

# First insights into the origin and distribution of the newly established beaver populations in Bulgaria via eDNA

Maria Kachamakova, Aneliya Bobeva, Polina Nikova, Simeon Borissov, Vladimir Todorov, Blagovesta Dimitrova, Yordan Koshev





## They are Back: Notes on the Presence and the life Activities of the Eurasian Beaver (*Castor fiber* L. 1758) from the Territory of Bulgaria

Nikolay D. Natchev<sup>1,2,\*</sup>, Nikolay P. Nedyalkov<sup>1</sup>,  
Maria Zh. Kaschieva<sup>1</sup>, Teodora V. Koynova<sup>1</sup>

1 - Konstantin Preslavski University of Shumen, Faculty of Natural Sciences,  
Department of Biology, Universitetska 115, Shumen 9700, BULGARIA

2 - Vienna University, Department of Integrative Zoology,  
Althanstrasse 14, Vienna 1090, AUSTRIA

\*Corresponding author: natchev@shu.bg

**Abstract.** This scientific note reports on the recently detected presence of the Eurasian beaver (*Castor fiber* L. 1758) on the territory of Bulgaria. The species was previously a part of the Bulgarian fauna, however it disappeared from the territory of the country more than 150 years ago. Currently, one site in North Bulgaria was an object of long term monitoring and our team was able to detect the life activity of the Eurasian beaver in that particular habitat. The main goal of the present publication is to inform both the scientific community, as well as the public for the presence of the species in Bulgaria, but also to encourage the competent authorities to undertake initiatives for the protection of the species and its habitat.



## The Eurasian Beaver *Castor fiber* Linnaeus, 1758 (Rodentia: Castoridae) Is Returning to Bulgaria

Nikolay D. Kodzhabashev<sup>1</sup>, Desislava D. Tsvyatkova<sup>2</sup>, Krasimir V. Krastev<sup>2</sup>, Milen M. Ignatov<sup>1,2</sup>  
& Teodora M. Teofilova<sup>3,\*</sup>

<sup>1</sup>Department of Hunting and Game Management, Faculty of Forestry, University of Forestry, 10 Kliment Ohridski Blvd., 1756 Sofia, Bulgaria; E-mail: ndkodjak@abv.bg

<sup>2</sup>State Forest Enterprise Byala, Territorial Unit of the North-Central State Enterprise – Gabrovo, 15 Vasil Levski Street, 7100 Byala, Bulgaria; E-mails: des\_dc@abv.bg, krasi.mediation@mail.bg, mm\_ignatov@abv.bg

<sup>3</sup>Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences, 1 Tsar Osvoboditel Blvd., 1000 Sofia, Bulgaria

**Abstract:** We report the presence of the Eurasian beaver *Castor fiber* Linnaeus, 1758 (Rodentia: Castoridae) in the north-eastern part of the Danubian Plain in Bulgaria (UTM code: MJ12), at about 25 km straight-line distance from the Danube River, 20 km from the Yantra River and about 85 km along the river bed of the Rusenski Lom River from its estuary. The territory is within the Natura 2000 Special Area of Conservation BG0000608 "Lomovete" under the Habitats Directive. The first information about traces of the life activity of the species is from mid-September 2020 and the photo registration of an individual is from April 2021. During this period, there were similar registrations of beavers in other neighbouring territories, which increases the chances of the species returning to Bulgaria in a semi-natural way. The newly established locality represents the southernmost point in the distribution of the species on the Balkan Peninsula and one of the southernmost for Europe. This is the first record of the Eurasian beaver in Bulgaria considered extinct in this country for more than 150 years.

# The return of the beaver in Bulgaria

## ➔ First evidences reported in 2021





**But which species of beaver is present was not clear....**

**→Solution: eDNA sampling**





**Samples collection:**

**→ Gnawed wood chips (stored frozen or in ethanol)**

(Iso-Touro et al. 2021)

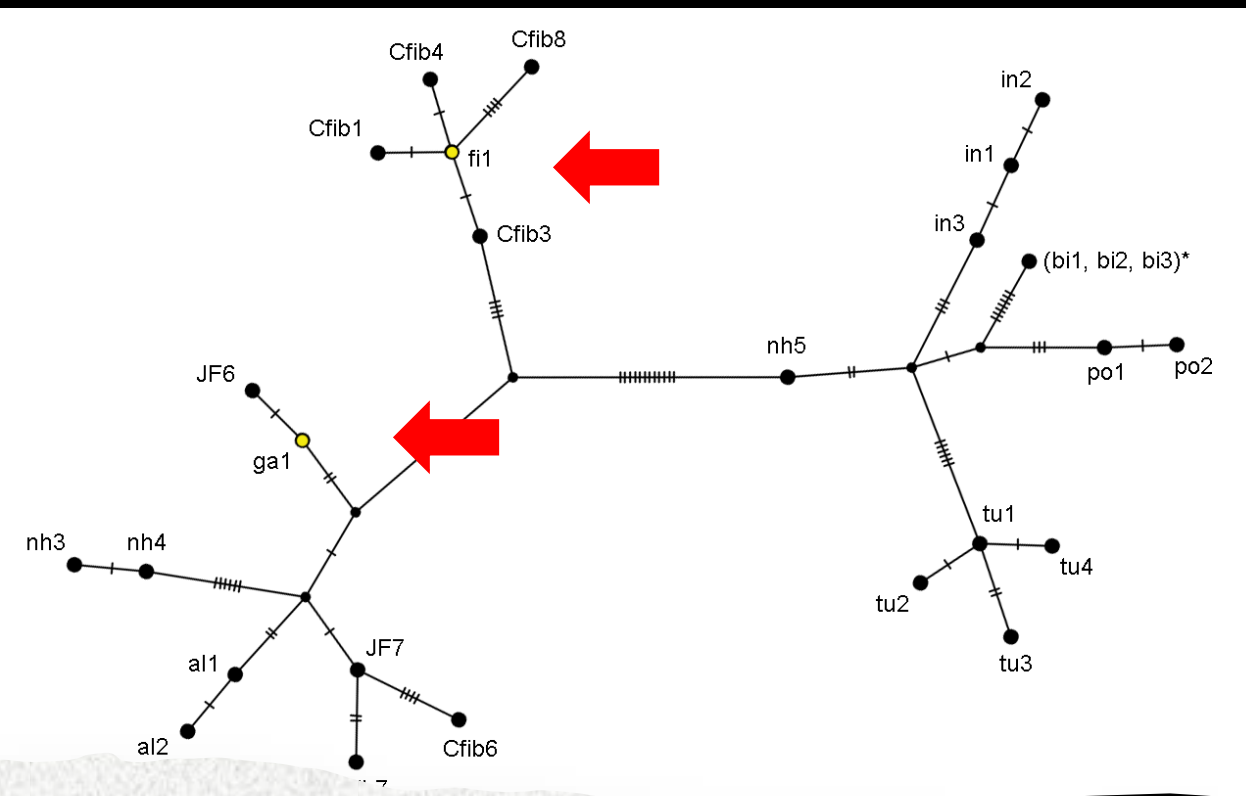
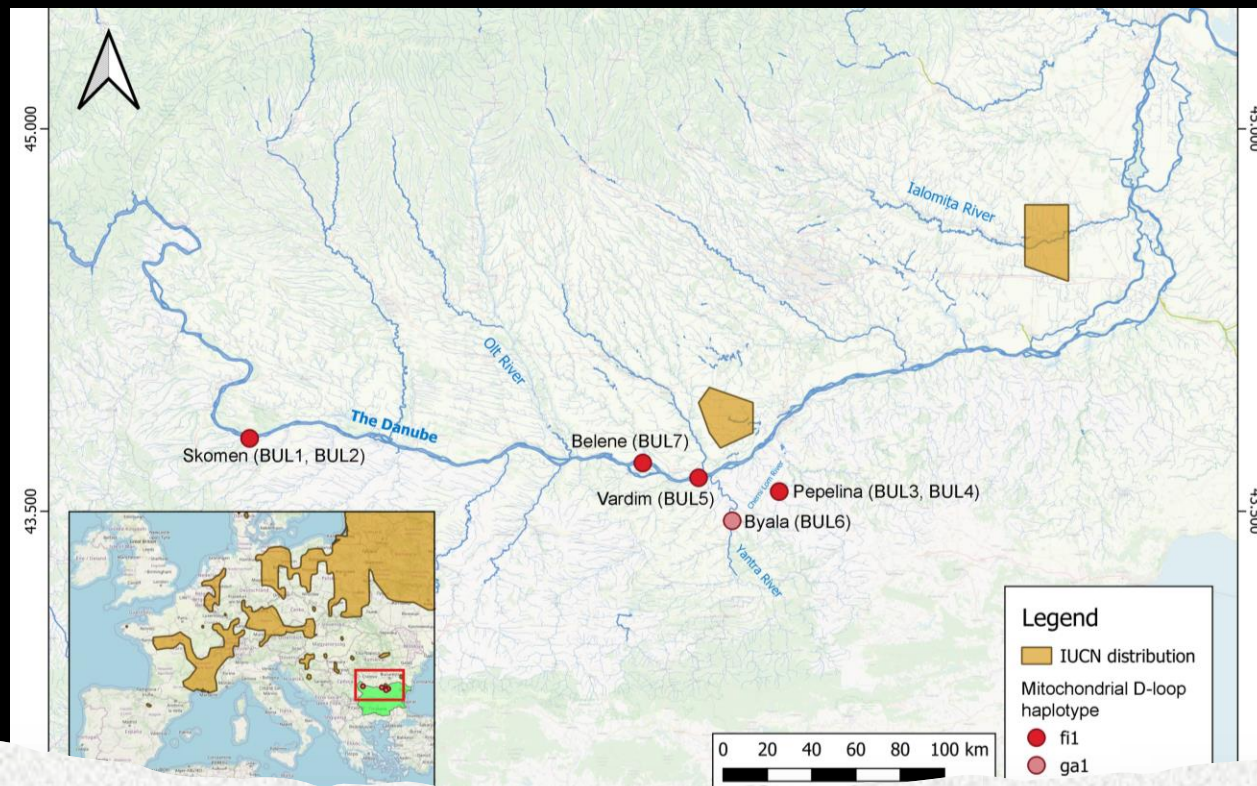




**Samples collection:**

**→ Water (1 l of water filtered, filters stored in ethanol)**





## Results:

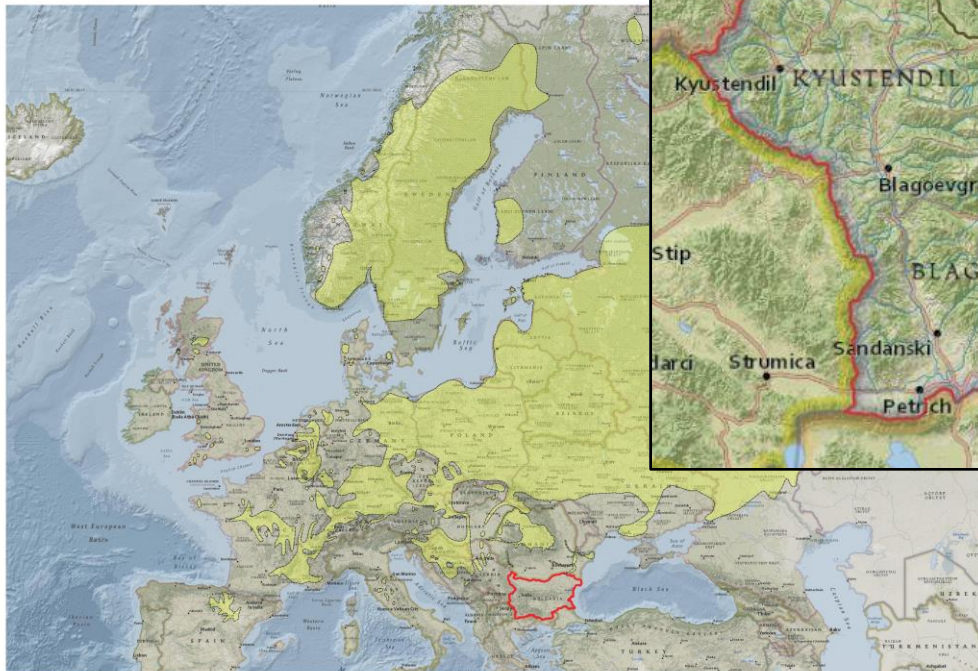
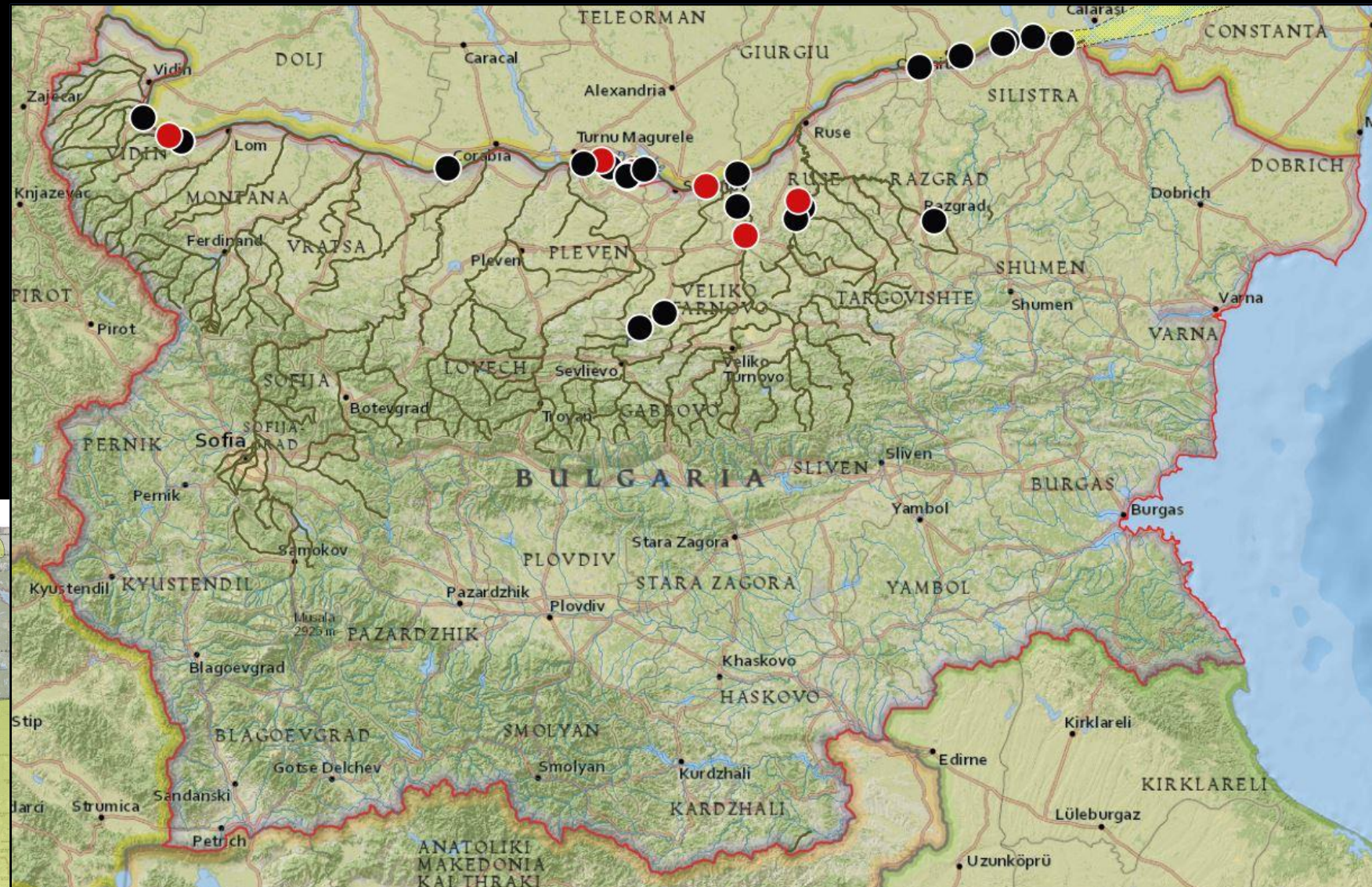
### -> Sequences obtained from 5 localities:

- ✓ Skomen (Danube river)
- ✓ Belene (Danube river)
- ✓ Vardim (Danube river)
- ✓ Byala (Yantra river)
- ✓ Pepelina (Cherni Lom)

The individuals most likely **originate** from the reintroduced populations in neighboring **Romania**, as they carry two **haplotypes originating from refugial populations in France and Norway**, which were used for reintroductions in Bavaria, and from there later in Romania.



# Known distribution of *Castor fiber* in Bulgaria







## Beaver in Bulgaria

### -> Activity patterns, challenges and future perspectives

- No dams
- Considerable and unpredictable water level fluctuations on Danube river – 5 to 6.5 m annually in 2023 and 2024
- No natural predators
- Potential for recolonization of the whole Northern part of the country and more





## Beaver in Bulgaria

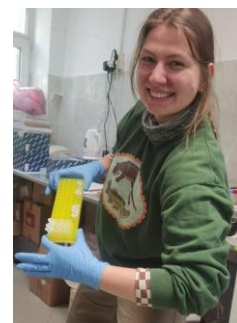
### -> Activity patterns, challenges and future perspectives

- Missing legal protection
- Potential conflict with foresters (damages on the poplar plantations)
- Main thread identified – fisherman's nets













# Thank you for your attention!



## Recolonisation or invasion? First insights into the origin of the newly established beaver populations in Bulgaria using eDNA

Aneliya BOBEVA<sup>1</sup> , Polina NIKOVA<sup>1</sup> , Simeon BORISSOV<sup>1</sup> , Yordan KOSHEV<sup>1</sup> ,  
Vladimir TODOROV<sup>1</sup> , Blagovesta DIMITROVA<sup>1</sup> , Milen IGNATOV<sup>2</sup>, Barbora ROLEČKOVÁ<sup>3</sup> ,  
Jitka UHLÍKOVÁ<sup>4</sup> and Maria KACHAMAKOVA<sup>1\*</sup> 

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