



Short Communication

Population of Eurasian beaver (*Castor fiber*) in Europe

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ABSTRACT

The Eurasian beaver (*Castor fiber*) is an intensely expansionary species. Species reintroductions, which were conducted in various parts of Europe, as well as the rate of natural increase have resulted in the growth of the number of individuals. The dynamic development of the beaver population in Europe means that the available data concerning the quantity of beavers becomes outdated very quickly. The purpose of this manuscript is to update the available information about the beaver populations in all countries of Europe. The information was collected in the second half of 2019. Some of the data collected include generally available studies and articles. For some countries, the author had difficulty obtaining any data; therefore, personal communication was employed with various governmental or scientific units in the given country. The outcomes of the conducted analyses were figures about the Eurasian beaver population throughout Europe. It was found that the Eurasian beaver population in Europe numbered nearly 1,222,000 individuals.

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1. Introduction

The history of the Eurasian beaver population development in Europe has been described in detail in numerous manuscripts (Schwab, 2009; Čanády et al., 2016; Rozhkova-Timina et al., 2018; Biedrzycka et al., 2014; Swinnen et al., 2019; Nolet and Rosell, 1998; Halley et al., 2012; Ernst et al., 2017; Raškauskaitė; Šimkevičius, 2017; Trbojević, Trbojević, 2017; Dewas et al., 2011; Halley, Rosell, 2002) hence, the author intentionally does not repeat such information in this manuscript. The current size of the Eurasian beaver population in the countries of Europe, which is the main point of this thesis, is emphasised here.

There have been studies that attempted to ascertain the beaver population in Europe (Halley, Rosell, 2002; Halley et al., 2012). However, these papers were published some time ago, and they do not represent the current situation. The analysis of those studies allowed us to state that from 2002 to 2012, the Eurasian beaver population increased by more than 75%, from 593,000 to 1,044,000 specimens. This growth was affected not only by the conducted reintroduction but also by the natural development of this population.

The majority of the beaver population in Europe is located in the central and eastern parts of the continent (Halley et al., 2012; Halley, 2011; Campbell-Palmer, Rosell, 2013; Müller –Schwarze, 2011). Moreover, in the above manuscripts, the authors indicated that beavers did not occur in the following countries: Albania, Bulgaria, England, Greece, Italy, Kosovo, Northern

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Macedonia, Montenegro, Portugal, Turkey and Wales. However, it must be noted that these studies were published from 2011 to 2013.

The idea for this article emerged due to the lack of any collective and up-to-date data concerning the Eurasian beaver population throughout Europe. The articles specified in the previous section contain information on the quantity and distribution of beavers; however, they refer to the previous years and must be updated, especially due to the dynamic development of the beaver population.

Dynamic growth of the beaver population, apart from undoubtedly positive impact on the environment, can also generate conflict situations. Issues related to conflicts caused by beavers are not new and are widely described (Schwab, 2009; Parker, Rosell, 2003; Rozhkova-Timina et al., 2018; Safonov 2016; Vorel, Korbellova, 2016; Campbell-Palmer et al., 2018; Valachović, 2000). Small population, located mainly in the long distance from human settlements do not causes too serious conflicts. The

Table 1

The Eurasian beaver population in the countries of Europe.

Country	Population	Source
Albania	none	National Environment Agency of Albania, 2019 – pers. comm.
Andorra	none	Govern d'Andorra, Departament de Medi Ambient i Sostenibilitat, 2019 - pers. comm.
Austria	7600	BOKU - University of Natural Resources and Life Sciences, Vienna, 2017 - pers. comm.
Belarus	80000	Litvinov et al., 2012; Safonov, 2016
Belgium	150 sites, 600 beavers Flandria (Rosell et al., 2006), 3000 Walonia	Flandria – Swinnen, 2019, Walonia – Herr et al., 2018
Bosnia and Herzegovina	140	Trbojević, Trbojević, 2017
Bulgaria	none	Bulgarian Academy of Sciences, National Museum of Natural History, 2019 - pers. comm.
Croatia	10000	Tomljanović et al., 2018
Czech Republic	6000	Uhlíková, 2017
Denmark	200	Svendsen, 2018
Estonia	18000	The Estonian Hunters Society, 2019; http://www.ejs.ee/aasta-loom-2019-kobras/
Finland	3300–4500	Alakoski et al., 2019
France	14000–16000	Le Goff, 2015
Germany	35000	BUND Naturschutz, 2017
Great Britain	550	Campbell-Palmer et al., 2018; Elliott, 2018; www.wildlifetrusts.org
Greece	none	Zogaris, Economou, 2017
Hungary	4000–5000	Čanády et al., 2016
Iceland	none	The Environment Agency of Iceland, 2019 - pers. comm.
Ireland	none	Department of Agriculture, Food and the Marine in the Government of Ireland, 2019 - pers. comm.
Italy	confirmed; unknown quantity	Pontarini et al., 2018
Kazakhstan	5500–6000	Berber, 2008
Kosovo	none	Ministry of Agriculture, Forestry and Rural Development, 2019 - pers. comm.
Latvia	100000	Ernst et al., 2017
Liechtenstein	50	Fasel, 2018
Lithuania	40000	Simkevicius et al., 2018
Luxembourg	35 sites; 140 beavers (Rosell et al., 2006)	The Nature Conservation Agency – Government of Luxembourg, 2019 - pers. comm.
Malta	none	Ministry for the Environment, Sustainable development and Climate change, 2019 - pers. comm.
Moldova	none	Institute of Zoology, Academy of Sciences of Moldova, 2019 - pers. comm.
Monaco	none	Ministry of Public Works, the Environment and Urban Development, 2019 - pers. comm.
Montenegro	none	The Natural History Museum of Montenegro, Podgorica, Montenegro, 2019 - pers. comm.
Netherlands	1700	Dijkstra, 2016
Northern Macedonia	none	University St. Cyril and Methodius, 2019 - pers. comm.
Norway	70000–80000	Norwegian Zoological Society, 2017; https://zoologi.no/artsfakta/pattedyr/bever/
Poland	125000	Rozkrut, 2018
Portugal	none	ICNF - Institute for the conservation of nature and forests, 2019 - pers. comm.
Romania	2200	Pasca et al., 2018
Russia - European part	490000	Survey... , 2016
San Marino	none	Environmental and Agricultural Resources Management Office, 2019 - pers. comm.
Serbia	150	Čirović et al., 2013
Slovakia	7700–9600	Čanády et al., 2016
Slovenia	500–1000	Institute of the Republic of Slovenia for Nature Conservation, 2018 – pers. comm.
Spain	confirmed; unknown quantity	Echegaray et al., 2018
Sweden	130000	Owen, 2016
Switzerland	3000	Minnig et al., 2018
Turkey	none	T.R. Kutahya Dumlupinar University, 2019 - pers. comm.
Ukraine	45700	Bondar, 2016
Vatican	none	The Pontifical Academy of Sciences, 2019 - pers. comm.
Total	1221130	

situation changes when the population increases uncontrollably. The lack of space for the beavers to live causes them to approach cities and villages. Losses to agricultural, forestry and fruit crops are recorded. Flood embankments or roads are also exposed to damage. This generates financial costs in the form of losses in agriculture, forestry and infrastructure. In addition, in some countries, land owners who have been exposed to financial loss may claim damages from government administration. Therefore, the knowledge about the direction of development of the beaver population in Europe is needed.

2. Methods

This manuscript supplements the existing information. Data for the manuscript were collected from all countries in Europe in the second half of 2019. The acquisition of data from the countries that monitor the beaver populations on an ongoing basis took place through the use of generally available publications and scientific contributions. Some information was found on the websites of non-governmental organisations as well as in various informative magazines. For some countries, the author had difficulty obtaining any data; therefore, personal communication was employed with various governmental or scientific units in the given country.

3. Results

The data collected from the countries of Europe are presented in Table 1. The Eurasian beaver settled 29 European countries. Information on the number of individuals was available for every country except Italy, which did not have any available information on this subject. Beavers were discovered to be absent from the remaining 16 countries. It is worth adding that the currently available literature (Halley et al., 2012; Halley, 2011; Campbell-Palmer, Rosell, 2013; Müller–Schwarze, 2011) included information on the absence of beavers in, among others, Italy and England. Nevertheless, in 2018, the presence of beavers in those countries was confirmed. In England, they appeared through reintroduction (www.wildlifetrusts.org) and in Italy as a result of natural settlement (Pontarini et al., 2018). The data from the British Isles are collective and are presented in Table 1 as Great Britain.

In general, the Eurasian beaver population, according to the collected data, numbered nearly 1,222,000 individuals. While considering the current data and that in the literature (Halley et al., 2012; Halley, 2011; Campbell-Palmer, Rosell, 2013; Müller–Schwarze, 2011), the population grew by approx. 178,000, i.e., by approx. 17% over 6–8 years. The largest populations, which had a minimum of 100,000 individuals each, were observed in the European parts of Russia, Sweden, Poland and Latvia. The available data for Belgium and Luxembourg indicate that the area of beaver habitat was converted into the number of individuals living there according to a manuscript by Rosell, F., Parker, H., Steifetten, Ø. (2006).

4. Summary

The analysis of the collected data allowed us to state that the Eurasian beaver population in Europe is still growing. The largest populations were observed in the colder part of Europe. These are mainly Scandinavia, the Baltic countries, Russia and Poland. The rate of the change is not as high as in the first decade of this century; nevertheless, the population requires observation and control. The excessively high numbers of individuals in some locations may lead to conflicts with people. Flooding of agricultural and forest areas by beavers is quite common. However, there is no joint European plan or guidelines for management of this population. This is understandable because the legal solutions in given countries are varied. Countries follow their own guidelines, if any, within this scope. However, we may assume that the Eurasian beaver population will continue to grow in the future, considering the plans and actions of various countries to conduct reintroductions of this species in their territories as well as the dynamic development of the rate of natural increase.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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