

Longevity records in the red fox

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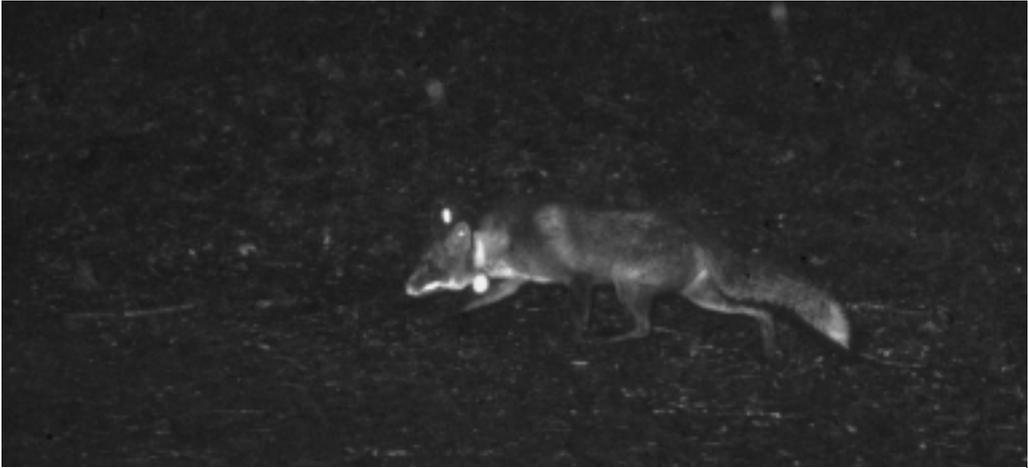
In the course of a research project on the red fox (*Vulpes vulpes*) in the coastal dunes of Holland (North-Holland Dune Reserve), red foxes were tagged with earmarks and equipped with radio-collars between 1979 and 1984. On the 12th of April 1993, long after the end of the project, a radio-collared fox was observed in a neighbouring village, Castricum. It was cornered and captured, and subsequently clubbed to death by a police officer, out of fear for rabies, although the last and nearest case of rabies had been five years ago and about 200 km away (Anonymous 1989). The fox appeared to be a female, ear tagged as the smallest cub in a litter of six in April 1981. From the end of June 1981 she was equipped with a radio-collar, and her whereabouts were followed till the end of the project, three and a half years later.

At the time of her unfortunate death, this female thus was 12 years and about 1 month old, a longevity record for an ear tagged wild red fox, as far as reported in the literature. In the same research project a tagged male reached the age of almost ten years: 9 years and 11 months. There is no fox control in this area, which may have helped these foxes to become so old.

Most longevity records mentioned in the literature are based on examination of tooth sections. Counting the number of the yearly formed cementum layers around the root of teeth, however, is not always straightforward, hence there always remains some doubt about the real age of the animal, unless the animal was tagged as a juvenile. This uncertainty increases with growing

age, as can be concluded by the following. We sectioned canine teeth of 331 foxes of unknown age. In age-classes 0-3 years the age of 9 out of 281 individuals was estimated with an uncertainty of 1 year (3.2%) and of 2 with an uncertainty of 2 years (0.7%), because of unclear lines. In age-classes 4-6 years (41 individuals) these numbers were 9 (22.0%) and 1 (2.4%) respectively, and in age-classes 7-9 years (9 individuals) 5 (55.6%) and 2 (22.4%) respectively (J.L. Mulder, unpublished data). Conversely, checking the number of cementum lines in known age individuals never yields a 100% fit either, in larger samples; Grue & Jensen (1973) for instance determined the age of only 93% of 135 known age foxes (age 0.5 - 4.5 years) accurately from cementum lines.

The highest age of a red fox has been reported from Hokkaido, Japan. This animal was a female with 14 dark lines in the cementum (Maekawa et al. 1980). Since this fox was captured in winter and the dark lines are formed during spring and summer (Grue & Jensen 1979), this number of lines probably corresponds with an age of almost 15 years. Kappeler (1985) found, among nearly thousand foxes examined from Switzerland, a single fox (sex unknown) of almost 13 years old (shot in late winter), and as the next oldest fox a female of almost 11 years old. Chubbs & Phillips (1996) reported upon two foxes from Labrador, which were determined to be 8 years and 7 months (female) and 10 years and 8 months (male) old, respectively. The oldest fox Baker & Harris (2001) found in a sample of 1,628 dead foxes from Bristol was two weeks short of 10 years old. In a recent fox research project in another part of the Dutch coastal dunes (Meyen-



The female red fox, which would live to be 12 years old, with radio-collar and ear tags, just after the release following a recapture on 31 January 1983. *Photograph: Jaap Mulder.*

del), the oldest fox, a female, reached the age of exactly 9 years, according to her tooth sections (Mulder 2000).

In captivity foxes may reach higher ages than in the wild. Harris & Lloyd (1991) mention ages of 14 years or even more for captive red foxes.

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Samenvatting

Leeftijdsrecords van de vos

Een vos, die in 1981 als juveniel vrouwtje gemerkt en gezenderd werd in het Noord-Hollands Duinreservaat, werd in april 1993 doodgeslagen in het dorp Castricum. Zij bereikte dus met zekerheid een leeftijd van twaalf jaar, een record voor een gemerkte, in het wild levende vos. Bij leeftijdsonderzoek aan dode, ongemerkte vossen zijn weliswaar af en toe nog oudere dieren gevonden (tot bijna 15 jaar), maar aan de leeftijdsbepaling door middel van groeilaagjes in het tandcement kleeft altijd enige onzekerheid, die nog toeneemt met opklimmende leeftijd.

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