



Population development and management of beavers in Europe following re-establishment – what do they suggest for Slovenia?

Population history
Patterns and impacts of recolonisation
Population management

Beaver distribution in Europe, 2015

205 documented releases to distinct locations in 23 European countries (outside former Soviet Union) since 1922

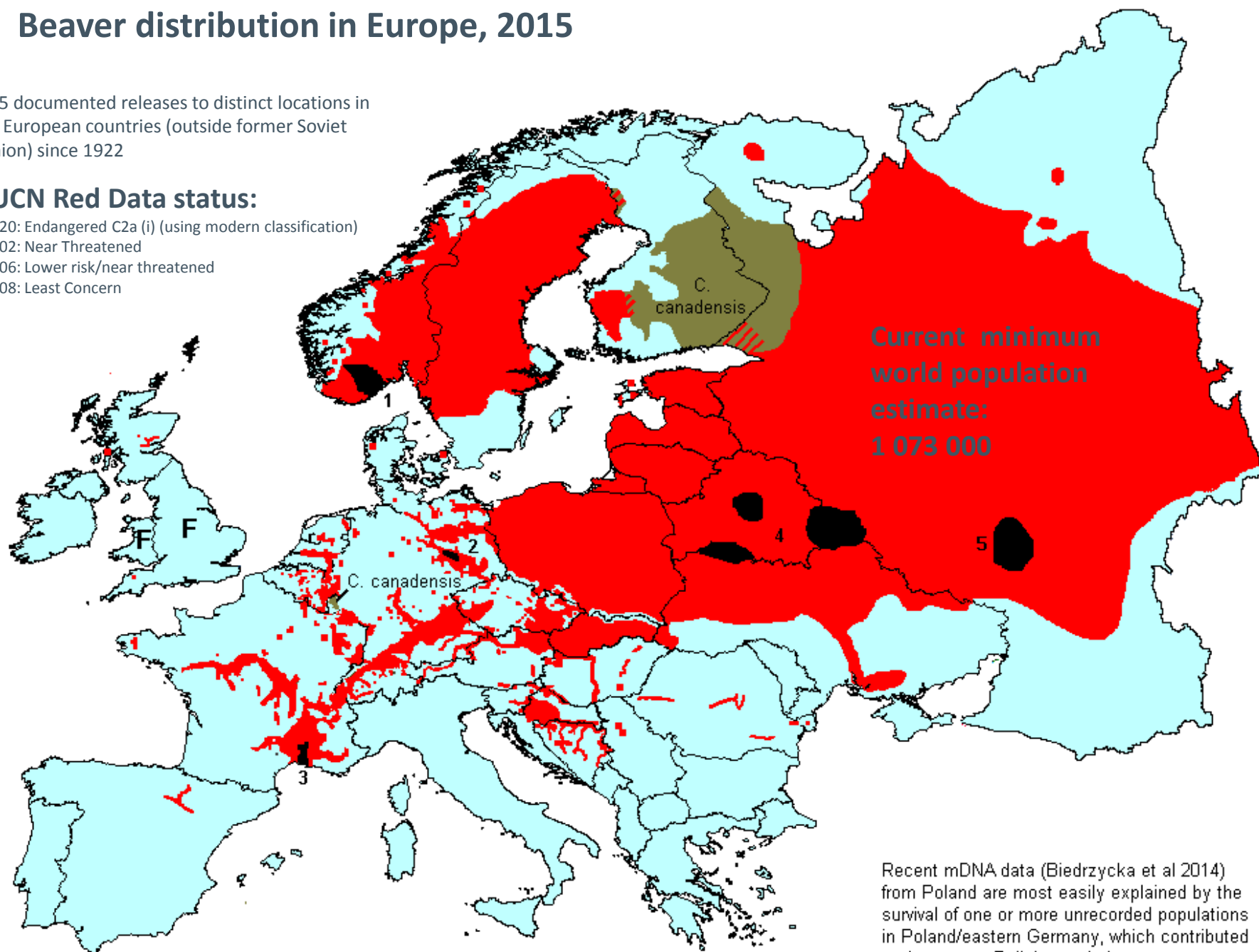
IUCN Red Data status:

1920: Endangered C2a (i) (using modern classification)

2002: Near Threatened

2006: Lower risk/near threatened

2008: Least Concern



Recent mtDNA data (Biedrzycka et al 2014) from Poland are most easily explained by the survival of one or more unrecorded populations in Poland/eastern Germany, which contributed to the current Polish population.

Recolonisation patterns

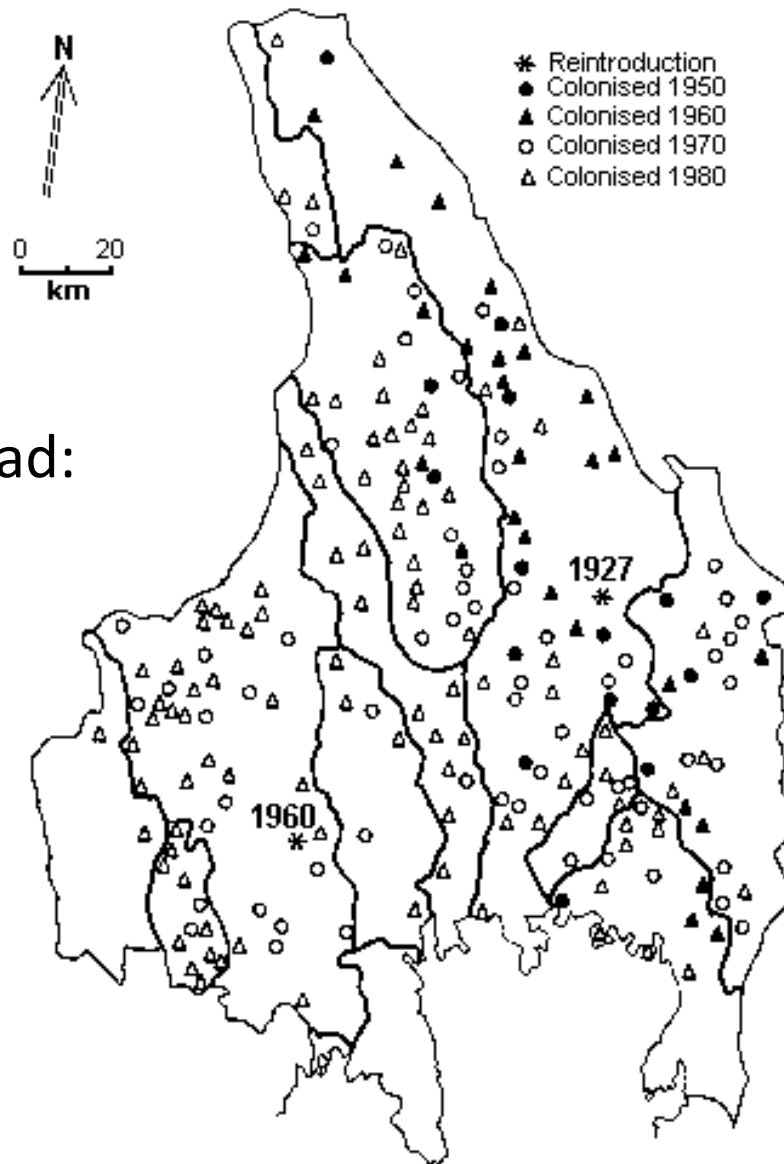
Influence of landforms and hydrology



Typical patterns of spread: Värmland, Sweden

Heavy black lines
mark watershed
divides

Data: Göran Hartman,
Uppsala University



Sites occupied early strongly associated with:

- Riparian deciduous forest
- Low stream gradient/many swings in river course
- Rich grass and herb layer
- Soft soils
- Relatively deep water, in which damming is not necessary

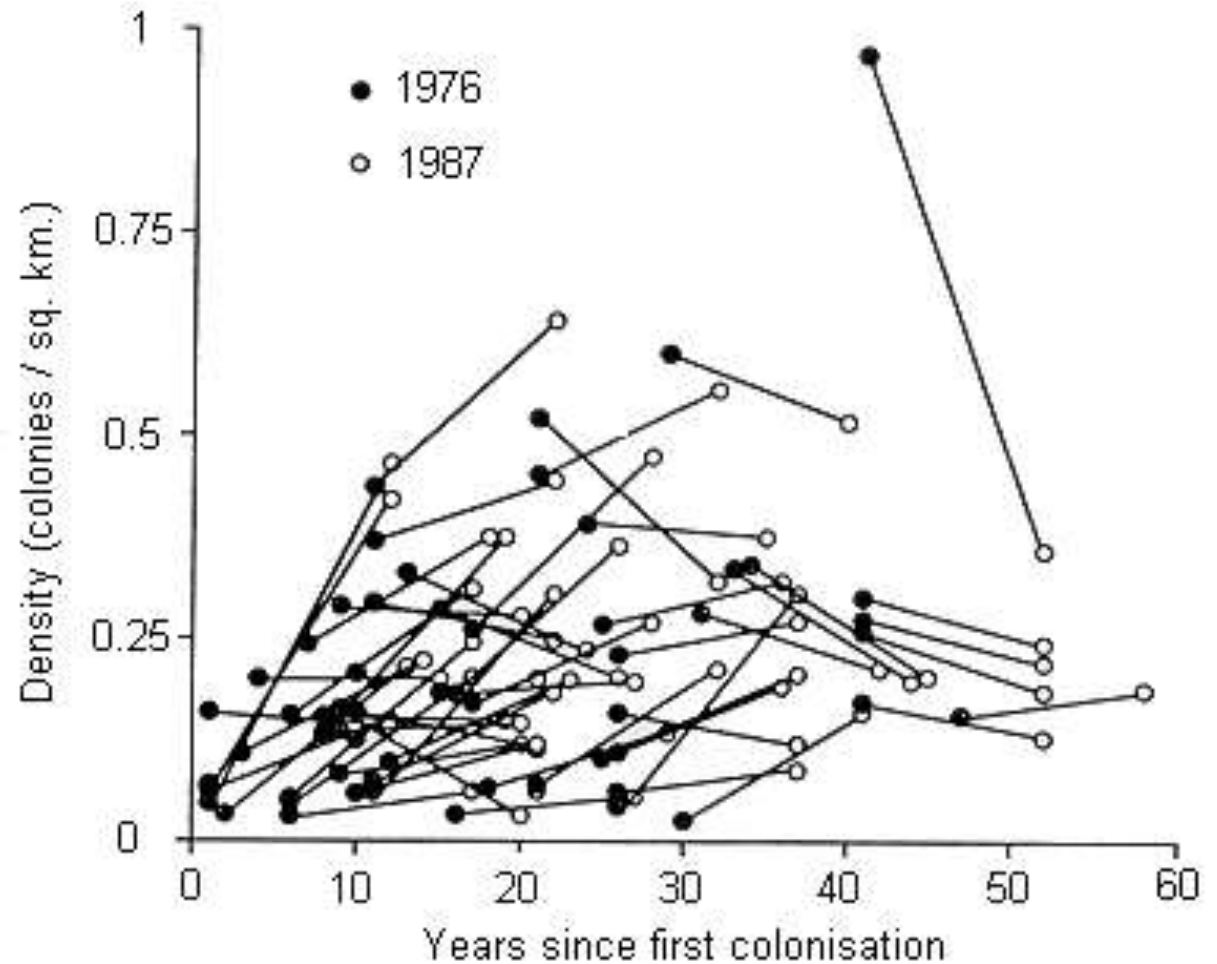
Stream gradients over 2% are not normally colonised

Habitat requirements otherwise relax as population development proceeds on a watershed

Result: most dams are built later in the process of population development.

On most watersheds most beaver groups do not build dams.

Population development in different populations after colonisation.

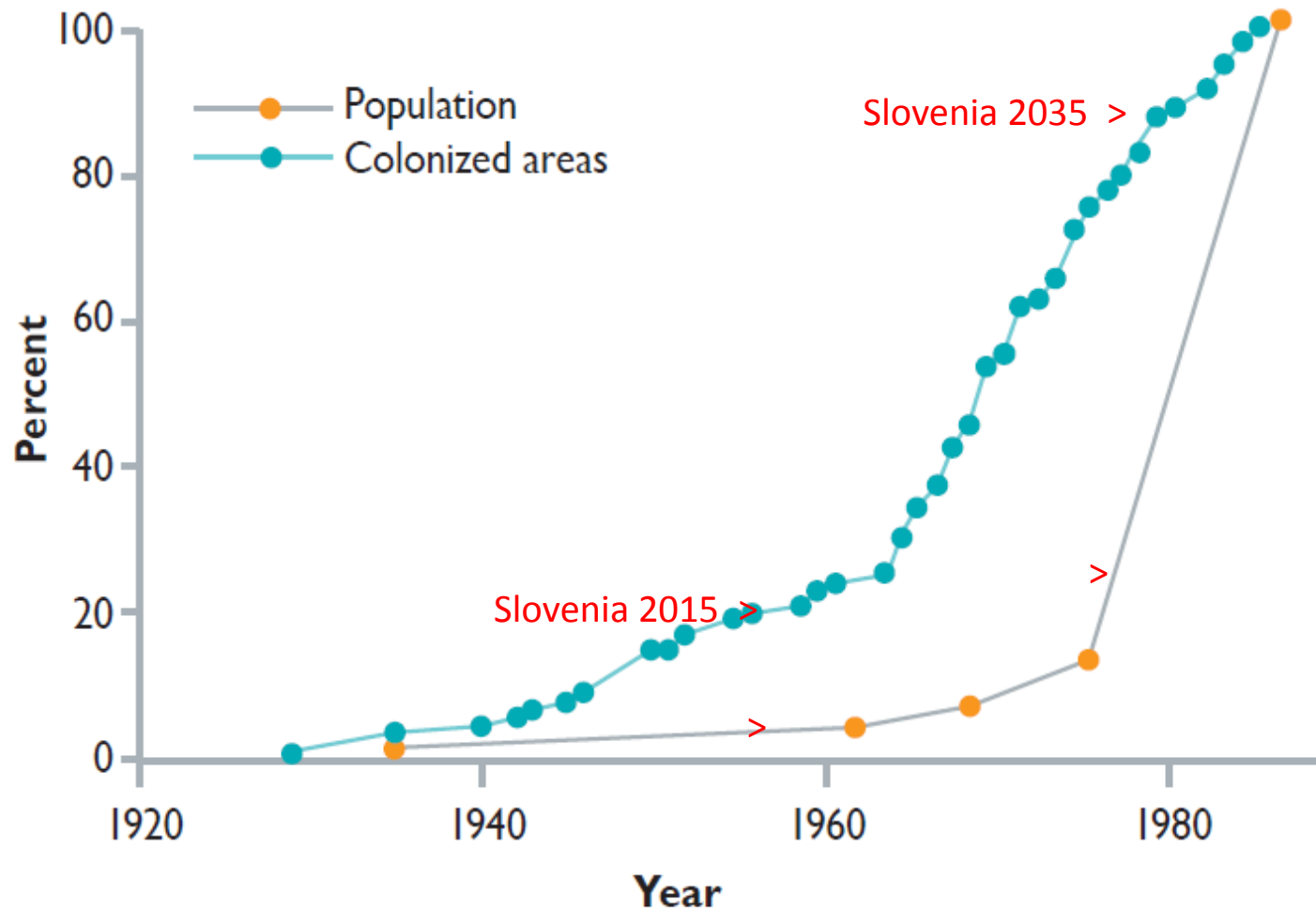


General pattern:
0-25 years, fast growth
~ 25-40 years, slow or no growth;
~40 years, some decline

Data: Göran Hartman,
Uppsala University



Fig. 3 Distribution of beaver in Slovenia, 2012



Typical temporal pattern of range and population expansion within a watershed (from Hartman 1994).

Patterns of spread: a hierarchy of preference



Most preferred: still or slow-moving water, no need to dam, abundant food.
Can be in areas much used by people, if the beavers are left alone.



















Least preferred: mountain site
at treeline, ice for 9 months/year

Impacts



Most beaver
activity
<5m from bank;
almost all
<20m







- Most beaver groups do not build dams; they show a preference for sites where they do not have to
 - Mean water depth at dam sites (pre-damming): 0.36 ± 0.14 m
 - Mean width of stream at dam sites: 2.5 ± 1.1 m
 - Maximum width of stream at dam sites: 6m
 - Average increase in water depth due to dam: 0.46 ± 0.21 m
(depth increase negatively correlated with predamming depth)
 - Average water depth behind dam: 0.84 ± 0.20 m
 - Only 10% of dams function to cover the lodge entrance
 - Where they do not few are crucial to the viability of the territory
 - Damming negatively correlated with stream gradient, usually under 2% (maximum known in *C. fiber* 2.5%)
- Source: Hartman & Törnlov 2006; Schulte 1989















Management

Harvesting

- Beavers are a game animal in large parts of Europe, including Norway
- Self-financing, low or no administrative costs
- Can be targeted to individuals/groups the landowner considers problematic; and/or could be zoned to streams where damming is possible, where beaver damming is perceived as an issue
- How well harvesting functions for increasing acceptance of beavers depends a lot on how hunting ownership is structured in a given country

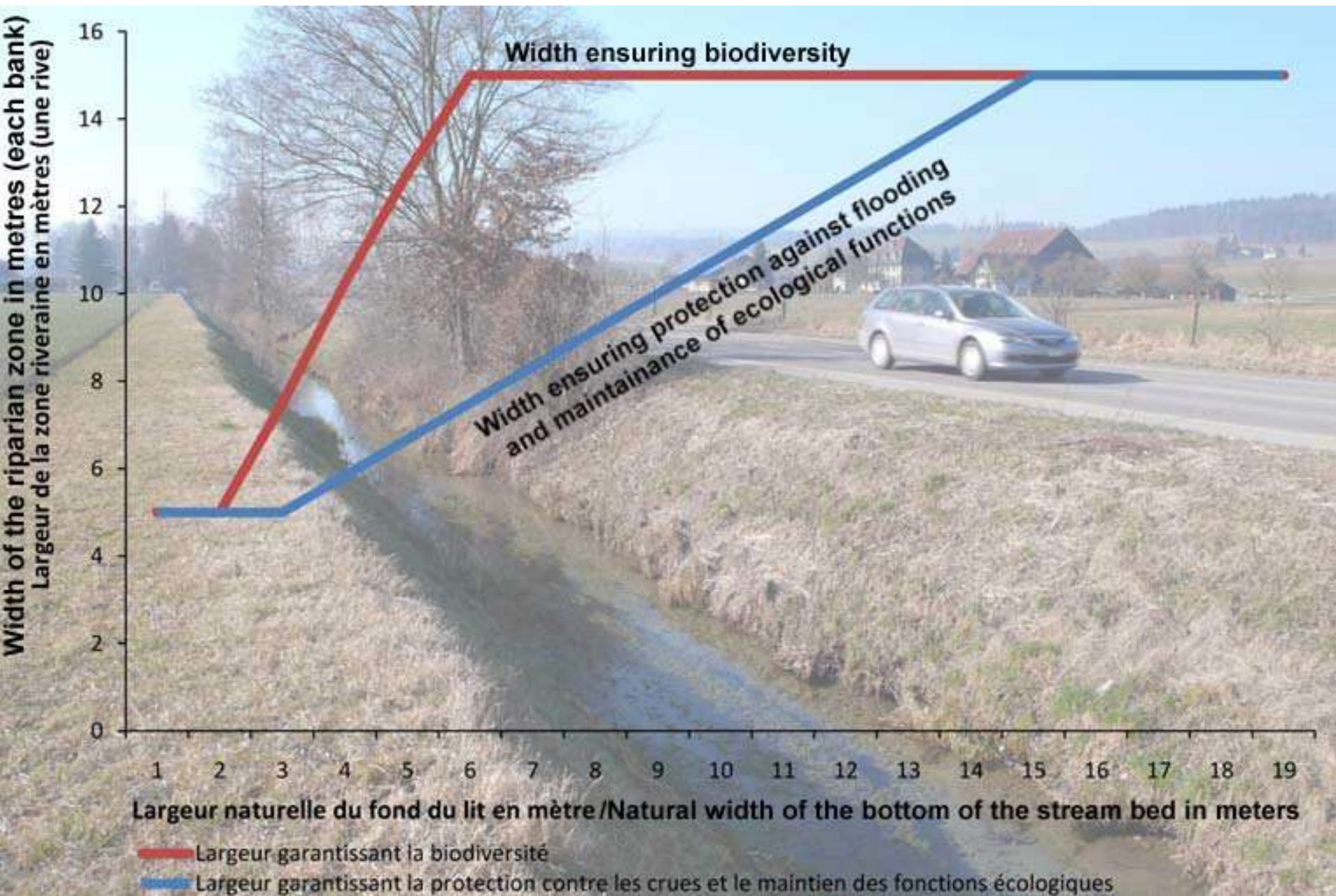
Separation of beaver and human activities: riparian strips

- 95% of foraging is within 5m water (Elmeros et al 2003)
- 90% within 13m and 99% within 20m (Baskin & Sjöberg 2003)
- Main conflict avoidance measure recommended to Council of Europe is establishment of a 20m wide riparian strip (Nolet 1997)
- This separates most beaver activity from most human activity
- It may also be desirable for a number of other environmental reasons (e.g. water quality, reducing erosion)





- Source: Angst, C. 2014. Revitalisation de cours d'eau: le castor est notre allié. Guide pratique OFEV 2014 (Switzerland)





Longueur de cours d'eau revitalisé:	725 m
Surface de terrain requise:	2,4 ha
Coût:	1,2 million de frs



Fig.9 Tronçon de l'Hermance en amont du Pont des Golettes, avant la revitalisation (petite photo) et après (grande photo).
Position sur la carte: 507 560/125 520.



Longueur de cours d'eau revitalisé:	1,9 km
Surface de terrain requise:	2,5 ha
Coût:	2 millions de frs



Fig.10 Cours de l'Urtene à Kernenried (BE) avant la revitalisation (petite photo en haut) et après (grande photo). Position sur la carte: 607 650/211 750.



Swiss beaver information website
(<http://www.cscf.ch/cscf/page-20337.html>)

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

Service Conseil Castor

Le Service Conseil Castor est un service de conseil à la disposition de l'Office fédéral de l'environnement.



Contact: Conseil Castor, Theaterstr. 10, 3000 Bern
Tel: 032 702 74 30
Email: sc

Télécharger ou commander des brochures et des rapports



Le Castor...
Votre projet de castor...
Votre projet de castor...



DIE BIBERBURG

Die Website rund um den Biber



NEU:

[Tagungsband Bibertagung Dessau](#) [Abstractband Bibertagung Dessau](#)

[7th IBS, 14th-17th Sept. 2015, Voronezh, Russia](#)



[Biber im Überblick](#)

[Argumente für den Biber](#)

[Der Biber - Die Rückkehr der Burgherren](#)

[Biber-CD's und -bibliographie](#)
[K.A. Nitsche](#)

[BibErleben](#)
[Ausstellungen](#)

[Nationale Bibertagung in Dessau, 1.-3. Mai 2014](#)

[Biber in der Umweltbildung](#)

[Bibermanagement in Bayern](#)



Home

[Infos zur Website](#)

[Biber in Europa](#)

[Biberliteratur](#)

[Biberlinks](#)

[Bilder zum Biber](#)

[Veranstaltungen/ Aktuelles](#)

[Adressen](#)

[Biber in Amerika](#)

[Kommentare/ Anregungen](#)

[Webmaster's](#)

[Homepage](#)

[Ältere Infos](#)

[Impressum](#)

[Internes](#)

Stand: 27.07.2014



Bayern

www.bibermanagement.de



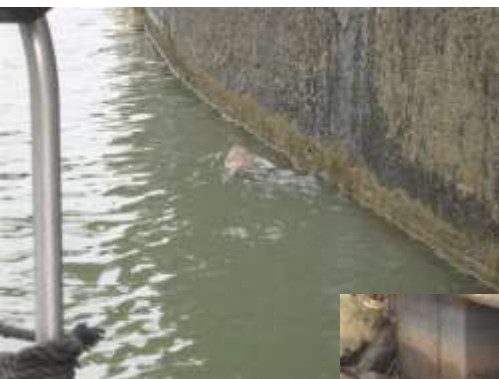
Bavarian beaver live trap set on beaver trail to recently felled aspen *Populus tremula*



Photo: Bernhard Schönb



Photos: Willy de Koning



Netherlands: «Living with the beaver» DVD gives information on their habits, and on methods of management (such as electric fencing to protect crops, top left), aimed at Landowners and the general public

The Beaver Restoration Guidebook

Working with Beaver to Restore Streams, Wetlands, and Floodplains

Version 1.02, July 14, 2015



Photo credit: Worth A Dam Foundation (martinezbeavers.org)

Prepared by

US Fish and Wildlife Service
National Oceanic and Atmospheric Administration
Portland State University
US Forest Service

Janine Castro
Michael Pollock and Chris Jordan
Gregory Lewallen
Kent Woodruff

Funded by

North Pacific Landscape Conservation Cooperative



Version 1.02. Get the latest version at: <http://www.fws.gov/oregonfwo/ToolsForLandowners/RiverScience/Beaver.asp>

<http://www.fws.gov/oregonfwo/ToolsForLandowners/RiverScience/Documents/BRG%20v.1.02.pdf>

NINA Rapport 21

Bever – forvaltning av en jakt-, friluft- og miljøressurs

En håndbok om moderne metoder for praktisk forvaltning av beverbestander

Duncan Halley & Kjetil Bevanger



Figur 11.6 Ulike for-dammer. Merk robust konstruksjon (noe som utvilsomt lønner seg) samt tilpasning av formen til formen på bekken. Det siste bildet viser en konstruksjon (som ligger i et naturreservat) utstyrt med plattform som å gjør den mer attraktiv, samtidig som den kan tjene som utsiktspunkt for besøkende. Foto: S Lisle / S. Tippie

FINAL REPORT OF THE BEAVER SALMONID WORKING GROUP



28th JANUARY 2015

Prepared for

The National Species Reintroduction Forum (NSRF)
c/o Scottish Natural Heritage
Great Glen House
Leachkin Road
Inverness
IV3 8NW

Prepared by

The Beaver Salmonid Working Group (BSWG)

State of the Question....



...and State of the Art

ECOLOGY OF JUVENILE SALMON IN LARGE FLOODPLAIN RIVERS: THE
INFLUENCE OF HABITAT MODIFICATION BY BEAVERS (*Castor canadensis*) ON
SALMON GROWTH AND PRODUCTION

By

RACHEL LANELLE MALISON

B.A. Biology, The University of Montana, Missoula, Montana, 2004
M.S. Ecology, Idaho State University, Pocatello, Idaho, 2008

Dissertation

presented in partial fulfillment of the requirements
for the degree of

Doctor of Philosophy
in Systemic Ecology

The University of Montana
Missoula, MT

Fall 2013

Approved by:

Stacy Russ, Associate Dean of The Graduate School
Graduate School

Dr. Jack Stanford, Chair
Flathead Lake Biological Station, Division of Biological Sciences

Dr. F. Richard Howe
Flathead Lake Biological Station, Division of Biological Sciences

Dr. Mark Lerang
Flathead Lake Biological Station, Division of Biological Sciences

Dr. Winzer Lorenz
Division of Biological Sciences

Dr. Lisa Eby
College of Forestry and Conservation



State of
practice...

'Flow device' in Flanders, Belgium 2014

...and State of the Art



Photos: Skip Lisle

<http://www.beaverdeceivers.com/>



<https://www.youtube.com/watch?v=wKdJ7cvCEGU>





<https://www.youtube.com/watch?v=rx6s4OQRfSk>



The future: not 'reinventing the wheel' in Slovenia?

Or, having to make all your own mistakes?

- Learn from the experience of other areas of Europe
- Bring in the State of the Art from N. America
- Transfer knowledge inside Slovenia – Nature managers to land owners/public (and vice versa!)
- Do this *before* populations reach the rapid increase phase and *before* dams become common.
- Then **you** frame how beavers are thought of and managed (rather than panic reactions).
- This will **greatly** reduce conflict in the future, to everyone's social and financial benefit.

Thanks to:

Frank Rosell
Christof Angst
Allard Martinius
Gerhard Schwab
Skip Lisle
Willy de Konig

