

Genetic diversity: a key-factor in the success of reintroduced populations of the common hamster (*Cricetus cricetus*).

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Introduction

The Common or European hamster (*Cricetus cricetus*) became extinct in the Netherlands in 2002, but since then the species is successfully reintroduced in several area's and the population shows a remarkable recovery. The species was saved thanks to a breeding program at the Rotterdam Zoo, which was started in 1999 with 10 hamsters from one location, representing the total Dutch population. During the period 2000 - 2007 more than 900 hamsters were bred in captivity, of which 600 were subsequently released into the wild, resulting in a natural population of 1200 hamsters in the autumn of 2007.

Breeding program

To increase the genetic variation in the breeding program, a few hamsters, all males, from other highly threatened hamster populations in Belgium and nearby Germany were added to the breeding stock in later years. Genetically mixed lineages showed an increase in mean litter size:

- Dutch-Dutch-lineage: 5 (sd \pm 2.0) youngsters per litter
- Dutch-Belgium-lineage: 6 (sd \pm 2.2) youngsters per litter
- Dutch-German-lineage: 7 (sd \pm 1.8) youngsters per litter



Density of the hamster population

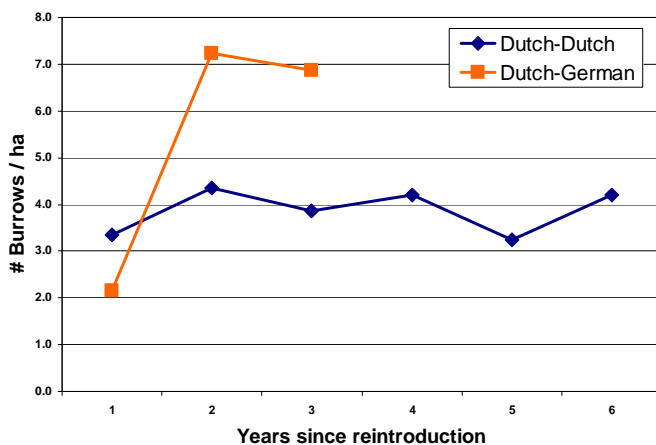


Figure 1: Density and development of 'pure' Dutch (n=3) and Dutch-German (n=2) populations of hamsters since their release.

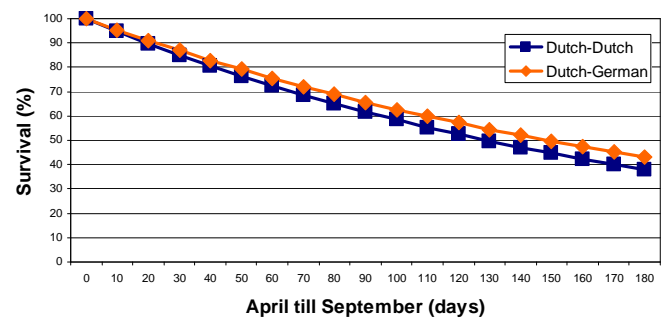


Figure 2: No difference in individual survival between 'pure' Dutch and Dutch-German populations during the reproductive season.

Conclusion

So far, the reintroduction proved to be successful, but the most successful were the releases with hamsters from the Dutch-German lineage. Although, this is still a preliminary result and more variables, like 'hamster-friendly management', influence the success of a release, it is a strong indication that populations with a genetic variable founding stock have a better chance of survival and establishment than populations that are founded with 'pure' Dutch hamsters.