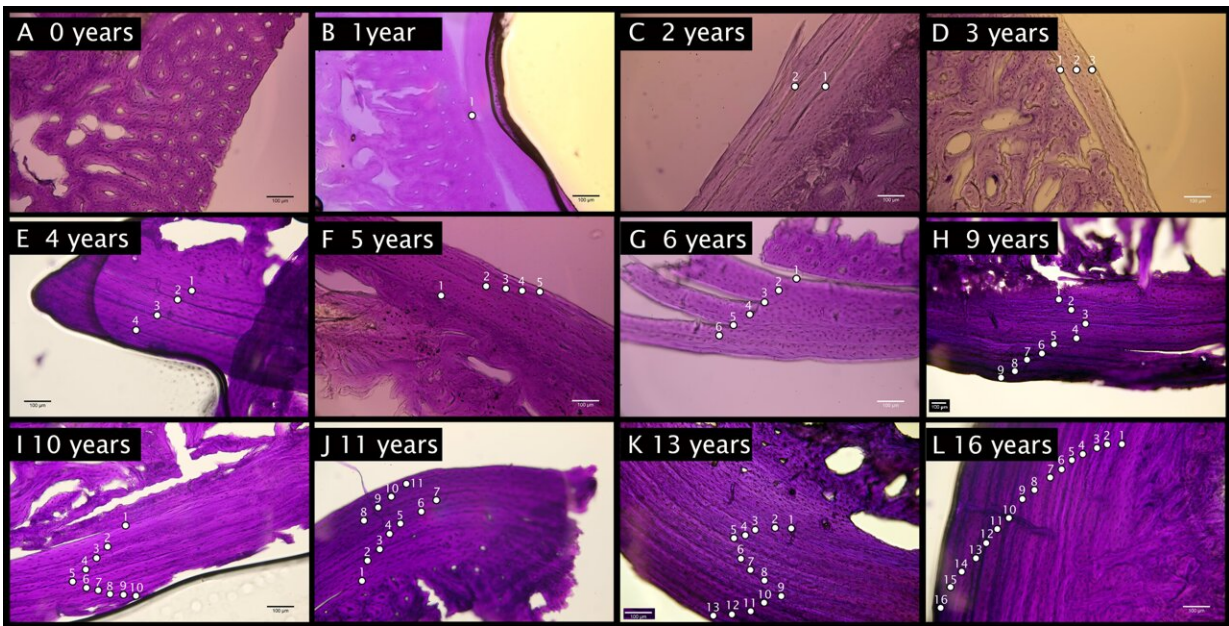


Scientists find world's oldest European hedgehog

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Overview of stained sections of hedgehog jaws, showing year rings which allows the researchers to determine the age of the hedgehogs. Credit: Thomas Bjørneboe Berg.

The world's oldest scientifically-confirmed European hedgehog has been found in Denmark by a citizen science project involving hundreds of volunteers. The hedgehog lived for 16 years, 7 years longer than the previous record holder.

The European [hedgehog](#) is one of our most beloved mammals but populations have declined dramatically in recent years. In the UK, studies indicate that urban populations have fallen by up to 30% and rural populations by at least 50% since the turn of the century (British Hedgehog Preservation Society). To combat this, researchers and conservationists have launched various projects to monitor hedgehog populations, to inform initiatives to protect hedgehogs in the wild.

During 2016, Danish citizens were asked to collect any dead hedgehogs they found for "The Danish Hedgehog Project," a [citizen science project](#) led by Dr. Sophie Lund Rasmussen. The aim was to better understand the state of the Danish hedgehog population by establishing how long hedgehogs typically lived for. Over 400 volunteers collected an astonishing 697 dead hedgehogs originating from all over Denmark, with a roughly 50/50 split from urban and rural areas.

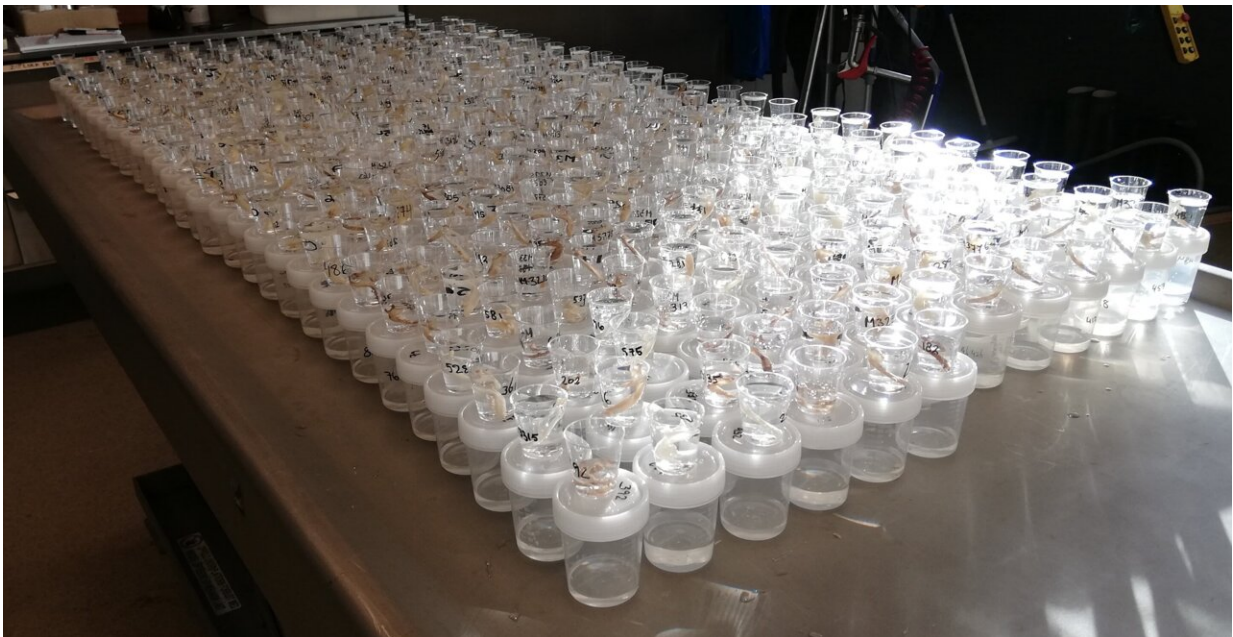
The researchers determined the age of the dead hedgehogs by counting growth lines in thin sections of the hedgehogs' jawbones, a method similar to counting growth rings in trees. The results have been published as a paper in the journal *Animals*.

Key findings:

- The oldest hedgehog in the sample was 16 years old—the oldest scientifically documented European hedgehog ever found. Two other individuals lived for 13 and 11 years respectively. The previous record holder lived for 9 years.
- Despite these long-lived individuals, the average age of the hedgehogs was only around two years. About a third (30%) of the hedgehogs died at or before the age of one year.
- Most (56%) of the hedgehogs had been killed when crossing roads. 22% died at a hedgehog rehabilitation center (for instance, following a dog attack), and 22% died of [natural causes](#) in the

wild.

- Male hedgehogs in general lived longer than females (2.1 vs. 1.6 years, or 24% longer), which is uncommon in mammals. But male hedgehogs were also more likely to be killed in traffic. This may be because males have larger ranges than females and likely move over larger areas, bringing them into contact more frequently with roads.
- For both male and female hedgehogs, road deaths peaked during the month of July, which is the height of the mating season for hedgehogs in Denmark. This is likely because hedgehogs walk long distances and cross more roads in their search for mates.



388 hedgehog jaws being prepared for age determination investigation. Credit: Sophie Lund Rasmussen.

Dr. Sophie Lund Rasmussen (based at the Wildlife Conservation

Research Unit WildCRU, Department of Biology, University of Oxford, and affiliated researcher at Aalborg University), who leads The Danish Hedgehog Project, said, "Although we saw a high proportion of individuals dying at the age of one year, our data also showed that if the individuals survived this life stage, they could potentially live to become 16 years old and produce offspring for several years. This may be because individual hedgehogs gradually gain more experience as they grow older. If they manage to survive to reach the age of two years or more, they would have likely learned to avoid dangers such as cars and predators."

She added that "The tendency for males to outlive females is likely caused by the fact that it is simply easier being a male hedgehog. Hedgehogs are not territorial, which means that the males rarely fight. And the females raise their offspring alone."

Hedgehog jaw bones show growth lines because calcium metabolism slows down when they hibernate over winter. This causes bone growth to reduce markedly or even stop completely, resulting in growth lines where one line represents one hibernation.

The researchers also took tissue samples to investigate whether the degree of inbreeding influenced how long European hedgehogs live for. Previous studies have found that the genetic diversity of the Danish hedgehog population is low, indicating high degrees of inbreeding. This can reduce the fitness of a population by allowing hereditary, and potentially lethal, health conditions to be passed on between generations. Surprisingly, the results showed that inbreeding did not seem to reduce the expected lifespan of the hedgehogs.

Dr. Rasmussen said, "Sadly, many species of wildlife are in decline, which often results in increased inbreeding, as the decline limits the selection of suitable mates. This study is one of the first thorough

investigations of the effect of inbreeding on longevity. Our research indicates that if the hedgehogs manage to survive into adulthood, despite their high degree of inbreeding, which may cause several potentially lethal, hereditary conditions, the inbreeding does not reduce their longevity. That is a rather groundbreaking discovery, and very positive news from a conservation perspective."

Dr. Rasmussen added that "The various findings of this study have improved our understanding of the basic life history of hedgehogs, and will hopefully improve the conservation management for this beloved and declining species."

More information: Sophie Lund Rasmussen et al, Anyone Can Get Old—All You Have to Do Is Live Long Enough: Understanding Mortality and Life Expectancy in European Hedgehogs (*Erinaceus europaeus*), *Animals* (2023). [DOI: 10.3390/ani13040626](https://doi.org/10.3390/ani13040626)

Provided by University of Oxford

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