



# *Ixodes laguri*, a grassland and steppe tick that parasitizes critically endangered rodents

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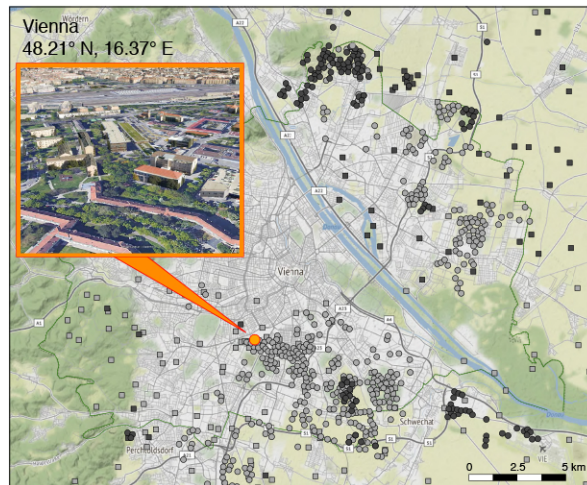
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## Motivation

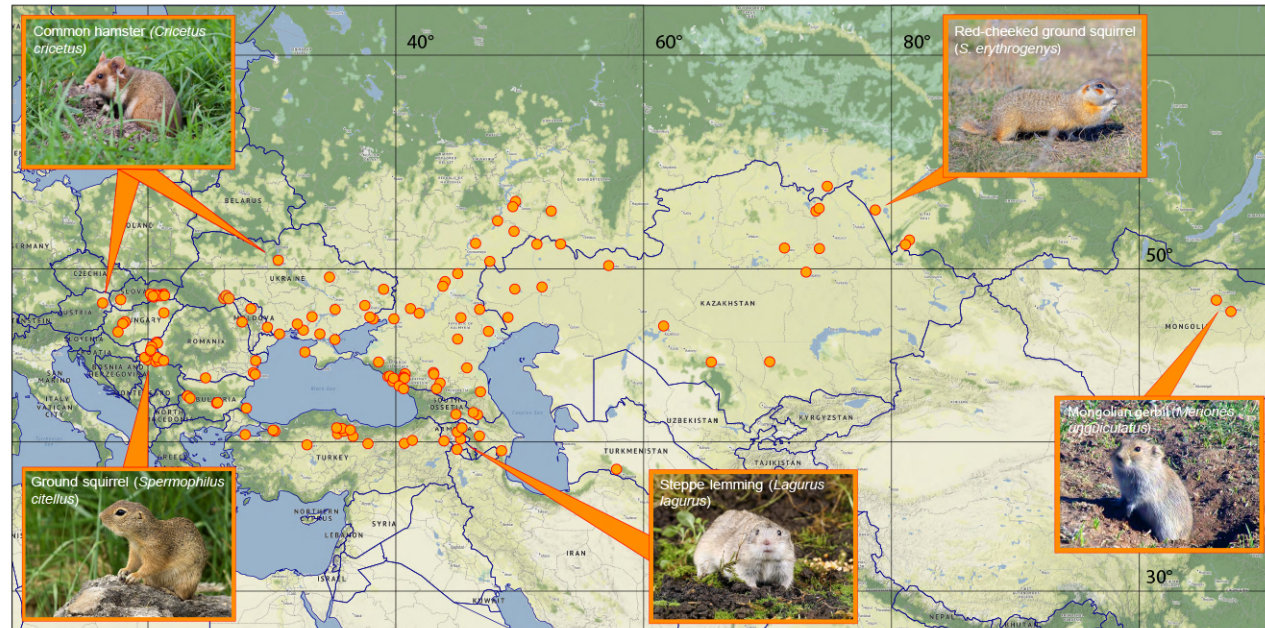
*Ixodes laguri* Olenov, 1929 is a nest-dwelling parasite of small mammals that mainly infest rodents of the families Cricetidae, Gliridae, Muridae and Sciuridae. There is no proven vectorial role for *I. laguri*, although it is suggested that it is a vector of *Francisella tularensis*. Here, a first map depicting the entire range of *I. laguri* and a list of main hosts is presented.

## Data and methods

A digital data set of 149 georeferenced locations from 16 countries was mapped. Particular attention is paid to the description of the westernmost record of *I. laguri* in the city of Vienna, Austria. There, *I. laguri* is associated with its main hosts, the European hamster (*Cricetus cricetus*) and the European ground squirrel (*Spermophilus citellus*). These two critically endangered species (IUCN Red List of Threatened Species) have been mapped to estimate the potential distribution of *I. laguri* in the region of Vienna.



● *Ixodes laguri* collected from European hamster at 16.3442° E / 48.1739° N.  
 Common hamster (*C. cricetus*) ● monitoring ● European ground squirrel (*S. citellus*)  
 ■ citizen science ■



Records of *Ixodes laguri* reported from various rodent species in open grasslands, steppes and mountain steppes ranging between Vienna and Ulaanbaatar.

## Results and discussion

The range of *I. laguri* extends between 16–108°E and 38–54°N, i.e. from Vienna in the east of Austria to Ulaanbaatar, the capital of Mongolia. In contrast to tick species that are expanding their range due to global warming, *I. laguri* has become increasingly rare throughout its range. However, *I. laguri* may be threatened not by climate change, but by anthropogenic influences on its hosts and their habitats, which are typically open grasslands and steppes. Rural habitats are threatened by intensification of agriculture and semi-urban habitats are increasingly being destroyed by urban development. Main hosts are hamsters (*C. cricetus*, *Nothocricetulus migratorius*, *Mesocricetus auratus*, *Mesocricetus newtoni*, *Mesocricetus raddei*, *M. brandti*) and ground squirrels (*S. citellus*, *S. pygmaeus*), but also gerbils (*M. unguiculatus*, *M. tristrami*) and marmots (*Marmota sibirica*). Less frequent *I. laguri* was reported from lemmings (*L. lagurus*), rodents such as mice, shrews and moles, and other small mammals.

Reference: Rubel, F., 2024: Range of *Ixodes laguri*, a nidicolous tick that parasitizes critically endangered rodents, with details on its western distribution limit in Austria. Ticks Tick Borne Dis., 15, 102341. <https://doi.org/10.1016/j.ttbdis.2024.102341>

Rubel, F., 2024: Hamster (*Cricetus cricetus*) and ground squirrel (*Spermophilus citellus*) in the metropolitan area of Vienna, Austria: Urban development vs. species protection. bioRxiv preprint. <https://doi.org/10.1101/2024.02.08.579520>