WILDLIFE DECOMPOSITION ANALYSIS FOR TIME OF DEATH ESTIMATES

Plus Forensic Entomology Basics

POWERPOINT PRESENTATION TO ILLUSTRATE DECOMPOSITION STAGES FOR USE IN TIME OF DEATH DETERMINATIONS

F. Carleen Gonder

Photo: C. Gonder

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PURPOSE OF THE DECOMPOSITION PROJECT

Determining time of death (TOD) during the first 24 hours postmortem is a technique long used for traditional game species such as deer and elk. In poaching investigations TOD is crucial as court accepted evidence with applicability in two situations:

1. Determine if that animal was taken by a hunter during legal hunting hours
2. Fix the TOD with a point in time matching the presence of a suspect at an illegal take scene

And TOD is often more readily determined at the scene, rather than in a lab.

An issue with many poaching situations is the discovery of carcasses that are in advanced stages of decomposition with little information to indicate TOD.

Investigators have long understood the importance of TOD estimates, both short term or during the initial hours postmortem, and long term by understanding the various stages of decomposition. The practical research involved in this project provides baseline data on long term decomposition in order to develop markers for use in the field by federal and state wildlife law enforcement officials.

SIGNIFICANCE

As a law enforcement officer with the US Fish and Wildlife Service (FWS)/Division of National Wildlife Refuges, C. Gonder was a field investigator of several poached deer and elk with antlers or heads removed and the remainder of the carcasses found in advanced stages of decomposition. Those investigations helped to demonstrate a need to Gonder for this type research. Project endorsement further attests to the project's worthiness and includes:

- Tim Eicher, FWS Special Agent: Carleen's project represents "cutting edge research in wildlife enforcement, with direct applications to field investigations and is supported by US FWS Office of Law Enforcement."
- Bonnie Yates, FWS National Fish and Wildlife Forensics Lab's senior mammalogist/osteologist: "I am busting with pride at your progress…Your project is top notch. I am keenly interested in your progress."
- Karen Rudolph, Idaho Fish and Game forensic lab specialist: "What a treat to have a Master's project that will truly provide immediate and hands on (applied) benefits."

Data from this project will be published in A Guide to Time of Death in Selected Wildlife Species (D. Oates, 1984) and Wildlife Forensic Field Manual produced by the Association of Midwest Fish and Game Law Enforcement Officers, which was the primary sponsor of the project. This assures its contribution to wildlife law enforcement.

A POWERPOINT PRESENTATION IS NOW AVAILABLE THAT ILLUSTRATES DECOMPOSITION STAGES OF CARNIVORES WITH EMPHASIS ON SEASONAL VARIATION. IT INCLUDES FORENSIC ENTOMOLOGICAL ANALYSIS AND COLLECTION PROTOCOLS.

LENGTH: 1.5 HOURS PLUS TIME FOR QUESTIONS AND DISCUSSION

POWERPOINT PRESENTATION TO ILLUSTRATE DECOMPOSITION STAGES FOR USE IN TIME OF DEATH ESTIMATES

Program length: Approximately 1.5 hours plus time for discussion
Outline: 121 slides total

I. How long has that animal been dead – illustrates that length of time can be deceiving; major factor: arid climate
   A. Wolf
   B. Black bear
   C. Mountain lion

II. Time of death determinations in two phases
   A. Initial postmortem/first 24 hours
   B. Decomposition

III. Project site description
   A. Lubrecht Forest
   B. Exclosures

IV. Decomposition stage descriptions using summer gray wolf as an example
   A. Bloat
   B. Active decay
   C. Advanced decay
   D. Dry
   E. Remains

V. Seasonal variations of stages
   A. Summer – gray wolf
   B. Early fall – black bear
   C. Mid fall – black bear
   D. Late fall – whitetail deer
   E. Winter – mountain lion
   F. Spring – gray wolf

VI. Decomposition characteristics including
   A. Odor
   B. Teeth
   C. Arid climate seasonal differences

VII. Forensic entomology
   A. Blowfly lifecycle
   B. Maggots for time of death estimates
   C. Other insects associated with decomposition
   D. Collection equipment and protocols

A COMPANION MANUAL IS AVAILABLE IN COLOR HARDCOPY COIL-BOUND FORMAT, OR CD