

# NOBANIS – Invasive Alien Species Fact Sheet

## *Castor canadensis*

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### Species description

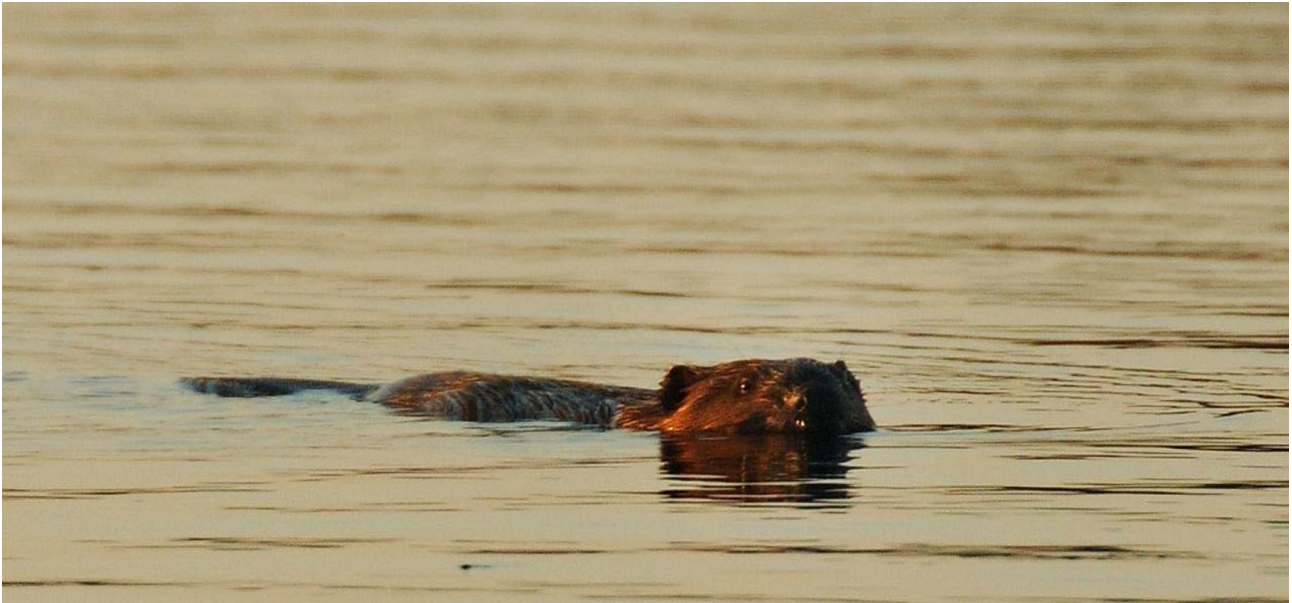
**Scientific name:** *Castor canadensis*, (Kuhl, 1820), Castoridae.

**Synonyms:** Canadian beaver, American beaver

**Common names:** Beaver (GB) Kanadischer Biber, Amerikanischer Biber (DE), bæver (DK), Kanada kobras (EE) kanadanmajava (FI), bjór (IS), Канадский бобр (RU), nordamerikansk bäver (SE).



**Fig. 1.** *Castor canadensis* from National Zoological Park, Washington, D.C., photo by Tanya Dewey, Animal Diversity Web, University of Michigan, Museum of Zoology.



**Fig. 2.** *Castor canadensis* in its native environment in North America, photo by Phil Myers, Animal Diversity Web, University of Michigan, Museum of Zoology.

### **Species identification**

*Castor canadensis* is a large rodent with a flattened tail. Weight 16-32 kg, body length up to 120 cm (Jenkins and Busher 1979, Hill 1982). The external appearance of *Castor canadensis* is very similar to that of the European beaver (*C. fiber* L.), however, the nasal bones of *C. canadensis* are shorter and more rounded and its fur more brownish. The two species also differ in chromosome number: *C. canadensis*,  $2N = 40$ ; *C. fiber*,  $2N = 48$  (Lavrov 1983, Jenkins and Busher 1979). The two species can also be identified from the secretions of their anal glands with which the animals scent mark the borders of their territories (Rosell and Sun 1999).

### **Native range**

*Castor canadensis* occurs throughout North America except for the arctic tundra and southwestern deserts (Jenkins and Busher 1979).

### **Alien distribution**

#### **History of introduction and geographical spread**

Canadian beavers were introduced to Finland in 1937 as a part of the program to reintroduce the exterminated European beaver. The introductions were successful in eastern Finland where two pairs of *Castor canadensis* were released (Lahti and Helminen 1974). From eastern Finland, the beavers were later translocated to the northern, northeastern and central parts of Finland. During late 1940s and early 1950s Canadian beavers spread to the Russian side of Karelia (Danilov 1995). In the future the Canadian beaver is expected to spread also to the northwest, *e.g.* towards Sweden (and Norway), where at present only European beavers occur.

Canadian beavers have also been introduced to Poland (1930s), where the animal farm of Popielno is a known source of supply *e.g.* for game reserves and zoos in Germany, France (1975) and Austria (1976-1990). The status of these populations is however, unknown (Nolet and Rosell 1998). In Germany, three *C. canadensis* have been found in 1990s, although two of them were found near enclosures (Zahner 1997). These specimens could originate from the *C. canadensis* introduced to

Austria. Since 1996, no individuals of *C. canadensis* have been found in Germany. In 1946, Canadian beavers were introduced to Tierra del Fuego, Argentina, where the species has considerably expanded its range (Lizarralde 1993). In 1975 -1979 Canadian beavers were successfully introduced into the Khabarovsk Territory, Amur region and Kamchatka peninsula on the Far East of Russia.

In Austria, Canadian beavers were first released in Lower Austria in 1953, but failed to establish. Again, between 1979–1981 and 1984 animals were released along the floodplains of the Danube. The fate of these animals is unknown but it is generally believed that they disappeared. In the 1980s animals escaped from a zoo in Styria and were present in the wild for some years, but numbers were low and presumably *C. canadensis* is currently not present in Austria (Englisch 2005).

### Pathways of introduction

Canadian beavers have been intentionally introduced into new areas for fur farming, for game reserves and within re-introduction programs after which they may have spread naturally. A few animals have escaped from zoos.

### Alien status in region

The species is widely spread in eastern and central Finland as well as Russian Karelia (see table 1). The number of *C. canadensis* in Finland is around 10 000 (Nummi 2005) and in Russia it was at least 3600 (Danilov 1995), but in 2002 there was about 2000 individuals (Данилов 2005).

Country	Not found	Not established	Rare	Local	Common	Very common	Not known
Austria							X
Denmark	X						
Estonia	X						
European part of Russia				X			
Finland					X		
Faroe Islands	X						
Germany		X					
Greenland	X						
Iceland	X						
Latvia	X						
Lithuania	X						
Norway	X						
Poland	X						
Sweden	X						

**Table 1.** The frequency and establishment of *Castor canadensis*, please refer also to the information provided for this species at [www.nobanis.org/search.asp](http://www.nobanis.org/search.asp). Legend for this table: **Not found** –The species is not found in the country; **Not established** - The species has not formed self-reproducing populations (but is found as a casual or incidental species); **Rare** - Few sites where it is found in the country; **Local** - Locally abundant, many individuals in some areas of the country; **Common** - Many sites in the country; **Very common** - Many sites and many individuals; **Not known** – No information was available.

## Ecology

### **Habitat description**

Beavers are herbivorous and semi-aquatic animals living in creeks, rivers, ponds and lakes. Beavers (both Canadian and European) can dam agricultural fields and roads. In Finland, usually only forests are affected (*e.g.* Härkönen 1999).

### **Reproduction and life cycle**

*C. canadensis* are monogamous. *C. canadensis* may become sexually mature during their second winter at age of 1.5 years. Sexual maturity may be delayed until 2.5 years or later. *C. canadensis* mate once a year, usually in January or February. Gestation lasts about 105 days, so kits are born in May-June. Litter size varies mostly between three and four, but can be 1-9 (Jenkins and Busher 1979, Hill 1982).

### **Dispersal and spread**

After its introduction to Finland in 1937 and within-country translocations in 1950s, *C. canadensis* has spread by natural means. The spread of *C. canadensis* has not been studied in detail but that of reintroduced *C. fiber* has. The spread of *C. fiber* to Sweden was clearly faster within a water drainage system than between systems. The annual spread varied between 3-20 km per year (Hartman 1994).

## Impact

### **Affected habitats and indigenous organisms**

There is a possibility of competitive exclusion of *Castor fiber* by *C. canadensis* (Nummi 2001) due to higher reproductive output, since litter size is bigger in *C. canadensis* (Danilov 1995). Actually, we can see competitive displacing of *C. canadensis* by *C. fiber* in the South of the Russian side of Karelia (Данилов 2005). *C. canadensis* seems to be a little more active constructor of dams and lodges than the Eurasian species. Otherwise the ecological engineering by both species have a similar keystone effect on various plant and animal species, including fish, amphibians and birds (Wright *et al.* 2002, Rosell *et al.* 2005, Nummi 2011).



**Fig. 3.** Beaver lodge built by *Castor canadensis* in its native environment, photo by Phil Myers, Animal Diversity Web, University of Michigan, Museum of Zoology.

### **Genetic effects**

*C. canadensis* and *C. fiber* do not hybridize, due to the difference in chromosome numbers (Lavrov 1983).

### **Human health effects**

In North America *C. Canadensis* is an important vector for *Giardia* infections. There is no current knowledge about the difference between the two species *C. fiber* and *C. Canadensis* regarding this.

### **Economic and societal effects (positive/negative)**

Damming by *C. canadensis* is causing some forest damage in Finland (e.g. Härkönen 1999).

Damage would be caused by *C. fiber* also, but it might be that because being a slightly more active dam builder *C. canadensis* may cause more problems.

## **Management approaches**

### **Prevention methods**

In Finland a special licence for hunting *C. canadensis* is no longer required.

### **Eradication, control and monitoring efforts**

Finnish beaver populations are monitored every fifth year. There is a general idea of keeping *C. fiber* and *C. canadensis* populations in western Finland separated, but the policy is not very strongly promoted.

### **Information and awareness**

Eradication of *C. canadensis* has been discussed in the media, with divided opinions.

## References and other resources

### Contact persons

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### Links

[Fact sheet on \*C. fiber\*](#) (in German)

Animal Diversity Web, University of Michigan – [Castor canadensis](#)

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