ALSO ANIMALS LEAVE TRACES – DNA PROFILING OF DOGS, HORSES, PIGS AND OTHER ANIMALS

Rainer Schubbert, Lars Giesen, Wolfgang Hell
Medigenomix GmbH, Martinsried, Germany

Medigenomix is specialized on DNA analytical services for DNA sequencing and genotyping. Our genotyping service includes identity testing in humans and animals, population genetics, gene mapping, pharmacogenetics and forensic DNA-analysis.
Due to our experience we get orders from governmental and private clients to analyze traces of animal origin and compare these DNA-profiles with those of suspected animals to confirm or to exclude an individual as the cause of a trace.

We present several cases, where animals, which killed or injured people or caused accidents, could be identified by DNA analysis. We also describe a case, where a chewing bone, left from a dog at the place of a crime, convicted the owner of the dog as a theft.

As today microsatellite markers are available for many different species, we can identify dogs, cats, horses, cattle, pigs as well as deer, fox and some other wild animals. In contrast to human marker systems the allelic frequencies are not known in every animal species.

Therefore we have to use up to 20 markers to prove identity between trace and individual. In some cases it is necessary to determine the species of animals before individual identification (e.g. car accidents, insurance fraud, bites) or in general for authenticity testing (fraud with food). A special application is beef gender testing to ensure the correct gender declaration at EU level as EU export and import of beef carries a subsidy difference between male (considered to be higher quality) and female meat. A similar interest is with retailer organizations, which pay higher prices for male meat to their deliverers. We also show a method to perform these determinations.