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Achievements and challenges in development of wildlife forensics in south-east Asia for controlling illegal trade for biodiversity conservation: A case study from India

S P Goyal

Wildlife Institute of India, India

One of the major causes in failure of proper implementation of laws was lack of wildlife forensic facility to identify species from various wildlife parts and products for better conservation of resources in south-east Asia. We discuss outcome of the collaborative work undertaken in wildlife forensics with U.S. Fish and Wildlife Services. 65 per cent cases in India can be dealt with morphometry based techniques as items were hair, skin, claws, antler, musk pod and bone. 40 per cent samples among hair were shawls of Tibetan antelope (*Pantholops hodgsoni*) and we describe simple field criteria in distinguishing wool samples from other species. Of the ca. >300 wildlife offence cases related to tissue, we noted major problems were in proper preservation of samples and lack of reference samples. A simple manual and kit were prepared for proper preservation of tissue samples for enforcement officers. For dealing offences of tissue (n=>300), Wildlife Forensic DNA facility was established to standardize techniques for identifying species from various animal parts. A need of standardizing protocols for extracting DNA from Wildlife Forensic materials was felt because of degraded samples and development of molecular markers. Of the four protocols tested for 30 meat samples, 10% samples showed very good quality DNA which resulted in RAPD amplification. 70% samples indicated degraded DNA whereas 20% samples yielded very less DNA which needs to be extracted again by modifying protocols. We also tested DNA protocols for other biological samples such as skin (n=6), hairs (n=10), bear bile (n=4), musk pod (n=4), antler (n=1), ivory (n=2) and blood (n=5). We initiated to establish DNA profile of Indian species (n=100) based on cytochrome b, 12s RNA and 16s RNA. We discuss the initiative undertaken for identifying source of origin of tiger leopard and elephant and sensitization among enforcement agencies.

Biography

S P Goyal, MSc and PhD (Zoology) is working with the Wildlife Institute of India, Dehra Dun, India for last 27 years. He worked on a number of species ranging from Fruit bats to elephant. He is Nodal Officer, Wildlife Forensic Cell of the Institute. One of the important tasks is to develop protocols for species identification which is needed in implementation of national laws and International treaties. He has initiated a research work on "*Panthera tigris* genome: Implications in forensics" mainly to establish reference genetic database to determine geographic origin of poaching cases and has immense global significance. He has widely traveled across world to acquire new technologies for use in developing wildlife forensics and in other issues of wildlife conservation.

goyalsp@wii.gov.in