

Eurasian Beaver (*Castor fiber*) – Germany



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|-----------------------------|--|
| Conservation status | DE (ATL): FV |
| Protection status | HD: Annex II & IV, Annex V for Swedish and Finnish populations Bern Convention: Annex III |
| Population | EU27: > 356,000 – 568,000 individuals DE (CON): 5,000 – 50,000 individuals |
| MS with genuine improvement | AT (ALP), BE (ATL), DE (ATL), DE (CON), LU |
| Other MS | AT (CON), BE (CON), CZ, DE (ALP), DK, EE, ES, FI, FR, HU, LT, LV, NL, PL, RO, SE, SI, SK |

Photograph: Martina Lion (2011), <https://www.panoramio.com/photo/63040408>

Summary: The Eurasian Beaver has undergone a history of decline and more recent recovery across Europe, with the species, assessed by the IUCN as near threatened in the mid-nineties as a result of extensive hunting and wetland loss since the beginning of the 20th century, and as ‘least concern’ only fifteen years later. Conservation measures implemented through national and sub-national conservation programmes are the main driver of the species’ recovery in Europe, in effect securing the beaver’s favourable status as long as these mechanisms are in place. Successful conservation measures in Europe contributing to the species’ recovery included reintroductions and translocations, hunting restrictions, and habitat protection.

Background

Status and EU occurrence

Whilst the Eurasian Beaver (*Castor fiber*)¹ was once widespread in Europe and Asia, over-hunting drastically reduced the species’ range and population size from the early 20th century (Batbold et al. 2016). As a result, it was eradicated in all but a few sites across Europe: parts of the Rhone (France) and Elbe (Germany), southern Norway, the Neman River and Dnepr Basin (Belarus) and Voronezh (Russia). Subsequently, the implementation of management measures and reintroductions of the species has led to a recovery across much of its former range (Halley and Rosell 2002, Ceña et al. 2004). Over the 2007-12 period, beaver populations in the EU were mostly reported as having a favourable conservation status at a Member State and biogeographical level (Annex 1). The exceptions being in the Netherlands (and overall Atlantic region), Finland and Slovenia, where the species’ population status was unfavourable-inadequate – but in all of these cases their trends were positive, except in Finland where it was stable. And in Belgium and Luxembourg the beaver populations had an unfavourable–bad status, but in both countries their trends were positive. In Germany, the focus of this case study, the species’ 2007-12 status was favourable in all biogeographic regions (i.e. Alpine, Atlantic and Continental), which was considered to be a genuine improvement in the Atlantic and Continental regions since the 2001-06 assessment (EIONET, 2014).

Consequently although the Eurasian Beaver was assessed by IUCN as ‘near threatened’ in the mid-nineties since the beginning of the 20th century, only fifteen years later, its status is ‘least concern’ (IUCN 2016).

Ecological requirements

All beavers are semi-aquatic, using a variety of freshwater systems, including rivers, streams, irrigation ditches, lakes and swamps (IUCN 2016). While the Eurasian Beaver prefers freshwater habitats with surrounding woodland, some populations are present in agricultural land, suburban and urban areas (Tattersall 1999, Halley and Rosell 2002). Beavers can widely adapt and even survive in Scandinavian mountains (IUCN 2016). In general,

¹ Natura 2000 species code 1337

beavers are able to survive in most freshwater habitats where there are trees or shrubs and the gradient is not precipitous (IUCN 2016). However, the species prefers still or slow, laminar water flow if available (Nowak 1999, Halley and Rosell 2002).

Pressures and threats

The decline of the Eurasian Beaver population was mainly caused by over-hunting for fur, meat and castoreum (a secretion from the scent glands), combined with loss of wetland habitats (IUCN 2016). The most frequently reported highly important pressure and threat by EU Member States on the species over the 2007-12 period, was changes in water body conditions (listed in 26 assessments as a pressure and 31 as a threat)(EEA/ETC-BD, undated). Other highly important pressures listed in more than 10 assessments were mortality on roads and railways, hunting and interspecific faunal relations. Road and rail mortality is the only other highly important threat reported in more than 10 of assessments.

According to IUCN (2016) there are no threats that could cause a major regional decline (IUCN 2016). Although competitive exclusion of Eurasian Beaver by the American Beaver (*Castor canadensis*) causes some pressure in parts of Finland and north-west Russia, it is not a major regional threat as the invasive species' populations are only increasing slowly (due to heavy harvesting), and the two species do not interbreed (IUCN, 2016; Tattersall 1999). However, mortality on roads is important for some populations (Tattersall 1999). The rapidly expanding beaver populations may cause conflict in areas used for forestry and crops, however, the damage tends to be less severe than those caused by other species such as deer and voles, but is noticed because beavers are a new and unfamiliar species in areas where they have been recently introduced (Halley and Rosell 2002).

In Germany, beavers are mainly present in the north-eastern part of the country and Bavaria and are endangered through destruction of habitat (BfN 2013). Main pressures and threats include the restructuring of agricultural land holdings, removal of forest undergrowth, roadways, accidental trapping in fishing pots, flooding modifications and modified structures of inland watercourses. Further pressures include trapping and poaching, water pollution, removal of sediments, infilling of water habitats such as dykes, and siltation rate changes (EIONET, 2014).

Drivers of improvements: actors, actions and their implementation approaches

Organisers, partners, supporters and other stakeholders

Implementation of measures and monitoring linked to the Habitats Directive is carried out on Länder level. The different Länder each have their own strategy/action plan for the species. In cases of conflict between beavers and landowners, a 'beaver consultant' can make special executive decisions. In some federal states, NGOs have supported management of the species. For example, in Bavaria the BUND Naturschutz financed two beaver consultants as far back as 1996 to deal with conflict cases.

Contributions / relevance of strategic plans (e.g. species action plans)

The German Federal Agency for Nature Conservation has drafted recommendations for action for stakeholders involved in farming, forestry and fisheries specific to the conservation of local populations of the Eurasian Beaver (BfN 2013). Furthermore, federal states have put in place individual action plans for the beaver to achieve its Favourable Conservation Status in accordance with the Habitats Directive's requirements. For example, the Lower Saxony Strategy for Species and Biotope Conservation of 2011 prioritises the beaver, concentrating on conservation measures related to land use conflicts and improvement of acceptance of the species, as well as improvement of its habitat. Specifically, the plan aims to:

- reduce land use conflicts with agriculture and minimise potential risks through the implementation of riparian strips (15-30m);
- provisioning or securing sufficient food through minimising intensive watercourse management (e.g. removal of aquatic vegetation), and creation of riverine woods (willows and poplar etc);
- implementation of hydrological neutral underground protective grids instead of sheet piling between shoreline and dyke toes;
- creation of man-made hills for beavers and other wildlife to escape to during flooding;
- effective drainage of beaver dams through canal systems to avoid flooding of the habitat during high water levels;
- setting up of warning signs for drivers of the presence of beavers along highly frequented roadways;
- protection of fruit trees through beaver-safe fences;

- implementation and organisation of a group of volunteers for protecting beavers and their habitat; and
- in critical circumstances, measures for habitat impairment in case of single animals.

In 2015, the Brandenburg Ministry for Agriculture and Environment published a seven-point-programme to address issues affecting the beaver (MLUL 2015). It includes the issuance of a regulation tailored to the species, €700,000 for prevention measures from the ELER funding system, two beaver managers and the implementation of specific measures (i.e. greening measures encompassed in agricultural measures; riparian strips) and an evaluation of the measures after two years.

Measures taken and their effectiveness

The measures listed by Germany in its Article 17 report as being taken for the conservation of the Eurasian Beaver are listed below.

Conservation measures taken for the Eurasian Beaver in Germany over 2007-2012

| Code | Measure | Type | Ranking | Inside/outside N2k | Broad Evaluation |
|------|--|--|---------|--------------------|------------------|
| 2.0 | Other agriculture-related measures | Contractual recurrent | High | Both | Enhance |
| 3.1 | Restoring/improving forest habitats | Contractual One Off | Low | Both | Maintain |
| 4.0 | Other wetland-related measures | Legal contractual recurrent one off | Low | Both | Enhance |
| 4.2 | Restoring/improving the hydrological regime | Administrative one off | High | Both | Enhance |
| 6.0 | Other spatial measures | Legal | Low | Both | Long-term |
| 6.1 | Establish protected areas/sites | Legal | Low | Inside | Enhance |
| 6.2 | Establishing wilderness areas/allowing succession | Recurrent | Low | Inside | Long-term |
| 6.3 | Legal protection of habitats and species | Legal | High | Both | Maintain |
| 6.4 | Manage landscape features | Recurrent | Low | Inside | Enhance |
| 7.0 | Other species management measures | Recurrent | Low | Both | Long-term |
| 7.4 | Specific single species or species group management measures | Administrative contractual recurrent one off | High | Both | Long-term |
| 8.0 | Other measures | One off | Low | Outside | Long-term |
| 8.2 | Specific management or traffic and energy transport systems | Legal administrative recurrent one off | High | Both | Long-term |

Source: DE Article 17 report 2013 at <https://bd.eionet.europa.eu/article17/reports2012/>

The Eurasian Beaver is protected under the Federal Act for the Protection of Nature, as well as under Annex II and IV of the European Habitats Directive. It is forbidden to catch, hurt or kill beavers, nor disturb the species or its habitat in any manner. In cases of conflict, a beaver consultant on Länder level may advise specific local measures (e.g. electric fence, dams, provision of alternative areas to use). Only in Bavaria, a beaver consultant has the power to advise to catch and kill beavers or remove their habitat in special cases of conflicts that cannot otherwise be resolved. About 1,200 animals are killed as part of this management strategy each year.

Funding sources (current and long-term) and costs (one-off and ongoing)

Public funding through federal states is key to implementing measures towards protecting the species, as well as some funds from NGOs involved in specific federal states. In Bavaria, compensation payments from federal agricultural or biodiversity protection programs offers compensation for not using riparian strips for agricultural

purposes. In addition, the Bavarian Ministry for Environment has implemented a 'Beaver Fund', granting voluntary compensation by the state of Bavaria in cases of conflict with the species (€450,000 per year).

Future actions

No indications of new actions to conserve beavers have been discovered, most likely because the species is no longer threatened, indicating that the implemented measures are working well. However, plans for managing beavers in relation to conflicts with people rather than protection are being discussed in several federal states (i.e. Mecklenburg-Vorpommern, Welt 2017).

Achievements

Impacts on the target species

The Eurasian Beaver has been recovering well in Germany, with population numbers and range (about 160,00 km² in 2007-2012) in favourable status and about 30,000 animals living in Germany today. For example in Baden-Wuerttemberg, the species has recovered from 1,000 to 3-4,000 animals from 2008 to 2016, thus resulting in discussions about how to control the species again (Suedkurier 2017).

Other impacts (e.g. other habitats and species, ecosystem services, economic and social)

Findings show that landscapes altered by beavers offer new habitat for other species. This is because beavers increase the heterogeneity of river habitats, as their construction of dams / ponds and the removal of trees leads to open sunny areas that create new habitat components that are crucial for some species (Dalbeck et al. 2007). Thus, conservation of beavers is likely to have led to significant biodiversity benefits for a wide range of taxa occurring along rivers and streams in Germany.

Conclusions and lessons learnt

The key targeted conservation measures that led to the improvements

- Implementation of riparian strips to reduce land use conflicts with agriculture and minimise potential risks.
- Provisioning or securing of enough food through minimising adapted and intensified water management (removal of weeds), and the creation of woods (willows, poplar, etc).
- Implementation of hydrologically neutral underground protective grids instead of sheet piling between the shoreline and dyke toe.

Factors that supported the conservation measures

- Financing of conservation measures at Federal State level.
- Beaver consultants who address individual conflict situations at a state level.
- Early support from NGO's before measures were established by the authorities.

Factors that constrained conservation measures

- Land use conflicts between agricultural use and species conservation (e.g. lack of public support).
- Exceptions to measures for beaver protection in case of negative economic effects based on the species' activities.

Quick wins that could be applied elsewhere for the species

- Setting up of warning signs for motorists of the possible presence of beavers along highly frequented stretches of road.
- Creation of raised structures (hides) to observe beavers could increase tolerance of the species through environmental education and increased public support.

Examples of good practice, which could be applied to other habitats and species

- The provisions of beaver consultants in areas where conflicts between the species and land owners are frequent.
- On-site visits with land owners (agriculture/forestry) or private persons to reduce damages through implementation of mitigation measures.
- State-level coordinated monitoring of the species, supported by beaver consultants to sufficiently estimate success in implementation of measures.

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Authorship

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The information and views set out in this case study are those of the authors and do not necessarily represent the official views of the Commission.

Annex 1. Status of the Eurasian Beaver (*Castor fiber*) population trends at Member States and biogeographical levels

| | | | | | | | |
|------------|-----------|---------|----|---------------------------|-----------|--------------------|-----------|
| Favourable | FV | Unknown | XX | Unfavourable - inadequate | U1 | Unfavourable - bad | U2 |
|------------|-----------|---------|----|---------------------------|-----------|--------------------|-----------|

| | 2001-06 | 2007-12 | | | | |
|-------------------------|---------|---------|------------|---------|--------|---------|
| | Overall | Range | Population | Habitat | Future | Overall |
| AT (ALP) | U1 | U1 | U1 | FV | FV | U1 (+) |
| DE (ALP) | FV | FV | FV | FV | FV | FV |
| FR (ALP) | FV | FV | FV | FV | FV | FV |
| PL (ALP) | FV | FV | FV | FV | FV | FV |
| RO (ALP) | N/A | FV | FV | FV | FV | FV |
| SE (ALP) | FV | FV | FV | FV | FV | FV |
| SK (ALP) | FV | FV | FV | FV | FV | FV |
| EU overall (ALP) | FV | FV | FV | FV | FV | FV (=) |
| BE (ATL) | U2 | FV | U2 | U1 | U1 | U2 (+) |
| DE (ATL) | U1 | FV | FV | XX | FV | FV |
| DK (ATL) | N/A | N/A | N/A | N/A | N/A | N/A |
| FR (ATL) | FV | FV | FV | FV | FV | FV |
| NL (ATL) | U1 | FV | U1 | FV | FV | U1 (+) |
| EU overall (ATL) | U1 | FV | U1 | U1 | FV | U1 (+) |
| EE (BOR) | FV | FV | FV | FV | FV | FV |
| FI (BOR) | FV | U1 | U1 | FV | U1 | U1 (=) |
| LT (BOR) | FV | FV | FV | FV | FV | FV |
| LV (BOR) | FV | FV | FV | FV | FV | FV |
| SE (BOR) | FV | FV | FV | FV | FV | FV |
| EU overall (BOR) | FV | FV | FV | FV | FV | FV (=) |
| AT (CON) | FV | FV | FV | FV | FV | FV |
| BE (CON) | N/A | FV | FV | FV | FV | FV |
| CZ (CON) | FV | FV | FV | FV | FV | FV |
| DE (CON) | U1 | FV | FV | FV | FV | FV |
| FR (CON) | FV | FV | FV | FV | FV | FV |
| LU (CON) | U2 | FV | U2 | FV | FV | U2 (+) |
| PL (CON) | FV | FV | FV | FV | FV | FV |
| RO (CON) | N/A | FV | FV | FV | FV | FV |
| SE (CON) | FV | FV | FV | FV | FV | FV |
| SI (CON) | U1(+) | U1 | U1 | U1 | U1 | U1 (+) |
| EU overall (CON) | U1 | FV | FV | FV | FV | FV (=) |
| ES (MED) | N/A | N/A | N/A | N/A | N/A | N/A |
| FR (MED) | FV | FV | FV | FV | FV | FV |
| EU overall (MED) | FV | FV | FV | FV | FV | FV (=) |
| CZ (PAN) | FV | FV | FV | FV | FV | FV |
| HU (PAN) | FV | FV | FV | FV | FV | FV |
| RO (PAN) | N/A | FV | FV | FV | FV | FV |
| SK (PAN) | FV | FV | FV | FV | FV | FV |
| EU overall (PAN) | FV | FV | FV | FV | FV | FV (=) |

Source: Member State Article 17 reports as presented on EIONET

<https://bd.eionet.europa.eu/article17/reports2012/species/summary/?period=3&group=Reptiles&subject=Chelonia+mydas®ion=MMED>

Annex 2. LIFE Nature Projects in Germany that aimed to help conserve the Eurasian Beaver (*Castor fiber*)

| Project Title | Project N° | MS | Type Of Beneficiary |
|--|------------------------|----|---------------------|
| Obermain - Upper Main valley | LIFE08 NAT/D/000001 | DE | Regional Authority |
| Ems Niedersachsen - Near-natural river dynamics on the River Ems in Lower Saxony | LIFE03 NAT/D/000006 | DE | Local Authority |
| Biber/Fischotter - Stabilization of the population of beaver and otter | LIFE96 NAT/D/003040 | DE | Regional Authority |
| Elbtalaue - Restoration of the alluvial biotopes along the Elbe in Brandenburg | LIFE94 NAT/D/000029 | DE | Regional Authority |

Source: Life Programme database, projects with *Castor fiber* as keywords