

THE DUTCH OTTER REINTRODUCTION PROJECT: WHAT NON-
INVASIVE GENETIC SAMPLING TOLD US ABOUT SOCIAL
STRUCTURE AND BEHAVIOUR IN A LOW DENSITY POPULATION

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The otter (*Lutra lutra*) went extinct in The Netherlands in 1988. In 2002 16 otters, originating from Eastern-Europe, were re-introduced in a large wetlands area in the north of The Netherlands (Weerribben- Wieden). In subsequent years another 10 individuals were added. From all these individuals a genetic fingerprint, based on 12 microsatellites, was collected. Because otters are elusive animals they are hard to observe during daylight. Therefore, a non-invasive genetic sampling protocol was developed based on extracting DNA from freshly collected spraints (droppings) in the field. During the period 2002-2006 we collected a DNA profile from 205 spraints (out of 558 collected spraints). These genotyped spraints revealed information on: 1) territory use of adult males and females; 2) social structure and mating behaviour; 3) detection of newborns and their subsequent fate; 4) dispersal within and out of the original release area; 5) dynamics of genetic diversity in a small isolated population; and 6) density estimates of the population. Moreover, because we are working with a small isolated population that was fully genotyped on beforehand we could evaluate the technical protocols and problems related to non-invasive genetic sampling (allele dropout; incomplete profiles because of low DNA quality; the need for repeated PCR (multiple tube) and the trade-off between replication and number of microsatellites that could be used).

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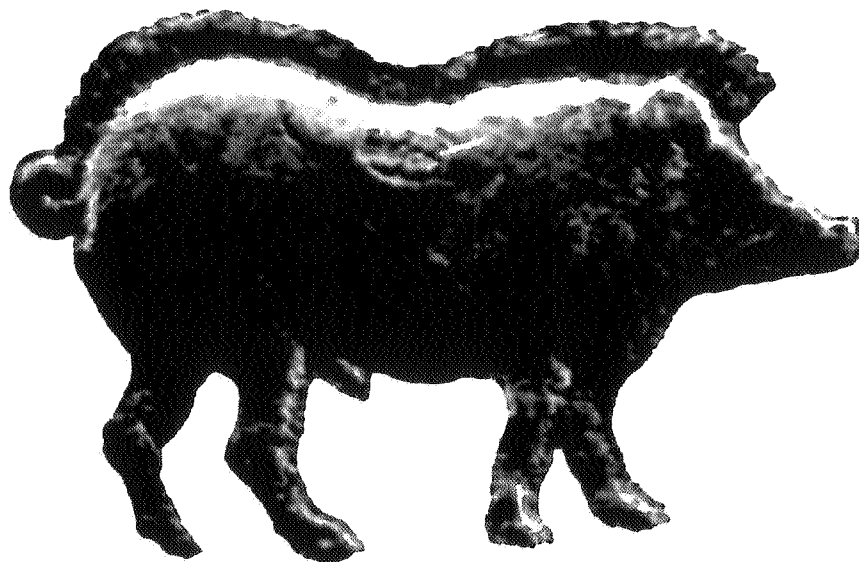
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Ancient Etruscan coin (Populonia, 4th Century b.C.; Archaeological Museum, Florence)

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