly good for beavers. The areas of open water, woodland and aquatic vegetation make this an ideal location for them to thrive.



## 6.12 Appendix 12 | Ongoing stakeholder engagement

*As discussions regarding beavers will be ongoing, meetings and conversations have continued to take place outside of the official 10-week engagement period. Progress with different interest groups up until the point of report submission is detailed below. In addition, stakeholder engagement guidance for beavers was published by NatureScot after the RSPB's engagement period was complete, and so some additional parties have been contacted regarding the proposal.*

### **Kilmaronock CC meeting, 5 September**

A special meeting of the Kilmaronock Community Council was held on 5 September 2022 to discuss RSPB Scotland's translocation proposal. Although this occurred after the end of our stakeholder engagement period, representatives from the RSPB Scotland Loch Lomond team (Paula Baker, Site Manager and Luke Wake, Warden) attended this meeting and answered relevant questions. Approximately 40-50 people were present from a variety of organisations and communities (not just those residing in the Kilmaronock area). These included LLFT, LLAIA and farmers and landowners from around the catchment. Presentations were given by LLFT, a local public health engineer, and a local resident. This was then followed by a detailed presentation given by a member of the NatureScot beaver team during which many of the issues were addressed and clear information was given about the licencing and mitigation processes available for beavers. Anything that could not be addressed was taken away by NS to follow-up.

The majority of the issues raised had already been highlighted during the stakeholder engagement period and have therefore been included in our mitigation/monitoring programme. Additionally, many of the issues are of a national scale, out with the scope of this stakeholder engagement and have now been highlighted to NS as well.

### **Loch Lomond Fisheries Trust:**

Further to comments made at the KCC meeting on 5 September, RSPB Site Manager Paula Baker has arranged a follow-up meeting with a member of the LLFT committee to increase understanding of their concerns regarding beavers. This was not able to take place prior to report submission.

### **Local neighbours:**

Further to comments made at the KCC meeting on 5 September, RSPB Site Manager Paula Baker arranged a follow-up meeting with both the owners of the Lagganbegg caravan park and with residents immediately on the periphery of the reserve boundary to discuss septic tanks and flooding concerns. In both instances, many questions were answered and specific concerns addressed. Both sets of residents had concerns about septic tank functionality. It was agreed with both residents that water level monitoring stations would be set with alert settings indicative of the tolerance level of septic tank systems so that swift action could be taken in the event of an unexpected increase in water levels i.e. not seasonal weather related, and that any increase in waterlogging of land would also be monitored by the RSPB team. We also discussed tree protection and offered to send advice about funding sources and help with any application process.

Local resident 1 (mentioned in main report) continues to be in touch and has requested further information about the plans for managing beavers. They have been informed that all

documents relating to the beaver licence, including mitigation plans for species and land, will be made public on 7 October when our application is submitted. They have also been directed to the recently published National Beaver Strategy.

Local resident and KCC Vice Chairman has been in touch to offer an engineering assessment of the wetland as an alternative to introducing beavers as follows:

Paula

Just a note following the Beaver meeting, I remember some of the water level controls from when I used be down at the Wards.

I think myself and other engineers could assist you design a way to increase water levels with a lot more certainty and control than any beaver can do. It could be done in a few weeks.

If this is of interest I would ask a local civil engineer to join me and we can come down and look – no fee!

With regards

XXX

Below is the response from RSPB Scotland Site Manager, Paula Baker:

Dear XXX,

Many thanks for getting in touch and for your offer below.

As you will have heard during the stakeholder engagement events over the past few months, the return of beavers is about a lot more than just water levels. The role of beavers as a keystone species will help us in delivering good wetland management which will benefit the ecology of the NNR. Although beavers can and do engineer changes in water levels, there are many other alterations within a wetland that cannot be replicated by man, but that beavers will naturally work to create. In fact, the absolute control of water is not what we want, as nature thrives in a much more dynamic world rather than one that is rigidly controlled. A key outcome of our project is also to support the wider spread of beavers as per the ambitions of the Scottish Government and the National Beaver Strategy, as well as reducing culling of a European Protected Species.

Beavers would respond to changing weather patterns and water availability on an ongoing basis, and would create ecological niches for a variety of different species and habitats through their behaviours. It is incredibly difficult and resource heavy for humans to recreate the dynamism beavers would introduce into a wetland.

We are always open to arranging a meeting with you, on site or otherwise, as we have expressed during recent events, however, I would be concerned that anything more in-depth would be a waste of your/an engineer's time given that rigid engineering will not achieve the outcomes of the project.

Regards

Paula

### **Local Authorities**

A selection of relevant organisations have all been contacted by email, using the following template text, which was sent on 21 September. Individual responses are detailed below:

Dear XXX,

I am writing to you to make you aware of a beaver translocation licence application we are currently developing for RSPB Scotland Loch Lomond. The licence will be for a single family of beavers (2-6 animals) to be moved from the Tay catchment to the Aber Burn at RSPB Loch Lomond in 2022/23. The animals moved would otherwise be subject to lethal control and as such we see this application as directly contributing to [Scotland's Beaver Strategy 2022 -2045.](#)

Beavers have already been recorded in the area so we are treating this as an in range translocation. An engagement period involving local communities and interested stakeholders has concluded and a feasibility assessment has been completed (available on request). We have been advised by NatureScot to also seek the opinion of local authorities on our application and we would therefore like to invite you to comment on our plans either in the form of a conversation with one of our team or directly to this email by the 7<sup>th</sup> October 2022.

A full explanation of our plans and previous assessment work can be found [here](#).

If you require any further information please do not hesitate to contact us.

Kind regards

**Scottish Water:**

No responses have been received to date.

**SEPA:**

No responses have been received to date.

**West Dunbartonshire Council:**

The West Dunbartonshire Council's Biodiversity Officer, responded to the request on 22 Sept. They have requested further information about our proposals. RSPB Site Manager, Paula Baker, has offered to set up a meeting to discuss this further.

On site meeting held with the WDC Biodiversity Officer where several aspects of the proposal were covered, including stakeholder engagement process, how and where to seek advice on mitigation if beavers cause issues and licence application process. No major issues were raised regarding the proposal.

A follow up response was received on 7 October from the WDC Biodiversity Officer

Hello all,

Thanks you for inviting me to comment on the proposal for a small family group of beaver to be translocated to RSPB Loch Lomond.

Given that beaver have already established in the north of Loch Lomond, and that there are previous records of them visiting the reserve, it would seem that the area is currently within the natural distribution range from the nearest population regardless of any translocation scheme. The habitat at Aber Burn within the reserve offers all the habitat requirement necessary and could bring about the many natural ecosystem benefits that are associated with beaver. This proposal is in keeping with

current policy as set out in Scotland's Beaver Strategy 2022-2045 and offers an alternative to animals being destroyed that have come to occupy land which is already used for a different function.

Should the translocation be approved the beaver will be closely monitored by the RSPB. However, future dispersal from the translocation site at Aber Burn could occur and potentially bring the beaver into contact with land use types such as low lying farmland and industry that could potentially be negatively impacted by their activity.

As part of the Strategy a strong suite of mitigations have been made available by NatureScot and this would be applied to any future conflict area whether the beaver arrived there by translocation or natural dispersal. It could be argued that the translocation could expedite the likelihood of this within the area and perhaps a clear communication strategy from NatureScot would be helpful to assist us in managing expectations and alleviating concerns.

The project would deliver many social and ecological benefits and is in line with the current policy position on managing beaver in Scotland. A National Nature Reserve with suitable habitat would be an appropriate place to translocate to.

Kind regards,

XXXX

XXXX

Biodiversity Officer  
Greenspace

**Forest and Land Scotland:**

The following response was received on 27 September from the local FLS Environment Manager.

Hi Paula,

I am doing well thanks, I hope everything is good with you too.

In response to your email, I can confirm that FLS are supportive of the proposed beaver translocation at Loch Lomond. The proposal fits with Scottish Government policy on beavers and is supported by licensing via NatureScot.

This specific proposal will have no negative impacts on FLS therefore, FLS has no objections.

I hope the planned translocation goes well.

Best Wishes,

XXXX

**Scottish Forestry**

No responses have been received to date.