

Welsh Beaver Project Frequently Asked Questions

Q. How are the Wildlife Trusts in Wales involved in beaver work?

Since 2005 the Wildlife Trusts in Wales have been leading the Welsh Beaver Project, investigating all the aspects of a managed reintroduction of beavers to Wales for the many benefits their presence can bring to wildlife, the environment and the economy. Reports have been produced covering all issues and suitable sites for a reintroduction have been selectedⁱ.

Q. Is there sufficient habitat for a beaver reintroduction in Wales?

An ecological feasibility study commissioned as part of the Welsh Beaver Assessment Initiative has shown that there is an abundance of habitat suitable for beavers in Walesⁱ.

Q. How would beaver reintroduction in Wales work?

Suitable sites across Wales have been identified for a reintroduction. Beavers for the reintroduction will be sourced from the wild in Scotland or captive animals already in Britain. All animals selected for the reintroduction will be health screened prior to release. Local volunteers will be trained and equipped to monitor and manage the effects of beavers into the future. Educational and research opportunities will be developed that demonstrate how effectively beavers manage natural habitats and benefit people and wildlife through water resource and environmental management.

Q. What do beavers eat?

Beavers are herbivores. They eat deciduous trees such as willow and birch, aquatic plants, grasses and shrubs.

Q. Why reintroduce beavers?

The reintroduction of beavers is being considered in Wales because of the positive impacts they can have on the environment. Beavers are often referred to as 'ecosystem engineers' because they can modify and help restore the habitats and landscapes they live in through coppicing, feeding and in some cases damming (beavers living on lakes or main rivers have little need of constructing dams). Research has shown that these activities have a positive impact on the ecological functioning of local ecosystems, which can benefit plants, invertebrates, amphibians, reptiles, fish, birds and other mammals^{ii, iii, iv, v, vi}.

Beavers forage close to water with activity usually concentrated within 20 metres of the water's edge^{vii}, 90% of activity being within 10 metres^{viii, ix, x, xi}. Beavers fell broad-leaved trees and bushes to reach upper branches to eat the bark during the winter and for construction of lodges and dams. Most native tree species regenerate, which diversifies the surrounding habitat structure and create areas of mixed-height, mixed age vegetation. Coppicing has been practiced by foresters throughout history as a method to manage bankside trees. The actions of beavers are very similar, meaning woodlands and trees are more naturally managed.



Ymddiriedolaeth
Natur Gogledd
Cymru

Prif Swyddfa:

Llys Garth, Ffordd Garth,
Bangor, Gwynedd, LL57 2RT
01248 351 541

Swyddfa Dwyrain:

Aberduna, Ffordd Maeshafn,
Maeshafn, Sir Ddinbych,
CH7 5LD
01248 351 541

North Wales
Wildlife Trust

Head Office:

Llys Garth, Garth Road,
Bangor, Gwynedd, LL57 2RT
01248 351 541

East Office:

Aberduna, Maeshafn Road,
Maeshafn, Denbighshire,
CH7 5LD
01248 351 541

info@northwaleswildlifetrust.org.uk

www.northwaleswildlifetrust.org.uk

Charity Number: 230772
Company Number: 773995

Rhif Elusen: 230772
Rhif Cwmni: 773995

Research has also shown that the creation of beaver dams can improve water quality by trapping sediment and can oxygenate water throughput, which can reduce the impact of pollution from runoff and moderate acidity levels^{xii, xiii}.

Q. What are the impacts on agriculture?

Beaver impact on livestock farming, the form of agricultural land use occupying the greatest proportion of any prospective beaver territory in Wales, is not seen as a significant issue. Problems can sometimes occur with crops growing close to the water's edge, including maize and roots, especially sugar beet, but these impacts are usually localised since beavers tend to forage mainly within 10-20 metres of a riverbank and only rarely range further than 100 metres^{ix, x, xi}. A number of management options can address this situation. Large mesh fencing and standard low-voltage electric fencing can be highly effective. Beavers have good memories and electric wiring placed for one week will prevent them from attempting entry for up to 3 months^{xiv}. Overall, experience from beaver reintroductions in continental Europe suggest that the cost of any impact is likely to be substantially outweighed by the revenue potential obtainable, both directly through nature tourism and indirectly via future recognition of ecosystem services, which could generate further agri-environmental support. Beavers are now present throughout almost all of Europe, having been reintroduced to over 25 countries^{xv}, including areas of highly intensive agriculture. With adequate management strategies in place, these reintroductions have not posed a significant problem.

Q. What are the impacts on fish?

The relationship between beavers and fish is complex^{xvi, xvii}. However, research has shown that overall beavers have a positive impact on fish by increasing the habitat variability for fish rearing and overwintering, creating refuges for different fish species, increase in aquatic invertebrate prey species and improvement in water quality below beaver dams. In some cases, short-term negative impacts can occur, for example low flow conditions may create a temporary barrier for migratory fish over a beaver dam^{xvi, xvii}, but there are a number of management techniques that can be employed to avoid these negative impacts if required. Further information can be found on the [Scottish Wildlife Trust website](#).

Q. Do beavers cause flooding?

Beaver dams and associated wetland habitat can significantly reduce flow velocity and even out the throughput of water following heavy rainfall. Beavers can thus play a role in mitigating downstream flooding and erosion. By contrast water retention resulting from beaver activity can also help sustain flow in rivers and streams during drier periods^{xii}.

Beavers rarely build dams in main rivers where there is a sufficient depth of water and strong currents make dam construction impossible, but may build dams in smaller streams or tributaries. Beavers may also make their way into low lying floodplains where agricultural activities depend on land drains and deep ditches, and it is in these areas where beaver dams can have more significant impacts. They can obstruct culverts and "restore wetlands" in places that are not compatible with the existing land-uses and therefore create



Ymddiriedolaeth
Natur Gogledd
Cymru

Prif Swyddfa:

Llys Garth, Ffordd Garth,
Bangor, Gwynedd, LL57 2RT
01248 351 541

Swyddfa Dwyrain:

Aberduna, Ffordd Maeshafn,
Maeshafn, Sir Ddinbych,
CH7 5LD
01248 351 541

North Wales
Wildlife Trust

Head Office:

Llys Garth, Garth Road,
Bangor, Gwynedd, LL57 2RT
01248 351 541

East Office:

Aberduna, Maeshafn Road,
Maeshafn, Denbighshire,
CH7 5LD
01248 351 541

info@northwaleswildlifetrust.org.uk

www.northwaleswildlifetrust.org.uk

Charity Number: 230772
Company Number: 773995

Rhif Elusen: 230772
Rhif Cwmni: 773995

both real and perceived conflicts. In these situations, dams will either have to be removed or modified with flow devices to manage water flow.

Q. What are the disease risks?

The reintroduction of beaver does not pose any greater risk for the transmission of disease^{xviii}. Many of the parasites that beavers can carry are already present in Britain and the presence of beavers does not increase disease transmission to livestock or people. To minimise risk, all beavers that are sourced for a reintroduction are health-screened prior to release^{xviii}. This will ensure that only healthy individuals are reintroduced.

Q. How would the cost of beaver impact compare with that of other wildlife?

Deer damage to agriculture alone in England has been estimated at £4.3 million, or £33 per km² per annum^{xix}. Rabbit damage has been cited as £44/km² per annum for Britain^{xx} depending on the incidence of myxomatosis. Overall, the benefits of beaver reintroductions have been calculated to outweigh the costs of management by up to 100:1. A study on the economic impacts of the beaver by the University of Oxford's Wildlife Conservation Research Unit^{xxi} concluded that "*with forethought, prior consultation and planning, a beaver reintroduction should bring significant monetary benefits within the local economy and communities that could greatly outweigh any potential negative impacts*".

Q. What are the tourism benefits?

In Europe beavers are a major attraction for wildlife watchers. In Denmark beavers were reintroduced in 1999 and tourists can visit the beavers through organised tours, attracting over 2000 visitors per yearⁱ. Beavers were also reintroduced to Belgium during the late 1990s and similar beaver watching tours are organised every year and advertised worldwideⁱ. The Scottish Beaver Trial (2009-2014) in Knapdale, Argyll attracted many visitors to the area. The value of wildlife experiences at Knapdale, such as guided walks were calculated between £355,000 and £520,00 over the five-year trial period^{xxii}. This can also benefit local hospitality industries with tourists staying near known beavers sites and private tourism ventures have also been set up by landowners establishing their own beaver watching visits and tours on their land.

Q. Why did beavers go extinct in Wales?

Beavers were once widespread across Wales but due to hunting by humans mainly for their fur and meat they became extinct by around the 15th Century^{xxiii}.

Q. Once reintroduced, could beavers become an uncontrollable pest?

No, beavers cannot become an uncontrollable pest, like for example, grey squirrel or rabbit as their populations are severely limited by habitat and food availability.

Experience from Europe indicates that control and impact mitigation is quite straightforward^{vii}. Beavers are restricted to suitable rivers, streams and lakes usually staying within 20 metres of the riverbank and rarely ranging further



Ymddiriedolaeth
Natur Gogledd
Cymru

Prif Swyddfa:

Llys Garth, Ffordd Garth,
Bangor, Gwynedd, LL57 2RT
01248 351 541

Swyddfa Dwyrain:

Aberduna, Ffordd Maeshafn,
Maeshafn, Sir Ddinbych,
CH7 5LD
01248 351 541

North Wales
Wildlife Trust

Head Office:

Llys Garth, Garth Road,
Bangor, Gwynedd, LL57 2RT
01248 351 541

East Office:

Aberduna, Maeshafn Road,
Maeshafn, Denbighshire,
CH7 5LD
01248 351 541

info@northwaleswildlifetrust.org.uk

www.northwaleswildlifetrust.org.uk

Charity Number: 230772
Company Number: 773995

Rhif Elusen: 230772
Rhif Cwmni: 773995

than 100 metres. They do not like crossing land between water courses so do not readily spread between catchment areas^{xxiv}.

Beavers have been reintroduced to over 25 countries in Europe^{xv}. If this process had posed a significant overall problem, and not brought substantial benefits, such reintroductions would long ago have been halted and reversed.

Q. Would a beaver population need to be controlled by culling?

Lethal control would very rarely be needed because of the relative cost-effectiveness of alternative management methods^{vii}. Beaver population growth is very slow for 20-30 years following reintroduction^{xxiv}, and thereafter removal to another site could be a practical option for many decades. In many European countries it is already possible to undertake localised lethal control with a licence, where nuisance can be proven and there is no feasible alternative.



Ymddiriedolaeth
Natur Gogledd
Cymru

Prif Swyddfa:

Llys Garth, Ffordd Garth,
Bangor, Gwynedd, LL57 2RT
01248 351 541

Swyddfa Dwyrain:

Aberduna, Ffordd Maeshafn,
Maeshafn, Sir Ddinbych,
CH7 5LD
01248 351 541

North Wales
Wildlife Trust

Head Office:

Llys Garth, Garth Road,
Bangor, Gwynedd, LL57 2RT
01248 351 541

East Office:

Aberduna, Maeshafn Road,
Maeshafn, Denbighshire,
CH7 5LD
01248 351 541

info@northwaleswildlifetrust.org.uk

www.northwaleswildlifetrust.org.uk

Charity Number: 230772
Company Number: 773995

Rhif Elusen: 230772
Rhif Cwmni: 773995

References

- ⁱ Jones, A.C.L., Halley, D.J., Gow, D., Branscombe, J. and Aykroyd, T. (2012). Welsh Beaver Assessment Initiative Report: An Investigation into the feasibility of reintroducing European Beaver (*Castor fiber*) to Wales. Wildlife Trusts Wales.
- ⁱⁱ Dalbeck, L., Hachel, M. & Campbell-Palmer, R. (2020). A review of the influence of beaver *Castor fiber* on amphibian assemblages in the floodplains of European temperate streams and river. *Herpetological Journal* 30: 135-146.
- ⁱⁱⁱ Gaywood, M., Jones, K.C., Ramsay, P. & Willby, N.J. (2017). Using ecosystem engineers as tools in habitat restoration and rewilding: beavers and wetlands. *Science of the Total Environment*. 605-606: 1021-1030.
- ^{iv} Law, A., Levanoni, O., Foster, G., Ecke, F. & Willby, N.J. (2019). Are beavers a solution to the freshwater biodiversity crisis? *Diversity and Distributions*. 00: 1-10.
- ^v Rosell, F., Bozser, O., Collen, P. & Parker, H. (2005). Ecological impact of beavers *Castor fiber* and *Castor canadensis* and their ability to modify ecosystems. *Mammal Reviews* 35 (3&4): 248-276.
- ^{vi} 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.
- ^{vii} Campbell-Palmer, R., Gow, D., Campbell, R., Dickinson, H., Girling, S., Gurnell, J., Halley, D., Jones, S., Lisle, S., Parker, H. Schwab, G. and Rosell, F. (2016). *The Eurasian Beaver Handbook: Ecology and Management of Castor fiber*. Exeter: Pelagic Publishing, UK.
- ^{viii} Baskin, L. and Sjöberg, G. (2003). Planning, coordination and realisation of Northern European beaver management, based on the experience of 50 years of beaver restoration in Russia, Finland, and Scandinavia. *Lutra* 46:243-250.
- ^{ix} Simonsen, T.A. (1973). Feeding ecology of the beaver *Castor fiber*. *Norwegian State Game Research Institute*. 2. Series. No. 39.
- ^x Howard, R.J. and Larson, J.S. (1985). A stream habitat classification system for beaver. *Journal of Wildlife Management* 49:19-25.
- ^{xi} Nolet, B.A., Hoekstra, A. and Ottenhiem, 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.
- ^{xii} Puttock, A., Graham, H.A., Cunliffe, A.M., Elliot, M. and 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.
- ^{xiii} Puttock, A., Graham, H.A., Carless, D. and Brazier, R.E. (2018). Sediment and nutrient storage in a beaver engineered wetland. *Earth Surface Processes and Landforms*. DOI: 10.1002/esp.4398.
- ^{xiv} Halley, D.J. & Bevanger, K. (2005). Bever – forvaltning av en jakt-, friluft- og miljøressurs. En håndbok om modern metoder for praktisk forvaltning av beverbestander (Beaver: management of a hunting, outdoor recreation, and environmental resource. A handbook on modern methods for practical management of beaver populations). – NINA Report 21. 61pp. <http://www.nina.no/archive/nina/PppBasePdf/rapport/2005/21.pdf>.
- ^{xv} Halley D., Saveljev, A. & Rosell (2020). Population and Distribution of beavers *Castor fiber* and *Castor canadensis* in Eurasia. *Mammal Review* 1-24.
- ^{xvi} Collen, P. and Gibson, R.J. (2001). The general ecology of beavers (*Castor* spp.), as related to their influence on stream ecosystems and riparian habitats, and the subsequent effects on fish – a review. *Reviews in Fish Biology and Fisheries*. 10: 439-461.
- ^{xvii} Kemp, P.S., Worthington, T.A, Langford, T.E., Tree, A.R.J. and Gaywood, M.J. (2012). Qualitative and Quantitative effects of reintroduced beavers on stream fish. *Fish and Fisheries*. 13:158-181.
- ^{xviii} Girling, S. J. Naylor, A., Fraser, M. & Campbell-Palmer, R. (2019). Reintroducing beavers *Castor fiber* to Britain: a disease risk analysis. *Mammal Review*. 1-24.
- ^{xix} Wilson, C. (2003). A preliminary Estimate of the Cost of Damage Caused by Deer to Agriculture in England. *JOUR*.
- ^{xx} Rees, W.A., Ross, A. Cowan, D.P., Tittensor, A.M. and Trout, R.C. (1985). Humane control of rabbits. In: *Humane Control of Land Mammals and Birds*. Universities Federation for Animal Welfare, Potters Bar. Pp. 96-102.
- ^{xxi} Campbell, R.D., Dutton, A. and Hughes, J. (2007). Economic impacts of the beaver. *Wildlife Conservation Research Unit*. Oxford University.
- ^{xxii} Gaywood, M., Stringer, A., Blake, D., Hall, J., Hennessy, M., Treem, A., Genney, D., Macdonald, I., Tonhasca, A., Bean, C., McKinnell, J., Cohen, S., Raynir, R., Watkinson, P., Bale, D., Taylor, K., Scott, J. and Blyth, S. (2015). *Beavers in Scotland: A report to the Scottish Government*. Scottish Natural Heritage, Inverness.
- ^{xxiii} Coles, B. (2019). Afanc, Bever, Castor: The Story of Beavers in Wales. WARP (Wetland Archaeology Research Project).
- ^{xxiv} Hartman, G. (1995). Patterns of spread of a reintroduced beaver (*Castor fiber*) population in Sweden. *Wildlife Biology*. 1: 97-103.



Ymddiriedolaeth Natur Gogledd Cymru

Prif Swyddfa:

Llys Garth, Ffordd Garth,
Bangor, Gwynedd, LL57 2RT
01248 351 541

Swyddfa Dwyrain:

Aberduna, Ffordd Maeshafn,
Maeshafn, Sir Ddinbych,
CH7 5LD
01248 351 541

North Wales Wildlife Trust

Head Office:

Llys Garth, Garth Road,
Bangor, Gwynedd, LL57 2RT
01248 351 541

East Office:

Aberduna, Maeshafn Road,
Maeshafn, Denbighshire,
CH7 5LD
01248 351 541

info@northwaleswildlifetrust.org.uk

www.northwaleswildlifetrust.org.uk

Charity Number: 230772
Company Number: 773995

Rhif Elusen: 230772
Rhif Cwmni: 773995