

Forensic identification of a tapir (*Tapirus terrestris*) from a roadkill crime, using mitochondrial and nuclear markers

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The province of Misiones in Argentina contains the largest remnant of the Atlantic Forest Ecoregion, a world biodiversity hotspot. However, this remnant is fragmented and suffers human-wildlife conflict, including road kills; both threaten wildlife. Presented, is a forensic case that involved a hit-by-vehicle (HBV) tapir (*Tapirus terrestris*), a Natural Monument that receives the highest legal protection in Misiones, on the 31 March 2019 in northern Misiones. While the driver involved in the crash left the scene, he was subsequently found in a nearby town. However, he claimed that he hit a horse, not a tapir, with his truck. Genetic analysis of evidence from his truck versus the reference HBV tapir was requested in order to clarify the legal case. DNA was extracted from the HBV tapir (muscular tissue) and vehicle evidence (hair and blood swabs) following a phenol-chloroform protocol. For species identification, a portion of the mitochondrial *Cytb* gene was amplified. For individual genotyping, 12 sets of microsatellites (STRs) were amplified. All genetic protocols had been previously optimized for tapir. *Cytb* gene of the HBV tapir and vehicle evidence had a 100% overlap in their genetic sequences, indicating the driver hit a tapir, not a horse. A match was also found across the STR alleles amplified, between evidence and reference samples. The forensic report was sent to the requesting authorities for use in their investigation and legal efforts. This work demonstrates the power of wildlife forensic analyses in assisting with the enforcement of conservation laws.

Key phrases: *Tapirus terrestris*, molecular markers, wildlife DNA forensics