Global Re-introduction Perspectives: 2016

Case-studies from around the globe

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IUCN/SSC Re-introduction Specialist Group (RSG)

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iii. Morelos minnow, Mexico @ Topiltzin Contreras-MacBeath
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v. Tasmanian Devil, Maria Island, Tasmania @Simon DeSalis
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Eurasian beaver re-introduction in Hungary

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Introduction

The Eurasian beaver (*Castor fiber*) is a large rodent species that lives on the banks of streams, rivers and ponds. Once widespread across Europe and Asia it was exterminated by man in most of its range and the beaver population was reduced to ~1,200 at the beginning of the 20th century (Nolet & Rosell, 1998). The last individual in Hungary was killed in 1865. Sweden started to re-introduce beavers in 1922 and later the example was followed by more than 20 European countries. These are among the world's most successful conservation projects (Haarberg, 2007). The population of the Eurasian beaver reached one million individuals around 2011 (Müller-Schwarze, 2011). Because of this success, the IUCN down-listed the species to Least Concern in 2008. Eurasian beavers are protected under the Bern Convention (Appendix III), the EU Habitats and Species Directive (Annex II and IV for the Hungarian populations) and Hungarian national law, but not included in CITES.

In our national legal system individuals of a species protected under law have a value in Hungarian currency, which is 50,000 HUF (US$ ~178) in the case of the beaver. In Hungary beavers were re-introduced in Hanság and Gemenc areas and by the rivers Tisza and Dráva.

Goals

- Goal 1: Choose suitable sites for the release of beavers in the catchments of the Tisza and Danube rivers in Hungary.

Release of a beaver © Balint Bajomi

- Goal 2: Re-introduction of 30 individuals at each of the two sites.
- Goal 3: Create a self-sustaining population in Hungary.
- Goal 4: Individuals should disperse to new sites in Hungary.
- Goal 5: Disseminate the results of the program in the media.

Success Indicators

- Indicator 1: Number of individuals estimated through monitoring.
- Indicator 2: Occupied areas recorded through monitoring.
- Indicator 3: A self sustaining Hungarian population of at least 500 individuals.

Project Summary

Feasibility: The Eurasian beaver is the biggest rodent in Europe. It lives in water and is an ecosystem engineer: it constructs dams on watercourses, cuts trees in winter and digs its home in the bank. After the extinction in the 19th century, the beaver was missing from the Hungarian fauna for 120 years, until 1985 - 1986, when it appeared again in the Szigetköz area. Those animals probably dispersed to Hungary from the population successfully re-introduced to Austria. Nowadays Szigetköz population is the biggest in Hungary counting several hundreds of animals. In 1988, experts also found beavers near Lake Tisza, this small population was augmented with seven more animals by the staff of the Hortobágy National Park. Later they realized that the released individuals were North American beavers (*Castor canadensis*). Because of this, they captured the last living specimen, so this small population probably disappeared.

The idea of the Hungarian Beaver Re-introduction Program arose in 1994. The feasibility study was prepared by László Haraszthy (the director of WWF Hungary at that period) with the support of Günther Lutshinger, the director of WWF Austria (Haraszthy, 1996; Bozsér, 2001). During the course of the program over 25 persons got involved, forming a multidisciplinary team made up by, among others, conservation specialists, biologists, communication experts and water engineers. DIY retailer firm OBI - the main sponsor of the project, gave US$ 344,212 for this program. The potential habitats were surveyed before each release on the basis of a habitat suitability model developed originally in America, adopted in Switzerland and rewritten by Orsolya Bozsér to suit the Hungarian situation. The re-introduction sites were chosen with the help of habitat monitoring specialists. The opinion of National Park Directorates was taken into consideration. Almost all localities are protected by law, except 2 - 3 sites.

Implementation: Between 1996 and 2008, 234 beavers were re-introduced in the areas of Gemenc in the south of the country, Hanság in the west, and next to the rivers Tisza and Dráva, the latter being the boundary river with Slovenia and Croatia. Most of these wild born beavers came from Bavaria, Germany, and some animals came from Austria. The Bavarian population was established also as a result of a re-introduction program, thus the Hungarian re-introduction was a serial translocation. The transportation took place in metal boxes lined with straw. The travelled distance was 500 to 1,000 km, and took 5 to 10 hours by car. The sexes of beavers are not detectable morphologically; therefore the sexes of the re-introduced animals were unknown. The German scientists informed the

Hungarian colleagues which specimens belonged to the same families. The age class of the individuals (adult, sub-adult or juvenile) was always recorded.
Since 2004, the re-introduced specimens were marked with microchip implants with ID numbers. Chips used for beavers were similar to dog chips, so all veterinarians and Budapest Zoo co-workers have the compatible equipment to handle them. The chips were not actually used during the monitoring, as the beavers were not recaptured after release. Only one case of finding a chip in a beaver corpse was reported.

Dávid Czabán with gnawed trees
© Balint Bajomi

Upon release, the beavers were subjected to a quick non-lab veterinary inspection. The beavers were always released from the carriage boxes on the day of arrival. The releases with media publicity were instantly released to the water, while at the rest of the releases the beavers were allowed more time to adapt. In some cases the cages were left open to set the beavers loose, then organizers returned for the empty cages. The beavers were not fed afterwards. During the re-introductions at Lake Tisza in 2005, at Mártély in 2006 and in Tiszatarján in 2008 organizers made artificial lodges, but the beavers did not use any of them. No control of predators or competitors was necessary in connection with the re-introductions.

Post-release monitoring: Since the beginning of the re-introduction experts have continuously monitored the Hungarian beaver population. Beavers are very difficult to observe because they are active during the night, so their monitoring consists of searching for signs of beaver presence: gnawed trees, dams and lodges. Monitoring shows that the Hungarian population is growing and currently stands at 2,500 - 3,000 individuals. As the re-established population persists, we can state that the Hungarian beaver re-introduction program is a success from the point of view of conservation biology. However beavers cause many economic problems (detailed in the next section), so many people in Hungary do not consider beaver re-introduction a success story.

Major difficulties faced

- It is very difficult to distinguish the Eurasian beaver from the North American beaver. The animals released between 1991 and 1994 in Hortobágy area were

later identified as North American beavers, so the last surviving individual was caught and transported to Budapest Zoo.

- In winter, beavers are cutting trees near watercourses. This activity is causing significant damage to forestry organizations and sometimes perceived as a forest conservation problem.
- Beavers sometimes construct dams on streams and occasionally dig burrows in dykes, causing problems to water management organizations.
- In recent years media coverage of the beaver in Hungary has mostly been negative because of the last two points.
- Theoretically the law permits the Hungarian state to pay compensation for the damages, but in practice this dos not happen. Translocation of problem animals started in late 2014, and probably will be more and more widespread using techniques already applied in Austria, the Czech Republic and Germany. It would make sense to have a sustainable harvest to the species that can be economically beneficial to compensate for the damage. But currently beavers are protected under European Union Natura 2000 law, so this is not feasible.
- The main threat for beavers are the fishing nets set up along the river banks. There is no data about the beavers died in the nets because the fishermen do not give any information about that phenomenon. Probably they are afraid of the penalty that can be given.

Major lessons learned

- The general public has to be informed prior to the releases about the potential economic damage caused by beavers.
- An action plan for the compensation of damages and the treatment of problem individuals should have been elaborated already in the planning phase of the re-introduction program.
- A well managed population monitoring is of utmost importance in the case of such a re-introduction program.
- The beavers adapt easily to their environment, so if the core reason of population declines, the hunt for beavers ceases, then the species can be the subject of successful re-introduction.
- Beavers tend to prefer habitats similar to their place of origin. In a number of cases the released animals left the supposed-to-be ideal areas and moved to small streams that resembled their place of birth.

Success of project

Highly Successful	Successful	Partially Successful	Failure
√			

Reason(s) for success/failure:

- The species has a large capacity of environmental adaptation.
- The reason for original extinction (hunting) does not exist any more as hunting is now illegal.
- Wild individuals were released instead of captive-bred animals.

- A large number (234) of individuals were released.
- Large quantities of beaver habitat exist in Hungary.

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