THE VETERINARIAN AS CRIME SCENE INVESTIGATOR

Ernest Rogers, DVM, PhD

The popularity of television shows, such as CSI and Law & Order, have significantly increased interest in forensic science as well as heightened the expectations of lay people with regard to what can be accomplished through “crime scene investigation.” As forensic science continues to evolve, its advances not only affect human crime cases but also those involving animals, such as animal hoarding, pet abandonment, or failure to obtain veterinary care. This series will examine the important roles practitioners play when faced with these cases, participating in their own version of CSI.

WHAT IS FORENSICS?
Forensics is the scientific presentation of evidence to:
• Establish that a crime occurred
• Determine a crime’s timeline
• Assess elements of a crime
• Provide perspective regarding the nature of a crime
• Confirm or contradict events related or circumstantial to a crime.

JACK OF ALL TRADES WE ARE NOT
Veterinary investigators often gather evidence for analysis and classification by other types of forensic experts (eg, blood splatter, trace, ballistics, DNA). It would be difficult to present oneself as an expert in all, or even one, of the sub-specialties of scientific forensic evaluation in a court of law.
• Our goal is to collect important evidence relating to the crime scene and animal victim; then pass this information to other forensic scientists for evaluation and presentation in court.
• Our strength is evaluation of biological and physical evidence at the crime scene as it relates to cause of death or abuse in crimes against animals.
• We are able to use our education and experience to:
  » Gain an overall perspective of all evidence collected
  » Establish the nature of the crime, cause, manner, and method of abuse or death.

As a science, forensics does not determine guilt or innocence, right or wrong. Instead, evidence is used to provide an explanation and account for the events that occurred in relation to a crime.

FORENSICS & VETERINARY MEDICINE
All 50 states have criminal laws against animal cruelty, with penalties ranging from minimal fines to incarceration. Investigation of animal crimes must meet the same rigorous standards as other criminal infractions: individuals charged with crimes against animals are entitled to face their accusers, the evidence collected, and the elements of the crime of which they are being accused.

Therefore, law enforcement and prosecutors will often ask veterinarians to assist in criminal investigations involving animals. This assistance includes:
• Providing expertise in clinical medicine, pathology, and surgery
• Ensuring collection of all possible biological and physical evidence
• Evaluating the significance of evidence to assist in successful prosecution.

LEGAL CONSIDERATIONS
When working within the criminal justice system, veterinarians have the same accountability that applies to forensic investigators, criminalists, and law enforcement officers regarding search and seizure and evidence collection.

Search Warrants
The primary legal consideration during crime scene investigation is the 4th Amendment: The right against unreasonable search and seizure.

In some cases a search warrant may be required. This court-issued document stipulates:
The Veterinarian as Crime Scene Investigator

VETERINARY FORENSICS

• The type of search
• Where one may search
• What type of evidence may be collected.

Failure to obtain a search warrant, when required, may result in inadmissibility of evidence, hindrance of prosecution, and may even lead to dismissal of charges.

Evidence Handling

Failure to collect, package, document, and store evidence in a proper forensic manner may create reasonable doubt during criminal proceedings and result in an acquittal. In general, when called to a crime scene, a veterinarian will have support and guidance from federal, state, municipal, or humane police regarding evidence seizure and collection. If in doubt at a crime scene, ask for guidance from a senior law enforcement official, criminalist, or prosecutor.

APPROACH TO THE CRIME SCENE

There are several methods of investigating a crime scene; however, any thorough, systematic, coordinated review of the crime scene is acceptable as long as no evidence is overlooked or remains undocumented.

The initial scene should be approached with a thorough understanding of the:
• Suspected crime
• Number and approximate location of victims
• Circumstances surrounding the crime
• Law enforcement findings
• Information from witnesses and first responders.

Another individual (law enforcement official or other colleague) besides the investigating veterinarian should be designated to monitor the search as the scene is investigated, documented, and photographed and evidence collected. This person:
• Protects the investigator from any allegations of impropriety during crime scene investigation
• Corroborates (and may record) location and condition of evidence during its collection.

WHAT IS EVIDENCE?

Evidence is defined as something that furnishes proof or something legally submitted to a tribunal to ascertain the truth of a matter. Much of the value of forensic evidence is based on Locard’s Exchange Principle, which states any physical contact between two objects will leave trace elements of the contact on adjacent surfaces.

In a forensic criminal or civil investigation, evidence is any item that may, by scientific analysis or its presence at the crime scene, provide:
1. Verification a crime has been committed
2. Illumination regarding the elements of a crime
3. Confirmation of the nature, time sequence, and events of a crime
4. Identification of individuals present at the scene.
   Additionally, evidence may tie an individual physically to a victim, crime scene, or other elements of the crime and establish contacts between items or persons that otherwise have been unexpected.

Evidence exists in two forms:
1. Testimonial evidence is the account of the sequence and nature of events by first-hand observers.
2. Physical evidence is classified into class evidence and individual evidence, which have very different weights in a court of law. Additional categories of physical evidence include latent and trace evidence, which usually require special techniques for recovery, identification, and collection.
   • Class evidence relates evidence to a general category or class of items (eg, torn fibers related to a specific brand or manufacturer of clothing).
   • Individual evidence relates evidence to a specific individual, either pet or person (eg, skin, hair, drop of blood).
   • Latent evidence is usually not easily detected by visual observation. It may need to be developed by advanced chemical or physical techniques (eg, luminal for blood or cyanoacrylate fuming for ridge marks, such as nose prints or fingerprints).
   • Trace evidence is often obtained by careful examination and includes fiber, glass, hair, paper, ash, plant material, or entomological materials.
Crime Scene Overview
In general, crime scenes should be initially evaluated from a wide-angle view, as an entire scene (often defined by crime scene tape or cones).1,2,8
- Photography/videography should begin on arrival and encompass all pertinent angles of the scene.
- Be aware of lines of ingress (entrance) and egress (flight) of all potential victims or perpetrators; these areas should be evaluated and photographed from the wide-angle perspective, especially if the scene is an outside venue.
- Protection and documentation of fragile or perishable evidence should be the first priority.2,5,8

CRITICAL POINT

Before entering the crime scene proper, avoid investigator cross contamination by putting on new disposable booties and gloves on over shoes and hands. In areas with potential for biohazards (ie, chemicals, toxins, human blood-borne or animal diseases), such as hoarding scenes, use of a coverall suit, boots, gloves, and even an approved biohazard respirator is recommended.9

Inside the Scene
Once inside the scene:
- Look again for lines of ingress or egress, including doors, windows, and other visible portals.
- It is important to note and photograph if any of these routes are open/closed, locked/unlocked, forced/broken, or tampered with in any way.
- Examination should extend to the floor, ceiling, furniture, and walls for signs of violent damage, weapon marks (including projectiles), ridge impressions (nose, paw, or finger prints), blood drops or splatter, and any other signs of evidentiary importance.2,4,5,8

Multiple Scenes
Occasionally there may be primary, secondary, and even tertiary crime scenes. Based on forensic investigation, evidence may surface that suggests that crime scenes existed either prior or subsequent to the one being examined.

Consider the following example: An animal is shot at one location (primary scene). The injured animal is then transported via automobile (secondary scene) to a remote location where it is dumped and left for discovery (tertiary scene).

It is the investigator’s responsibility to determine if additional crime scenes may exist beyond the one initially investigated.2

COLLECTION OF EVIDENCE
The veterinarian's investigation process includes:
- Photographs
- Videography
- Crime scene notes
- Sketches10

Initial Documentation
- Initial documentation should include:
  - Date and time of the call out
  - Name and affiliation of officer or other individual requesting assistance.
- The most expedient way to find out who has access to the scene is to obtain business cards from those present.
- A copy of the crime scene registry, including the names, addresses, and contact information of witnesses, victims, and first responders, is often available from the investigation officer or agent in charge.
- All investigation/crime scene notes should be maintained on a single pad or bound book and include:
  - Basic sketches
  - Notes about evidence collection
  - Notes on photographs
  - Any other objective observations.

Evidence Gathering
Animal bodies should initially be examined in place.
- Bodies should be photographed from all sides and above before moving them for necropsy examination.
- Any insect evidence (see Entomology) should be collected from the body and placed in a sterile vial or envelope.
- Once examined and photographed the body should be placed or wrapped in a clean white pillow case or sheet.
- Paws should have evidence bags placed over them to retain any evidence attached to, or trapped in, the interdigital areas.11,12

For detailed information and tips about Forensic Photography as well as the article References, go to todaysveterinarypractice.com and select Resources.
Physical surfaces, such as walls, floors, ceilings, or other indoor areas, related to the crime or criminal activity are photographed and sketched for completeness.

- Some surfaces must be dismantled for further evaluation in the laboratory setting.
- Trace evidence (see What Is Evidence?) may be retrieved by using plastic thumb forceps, lint roller paper, or specialized evidence vacuums.
- Each single piece of particulate matter should be folded in paper (druggists wrap); then placed in a manila envelope, which is sealed to ensure stored location and security.
- Blood splatters are photographed in place with orientation and relation to the crime scene and other pertinent evidence clearly noted.
- The shape of blood drops impinging a solid surface may demonstrate the directionality of the blood splatter, giving additional insight as to the wounded victim or suspect’s activity during the assault.
- All significant biological or other forensic evidence is to be packaged as appropriate in either plastic (if dried) or rolled in paper (if wet), sealed with evidence tape, and submitted for analysis or stored in a secure locked location.

DNA material is often essential in criminal cases. There are many acceptable methods of collection; however, use of commercially prepared forensic DNA collection equipment is preferred because it eliminates many possible defense objections to cross contamination, improper collection, handling, or storage.

Investigative Sciences

Toxicology is often an important part of the forensic investigation. Involvement of a poison or toxin may be determined through:

- Clinical/forensic examination of the animal (further discussion of this topic will be provided in the next article—The Veterinarian as Medical Examiner)
- Witness or owner statements about the events surrounding time of sickness or death
- Suspicion based on the nature of the evidence found at the crime scene or a second location.

Entomology is becoming an important aspect of forensic investigations.
- Often insect larva, pupae, and other intermediate stages (maggots) can help determine time or location of death.
- Forensic entomologists analyze the significance of insect evidence with respect to the crime and crime scene.

DNA evaluation—nuclear DNA (nDNA) or mitochondrial DNA (mtDNA)—should ideally be completed in an American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB) laboratory approved for animal DNA evaluations. These laboratories

**Crimescene investigation often requires submission of evidence to a forensic laboratory for analysis.**

- Detailed evidence packaging and submission guidelines are available online or by written request from federal, state, and some municipal law enforcement agencies.
- Evidence placed in an appropriate receptacle must be sealed with tamper-resistant evidence tape.
- The date and investigator’s initials should be written in a manner that covers both the tape and package continuously; this ensures package security until analysis.
have met the stringent legal and forensic criteria set forth as the acceptable standard in a court of law.\textsuperscript{2,15}

**REQUIRED DOCUMENTATION**

*Chain of Custody* is a legal document initiated by the investigator.\textsuperscript{6,12,15} This document identifies a single piece of evidence as well as:

- Case number
- Date found and time
- Location
- Investigator who found it
- All individuals who may have handled it
- Where/when/how it was packaged, transported, and stored.

Other documents required to be available to prosecution and defense attorneys include but are not limited to:

- Initial documentation, including records of personnel in attendance at the crime scene and crime scene notes and sketches
- Photographic and videography inventory
- Necropsy notes, conclusions, and photographs.

All written records including emails and letters are subject to discovery or examination by the defense; however, telephone communication and face-to-face meetings are not subject to discovery.\textsuperscript{2,9,15}

**PROSECUTION**

Permission to obtain forensic analysis and, therefore, proceed to prosecution is often governed by the financial resources of the law enforcement agency, expectations of a successful prosecution, and availability of judges and prosecutors knowledgeable in the area of animal crime statutes and laws. Communication among investigators, law enforcement, and prosecutors is essential to ensure a thorough investigation has been completed and evidence documented and packaged appropriately; thus, allowing the best chance for pursuit of analysis and prosecution.

**IN SUMMARY**

In general, the approach to the crime scene should be structured and comprehensive. Most crime scenes will have law enforcement or forensic support available upon arrival of the investigating veterinarian. When entering the crime scene, the veterinarian should:

- Acknowledge other police and crime scene professionals
- Obtain names, department affiliations, and contact information
- Follow the directions of the authorities on scene
- Conduct the entire investigation with minimal interference with other forensic personnel.

Overall, use of investigation techniques and documentation are very similar to techniques used in the establishment of a diagnosis. Veterinarians, by virtue of our education, experience, and inquisitive scientific acumen, are in a perfect position to be effective forensic scientists.\textsuperscript{2}

**CRITICAL POINTS**

- No piece of evidence is insignificant and evidence can never be over documented (e.g., photography, videography, notes, sketches).
- Once the scene is released to owners or residents, it and any uncollected evidence are considered compromised; therefore, missed evidence cannot be retrieved without risking damage to the prosecutions’ case.
- The rule of thumb is: *It is always better to have the evidence and not need it than to need it and not have it.*

**CRITICAL POINT**

Many municipal, state, and federal crime laboratories will not accept evidence, no matter how expertly collected, if the materials are not packaged appropriately, securely sealed, or lack the appropriate chain of custody documents.\textsuperscript{4,8,15,16}

**Ernest Rogers, DVM, PhD, is the Consultant Forensic Veterinarian to the New Jersey SPCA Humane Police, who enforce Title 4 statutes related to animal cruelty, and has worked with various police agencies in New Jersey for over 10 years, completing such tasks as projectile recovery, expert witness reports, forensic necropsies, crime scene evaluation, and courtroom expert testimony. He also works on cases outside of New Jersey, acting as an expert witness and reviewing the science and medical data presented as prosecution discovery for defense attorneys. In addition, he is the president of the company, Animal Forensic Investigations, and owns and remains active in his general practice, Maplewood Animal Hospital, in Maplewood, New Jersey. He received his DVM from Tuskegee University and his PhD from Virginia Tech; he has completed advanced courses in criminal investigation and criminal justice.**

For a detailed, real-life Case Study that demonstrates the techniques discussed in this article, visit the Resources section of todaysveterinarypractice.com.