



E27 A Different Kind of DNA Casework: When It Has Antlers

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After attending this presentation, attendees will better understand the application of forensic principles to the area of wildlife forensics. The development and application of a system for the unique identification of white-tailed deer used for the prosecution of suspects who may have committed crimes involving white-tailed deer will be presented. A multiplex Short Tandem Repeat (STR) marker system was used to confirm the identity of the stolen deer and offered in court to help prosecute an individual charged with the theft of the trophy white-tailed deer buck. The presentation of the development and validation of the white-tailed deer STR marker system will reinforce the parallels between human and wildlife forensics.

This presentation will impact the forensic science community by increasing awareness of the field of wildlife forensics. This presentation is intended to be part of a set of presentations from forensic science practitioners in the wildlife forensics community. Wildlife species have often been the basis for research presented at the American Academy of Forensic Sciences (AAFS); however, the work of wildlife forensic laboratories has, in the past, been underrepresented in the AAFS scientific sessions. By presenting multiple talks, highlighting the breadth of the work that is completed in this community, a valuable resource will be provided to the forensic science community at large.

The unique challenges of wildlife forensics will be discussed as they relate to the prosecution of the individual for the theft of the trophy buck and in general. In this case, a comparison between the DNA profile from the animal and the DNA profile from shed antlers from the original owner were presented in court and contributed to the conviction of the suspect. Methods for the extraction of DNA from typical white-tailed deer samples, multiplex Polymerase Chain Reaction (PCR), and capillary electrophoresis will be discussed. The validation conducted included processing deer samples from substrates such as deer hair and antler material, blood on rope, wood, leaves, dirt, leather boots, tarps, denim, arrows, and concrete; this will be discussed. This database of white-tailed deer DNA profiles was processed using the Cervus computer program to determine if the makers were in Hardy-Weinberg equilibrium and to identify the Polymorphic Information Content (PIC) at each locus. Allele frequencies for each marker were calculated to determine the match probability in this case.

Many other examples of the application of forensic DNA testing for the successful prosecution of suspects in wildlife crimes will be mentioned. Current efforts to produce a tetra-nucleotide STR multiplex system for Sable antelope will also be discussed. At the conclusion of the presentation, attendees should have a good understanding of the application of well-established human forensic principles to the challenging area of wildlife forensics.

Wildlife Forensics, White-tailed Deer, Multiplex STR