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Wildlife Forensic: Step Forward Towards Nature Protection

Wherever he steps, whatever he touches, whatever he leaves, even unconsciously, will serve as a silent witness against him. Not only his fingerprints or his footprints, but his hair, the fibres from his clothes, the glass he breaks, the tool mark he leaves, the paint he scratches, the blood or semen he deposits or collects. All of these and more, bear mute witness against him. This is evidence that does not forget. It is not confused by the excitement of the moment. It is not absent because human witnesses are. It is factual evidence. Physical evidence cannot be wrong, it cannot perjure itself, it cannot be wholly absent. Only human failure to find it, study and understand it, can diminish its value.

Edmond Locard (1)

To the Editor: The use of forensic and specialist techniques in the investigation of human crime has increased dramatically during the last 20 years due to the advances in DNA technology that revolutionized the investigation of offences and helped the identification of victims of mass disasters. This brought many changes in the field of biology and shifted the interest and involvement of biologists in new directions, such as use of forensic methods in protection of plants and animals.

In Croatia, war circumstances sped up the development of forensic genetics and initiated the establishment of the first Croatian human DNA database. Ethical and national importance of identifying the victims of the Homeland war set the guidelines for the forensic science in Croatia. While articles, news, and discussions in public media keep bringing the notion and significance of forensics closer to wider Croatian public, thematic issues of CMJ on DNA analysis in forensic sciences, linked to the biannual meetings of forensic scientists traditionally held in Dubrovnik, Croatia, keep the professional public informed on the advances in this field. I would like to make a few points arising from two reports published in the forensic issue of the CMJ this year, which reported on the use of plant (2) and animal (3) material traces in a procedure of linking victims and suspects. This approach may have a direct application to wildlife-related offences. For example, there is no reason why leaving a poisoned bait in the wilde should be treated any different than a burglary crime. From such a standpoint, the use and development of forensic methods should have their place in the field of nature protection in Croatia. The particularity of Croatian natural resources demands particular forensic methods and techniques. Nature and environment protection experts and crime investigators working on the cases that jeopardise the existence of various members of Croatian flora and fauna should be informed about the possibility and the need to use such methods. For instance, there was a case of trapping of a protected species, peregrine falcon, *Falco peregrinus* (1). A peregrine trapping site, designed to catch live peregrine falcons for the falconry market, was discovered on a coastal headland. A live pigeon tethered to a small stake with nets alongside was used as a bait. During the observation of the trapping site, a peregrine arrived, killed the pigeon, and became momentarily caught in the trap. A while later, the suspect arrived and removed the items from the site. When searched by the police, he was also found to have a bag holding a live pigeon, which was suspected to be another live bait for the falcons. The suspect

claimed that it was an injured bird he had found earlier that day and denied any involvement with setting up the trapping site. In the suspect's house, a reel of thread was found and forensically compared with the thread used to tether the pigeon at the trapping site. The match between the fibres helped to confirm the link between the suspect and the illegal activity at which he was caught. He was later convicted of a number of wildlife offences.

When two objects come in contact, particles from one object are transferred on the another. This is known as "Locard's Exchange Principle" (1), called after French scientist Edmond Locard (1877-1966), an early pioneer in forensic science who was impressed by the power of forensics in detecting a crime suspect.

The authors of the two reports published in the CMJ (2,3) pointed out the possibility of use of forensic methods in cases of human violence and crime against animals and plants. Unfortunately, the wildlife crime investigation still has a low priority in many countries, including Croatia. However, attention has increasingly been paid to this sort of crime due to recent changes in Croatian legislation (4) and increased number of wildlife offences, such as recent poisoning of vultures (5), burning down of the ornithological reserve at the Vrana Lake (6,7), and continuous smuggling of hundreds of killed songbirds for culinary purposes from and through Croatia (8).

Biological diversity of Croatia, especially the richness of rare and endangered ornithofauna, attracts those who steal eggs and young birds for smuggling and trade. The destruction of natural habitats and the uncontrolled trade of wild animals and plants are among the main causes of their rarefaction, putting at risk of extinction entire populations of different species. Croatia ratified the Convention on International Trade in Endangered Species of Wild Fauna and Flora (*http://www.cites.org/*), an international agreement aiming at regulating the trade of plants and animals and their products, for which Randi et al (9) provided a comprehensive theoretical and practical description of the use of forensic genetics. In this context, Croatian wildlife protectors should seriously consider using the available forensic techniques in nature protection and prevention of wildlife crime.

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