

# Burrow-Infrastructures Improve Successful Reintroduction

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## *A Hypotheses*

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It is well known that *Cricetus cricetus* uses several burrows in the course of the active season (KARASEVA & SHILAJEVA 1965, GORECKI 1977). During the many years of monitoring the burrow density of a reintroduced population we observed, that burrows were inhabited not only seasonally but also over several years, by several individuals.

This led us to the hypothesis, that existing infrastructures constituted of old hamster burrows throughout the release sites may be beneficial for the long term survival of the overall hamster population.

We analysed GIS data collected between 2018 and 2021, in one of our release sites, where the wild population has been doing increasingly well.

Data was collected once a year in 2018 (spring) and 2019 (autumn), twice a year in 2020 (spring and summer) and three times in 2021 (spring, summer, autumn).

Of 1,810 burrows, recorded over this period of time, we found 92 that were repeatedly recorded in two years, of which 76 in consecutive years and 16 with a lapse, where the burrow was not found during a year's census. We found 24 burrows used in three consecutive years.

We did not cover the exact same area every season, which means there are fields where sampling may have taken place four times, while others were only covered twice. Our result therefore portrays a minimum number of reused burrows. This number is very likely to increase if data coverage were more consistent.

Our findings correspond with the idea that ecological fitness is determined by efficiency. Hamsters can save a considerable amount of energy improving a previously existing burrow as opposed to having to dig a completely new one. Newly weaned young hamsters may have better chances moving to a pre-existing burrow instead of building a new one. Furthermore, predation pressure is somewhat alleviated with a network of existing tunnel systems with many openings throughout the hamsters' home range, improving their chances of successfully evading predators while they search for food and mates. Newly reintroduced populations may have a disadvantage in that matter, as they need to establish such an infrastructure from scratch.

Because we did not cover the exact same area every season, the burrow counts we have do not allow us to directly compare between sites where populations are doing better or worse post release. What we can say, is that hamsters reuse burrows over consecutive years, for longer than the average lifespan of a hamster, suggesting that passing infrastructure through generations is beneficial for population success.

#### LITERATURE:

GORECKI, A. (1977): Energy flow through the common hamster population. - *Acta theriol.* 22: 25-66.

KARASEVA, E. V. & SHILAJEVA, L. M. (1965): The structure of hamster burrows in relation to its age and the season - *Bull. Moskauer Ges. der Naturforscher Abt. Biol.* 70 (6): 30-39.