Docent Guide

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INTRODUCTION

Welcome to CSI: Crime Scene Insects!

Thank you for your participation as a docent for *CSI: Crime Scene Insects*, a unique traveling science exhibit dedicated to **forensic entomology.** With your assistance, visitors will more fully discover this fascinating field of criminal investigation that uses insects and insect activity to reveal critical details and evidence at a crime scene.

This guide will introduce you to the overall organization and design of the exhibit; highlight key concepts; answer frequently asked questions; and offer additional content background, suggestions and a list of resources. We hope your own investigation into forensic entomology leaves you intrigued about the topic and excited to share your enthusiasm with visitors to the exhibit.

CSI: Crime Scene Insects presents a compelling case for the use of insects like flies, maggots and beetles in solving crimes. Engaging interactives, close-up looks at live insects in action as well as hundreds of preserved specimens, and displays of real field and lab equipment all present an accurate view into the scientific methods used by forensic investigators. Visitors are encouraged to apply their new-found knowledge to solving real cases presented in the exhibit. With your help, we are sure they will leave with a greater appreciation for both the important role insects play in solving crimes and the science behind forensic entomology.

Scientific Curator

The exhibit's curator, M. Lee Goff, Ph.D., is one of the best candidates to advise an exhibit on the science and methods of forensic entomology. Dr. Goff is a professor and department chair at the Chaminade University, a founding member and past president of the American Board of Forensic Entomology, and an FBI Academy instructor. He is a much-in-demand speaker on forensic entomology, and has also authored the recently published Harvard University Press book, "A Fly for the Prosecution: How Insect Evidence Helps Solve Crimes" and serves as a technical consultant for the hit television show “CSI: Crime Scene Investigations.”

Exhibit Architects

The exhibit architecture was designed by Belzberg Architects based in Santa Monica, California. The firm’s principal, Hagy Belzberg, is a protégé of world renowned architect Frank Gehry. In addition to this exhibit Belzberg has been involved with a number of high profile commissions including interior spaces of the newly opened (October 2003) Walt Disney Concert Hall in Downtown Los Angeles.

Exhibit Design

The exhibit was designed to give visitors a feel for the work of forensic investigators. The exhibit components (or walls) are large and imposing. They are made of stacked plywood which is meant to resemble the layers of dirt that an investigator may have to dig through to unearth evidence. There is also a puzzle-like quality to the design which is meant to replicate the process an investigator goes through to solve a crime which is often described as piecing together a puzzle. Finally, you will see that many of the displays are designed to be

viewed from more then just one side. Again this is meant to mimic the work of an investigator who must examine all sides of a crime scene in order to find evidence.

Green Design

We're Green! This exhibit was built with Earth-friendly products whenever possible. The plywood is from farm raised sources, not forested. The tops of the benches are made from pressed sunflower seed husks and shells. All paints and lacquers are non-polluting, and the majority of the building materials are recycled or environmentally friendly. The entire exhibit was constructed with a commitment to seek alternative building methods that employ the three "R's"--Reduce, Reuse and Recycle.

ExhibitQ

The producer of *CSI: Crime Scene Insects* is ExhibitQ, an emerging museum exhibit company based in Long Beach, California dedicated to providing science and cultural based exhibits for museums, science centers, zoos, aquariums and libraries. Starting with the idea that science should and can be presented artistically, ExhibitQ gathered an eclectic and talented team to develop this exhibit. The exhibit team consists of more than 20 professionals including artisans and scientists, writers and engineers all interacting to produce a new type of science exhibit that is informative, accurate and aesthetically appealing.

KEY CONTENT POINTS

CSI: Crime Scene Insects is presented in multiple sections, each presenting one or two major concepts related to forensic entomology. More details of each block are described in the Exhibit Background section. Here, we highlight the key content points of the exhibit, in the form of basic questions related to *CSI: Crime Scene Insects*.

1. What is forensic entomology?

In forensic entomology, usually a crime has been committed, most often a murder, and insects on and around the victim's body become the evidence. To a trained investigator, insects can provide surprisingly precise clues concerning the timing of wounds and of the death, whether or not drugs or toxins were involved, and whether the body was moved.

2. How do insects become evidence at a crime scene?

The precise sequence of insects that appear on a corpse has been carefully documented by forensic entomologists. In addition, all insects go through some type of metamorphosis during their development from egg or immature form to adult. Forensic entomologists have carefully cataloged both the types of insects on carcasses and corpses and the timing of their stages of development. So under specified environmental conditions, it is possible to predict within hours the exact order of insects that will appear at a carcass or corpse as well as when the insects will lay eggs, when their larvae will hatch and how quickly they will develop into new adults. Knowing these time frames, investigators can literally "tell time" at a crime scene based, in part, on which insect species is present on a decaying body or in the surrounding soil and how far along the insects are in their developmental stages.

3. Why focus on flies and beetles in forensic entomology?

While there are hundreds of insects that will visit a body, generally flies and beetles are the fist to arrive on the scene. So it's these two insect groups that emerge as major "key witnesses" and sources of information to a forensic investigator. Many of the forensically important flies and beetles are exhibited as live or preserved specimens in *CSI: Crime Scene Insects* including green bottle flies, blow flies, common house flies, rove beetles, hide beetles, checkered beetles, scarabs and carrion beetles. Some of the other types of insects or arthropods that have a more minor role in forensic entomology will also be represented in the exhibit.

4. Why are maggots important in forensic entomology?

Admittedly, maggots are not the most popular animal form, but they do provide some of the most accessible and useful information to a forensic investigator. These wiggling masses are actually fly larvae that have hatched from eggs deposited on decaying flesh by female flies--so contrary to many myths, maggots do not spontaneously spring out of dead tissue. Maggots of each fly species relevant to forensics have been well studied by forensic entomologists. These different fly larvae each show a predictable time table for their growth and formation of pupae, the "cocoon" state that eventually emerges as a new adult fly. Taking samples of maggots from a corpse, determining their species and measuring their size and other structural features helps investigators determine how long the maggots (and a body) have been present at a particular site.

5. **Besides being evidence, do insect decomposers offer other benefits?**

In the natural and necessary process of decay in our world, animal and plant tissues are broken down and recycled. Many insects and/or their larvae consume dead or decaying materials as part of their natural life cycle and depend on decaying flesh for food sources. Their contribution as part of the Earth's natural "clean up crew" to eliminating the huge continuous biomass of dead plants and animals is critical to maintaining healthy environments and preventing the spread of disease.

SOME COMMON MISCONCEPTIONS

1. **Forensic entomology only deals with murders and violent crimes.**

Forensic entomologists are also called in to investigate cases related to neglect of patients or children when open bed sores or wounds are present and may be infested with insect larvae. It can also involve investigations of insect damage to food (stored product entomology) or to buildings (structural entomology).

2. **Simply knowing a species of fly or beetle on a corpse is enough information to make an estimate of time of death.**

Calculating an estimate of a victim's time of death using insect data requires sampling multiple insect types, larvae and pupae from the body as well as capturing insects from the surrounding soil and environment. In addition, environmental conditions must be considered since they greatly influence the rate of insect's development. Temperature and weather conditions, in particular, are key factors.

3. **Crimes are solved solely on the basis of evidence from insects.**

While information from the analysis of insects on or near a corpse can be valuable in a criminal case, multiple lines of evidence are typically compiled including witness testimonies, DNA comparisons, fingerprints and other available physical evidence. The insects are only part of the picture.

4. **All maggots are harmful to the animals they feed on.**

Some species of maggots only feed on dying or decaying tissues in wounds and do not interfere with any surrounding healthy areas. In fact, these species of maggots have been used as an unconventional treatment for patients with antibiotic resistant skin infections to clean out necrotic (dead) cells in the wounds in order to promote healing.

5. **The idea of using insects as evidence has only recently emerged since the creation of a current popular television show based on crime scene investigations.**

One of the first recorded cases of forensic entomology is from China in 1235 where a murder was solved by identifying the killer's weapon by the presence of flies feeding on bits of tissue and blood still clinging to it. There had been only a few sporadic examples of using insects to estimate time of death in Western culture up until the mid-1980s when more entomologists and forensic investigators began to accept the idea that entomological evidence on a corpse could be reliable. The American Board of Forensic Entomology was formed in 1996.

SUGGESTIONS FOR DOCENTS

1. Use leading questions, fascinating facts and anecdotes related to forensics, insects, flies or beetles to engage visitors.

Some ideas to get you started:

1. Famous murder cases and the use of forensic data: OJ Simpson Case/ Bundy Case
2. Historical science experiments like those of Redi who proved that maggots came from flies
3. Life from the perspective of a fly or beetle: how do they see, taste, smell, fly?
4. The Hollywood depiction of insects: Movies like "The Fly," was it accurate?
5. Incredible facts about insects: did you know that a fly can beat its wings 330 times every second or that house flies can race around in short bursts up to 90 mph? (Check out more examples in the "Insects Fact Sheet" included in CSI Discovery Cart Guide).
6. Once you become familiar with the basic content of the exhibit, rely on your own related experiences and interests to come up with additional ideas.

2. How to help visitors positively react to exhibits of live termites, maggots or carrion beetles or dermestid beetles devouring the flesh from skeletons.

Remind your visitors that knowledge generally replaces fear or avoidance with curiosity and appreciation. Not everyone immediately warms up to insects or insect larvae, but usually once someone takes the time to investigate any animal, they are more likely to overcome their initial reluctance and often become quite fascinated with the creature's biology. Pointing out the positive role of maggots and carrion beetles as major decomposers in our world might help visitors balance an initial lack of appreciation for these insects. Seeing a maggot as just an immature form of a fly and as a stage in the fly's incredible metamorphosis may help to remove some initial feelings of disgust.

3. Dealing with sensitive issues such as death and murder.

In this exhibit, the writers specially selected examples of cases that do not show excessive blood or violence. It is important to be sensitive to the age and maturity level of your audience and to approach the displays and these topics with appropriate decorum. When dealing with the issue of decomposition, it would be helpful to point out that death and decay are a natural part of the life cycle of all organisms. When violent deaths are depicted in the exhibit, it may be helpful to point out that the purpose of forensic entomology is to aid law enforcement personnel in apprehending and convicting dangerous criminals. The ultimate goal is to prevent further tragedies. Nothing presented in this exhibit is done so for sensationalistic reasons. Every element was carefully selected to provide visual representations and examples of the scientific themes discussed.

4. Know what you can, but you are not expected to be the expert.

Please use this guide, the CSI Discovery Cart Guide and the resources cited in each to become more familiar with the area of forensic entomology and the details presented in this exhibit. Remember, you are not expected to be the consummate source of facts for your museum's visitors, but have a "working knowledge" of the exhibit content in order to help visitors get more out of their visit.

EXHIBIT BACKGROUND

Area by Area

Area 1 – An Introduction to Forensic Entomology & History

Questions answered in this section:

1. When, where, why and how did the practice of using insects for criminal investigations first begin?

2. What happened between the earliest recorded use and current practice?

3. Who are some of the pioneers in the field?

4. What is the role of the forensic entomologist in criminal investigations?

5. Are insects only used to investigate questionable deaths?

6. Why do insects make such good "witnesses?"

7. What does it take to become a forensic entomologist or crime scene investigator?

8. What does the future hold for the field of forensic entomology?

Major components/themes:

1. The first documented use of insects to help solve a crime was in the 13th Century in China.

2. The field of forensic entomology wasn't fully recognized by the legal system until the late 1970's early '80s.

3. Forensic entomology is used to help solve mysteries beyond just murder cases.

4. Insects are used mostly as they relate to the decomposition process; however, there are cases where just the mere presence of an insect help investigators to solve a crime.

Area 2 – Stages of Death ("Scene of the Crime" Section)

Questions answered in this section:

1. What are the stages of decomposition for a human body and why are they important to a forensic entomologist?

2. Do location and weather conditions affect the decomposition process?

3. How do flies and other insects get to the body?

4. What does a maggot infestation look like?

Major components/themes:

1. A body goes through a predictable series of changes as decomposition progresses from the fresh body until only a skeleton remains.

2. There are 5 commonly recognized stages of decompositions: Fresh, Bloated, Decay, Post-decay and Remains or Skeletal.

3. While the stages of decomposition are predictable, the time in each stage depends on the local environmental conditions and time of year.

4. Invasion of the body by insects is also predictable. It begins with female flies laying eggs in the natural body openings of the head, anus and genitals.

5. Departures from this pattern may indicate wounds on the body.

6. While flies may arrive at a body within minutes following death, we do not completely understand all of the clues that attract them to a body.

Area 3 – Insect Life Cycles

Questions answered in this section:

1. What is the life cycle of a fly?

2. What other types of insects visit a decomposing body?

3. How can an entomologist tell which life stage an insect is in?

4. How do the stages of decomposition (as seen in Area 2) relate to the types of insects that visit the corpse?

Major components/themes:

1. The life cycles of any insect consists of a series of distinct stages. These are different in form and can be recognized.

2. Different species of insects have different types of immature forms.

3. Not all insects attracted to a body are actually feeding on the body. Some are predators/parasites on other insects feeding on the body; some are feeding on the body and other insects; and some simply use the body as an extension of their normal habitat.

4. There is an overlap between different groups of insects feeding on a body. Some are more typical of a particular stage (maggots during the fresh stage) but, in nature, no really distinct insect assemblages can be associated with a given stage of decomposition.

5. Local environmental conditions can change the composition of the insect population.

Area 4 – Environmental Conditions

Questions answered in this section:

1. What affects to geography, climate, temperature and weather conditions have on the insect infestation of a decomposing body?

2. How do forensic entomologists collect data about environmental conditions at or near a crime scene?

Major components/themes:

1. Different species of insects are found in different parts of the world. While the families of insects involved in decomposition remain fairly consistent, the actual species will change.

2. Climatic factors can influence the species of insects. Some species are active in spring and summer, while others are found during fall and winter.

3. In order to understand the environmental features for a particular scene, the forensic entomologist must obtain weather data from a reliable weather station as close to the body as possible.

4. A hygrothermograph or data logger can be used to obtain more detailed scene data. These can be correlated with weather station data using linear regression to provide a more precise estimate of the climatic features of the scene.

Area 5 – Methodology & Research

Questions answered in this section:

1. How is a crime scene secured and how is evidence collected?
2. What types of equipment are used in the field and in the lab?
3. Is evidenced only collected from the body?
4. How do forensic entomologists study the growth rate of insects?
5. Why are pigs used for forensic research?

Major components/themes:

1. A crime scene is secured by law enforcement personnel and they have complete control of the scene. When called to a scene, the forensic entomologist must follow the directions of the officer in charge and make sure they are ready for him to enter the scene and collect data.
2. In many jurisdictions, the police control the scene but the body itself is controlled by the medical examiner.
3. Equipment used at the scene by the forensic entomologist is fairy simple. You need insect net, vials, jars, bags, preservative, label materials, thermometers and a camera. You need to make detailed notes of everything you see and do at the scene.
4. At the scene, the entomologist must collect from the body and the surroundings area. When the body and scene are disturbed by the activities of the investigator, insects will often leave the body. These insects to not go very far from the body and may be sitting in bushes or other areas close to the body.
5. The growth rates and developmental patterns of insects are studied under carefully controlled conditions in the laboratory. Using techniques such as accumulated degree hours, the results of laboratory data can be extrapolated to crime scene conditions.
6. Since it is difficult to use human cadavers for decomposition studies, forensic entomologists had to look fro an animal model that closely approximated human decomposition. It was found that a 50 pound pig was the animal that most closely approximated the decomposition of the average human.

Area 6 – Delay Factors & Grand Canyon Case Study ("Scene of the Crime" Section)

Questions answered in this section:

1. Are there conditions that will keep insects away from a corpse?

2. How do investigators know to look for delay factors?

3. How does insect evidence help solve a case when delays are involved?

Major components/themes:

1. Some factors may delay the insects' colonization of the body. Investigators need to always look at the entire scene when making their evaluations.

2. Some delaying factors are obvious, such as wrapping the body in blankets or burials. Others may be less obvious, such as rainfall or temperatures too low for insect activity.

3. Insects may not account for the entire postmortem interval when delays are involved. By looking at the period of insect activity on the body and the potential delaying factors, a plausible scenario can often be developed.

Area 7 – DNA, Entomotoxicology, & Cane Field Case Study ("Scene of the Crime")

Questions answered in this section:

1. Can a victim or perpetrator's DNA be collected from an insect?

2. Can investigators tell if toxins or drugs were in the victims system based on insect evidence?

3. How can insects be used to help investigators determine whether or not a body was moved from the original scene of the crime?

Major components/themes:

1. While insects are widely distributed, some species are found primarily or only in urban situations while others are rural. If a species typically found in one habitat is found on a body discovered in a completely different type of habitat, this indicates that the person was killed in one place and, after death, the body was moved to a different habitat.

2. Often bodies are discovered that are almost completely skeletal and no tissues are available for toxicological analyses. Maggots and other insects present have fed on that body and drugs and/or toxins can be detected by analyzing the insects.

3. The drugs present in a body fed on by insects can alter the rate and pattern of insect development. In order to have an accurate estimate of the postmortem interval, the entomologist must know if the drug is present and what effect it will have on the insect's development. It is possible to take the blood from the gut content of an ectoparasitic insect, such as a louse or mosquito, and match the DNA to that of the suspect.

Area 8 – Forensic Entomology on Trial

Questions answered in this section:

1. What is the role of an expert medicolegal witness?

2. What is it like to be cross-examined and to have your testimony challenged?

3. How can a forensic investigator best convince a jury?

4. What types of reports must be presented at trial?

Major components/themes:

1. The forensic entomologist is a scientist, not an advocate for either side. The only obligation is to provide an unbiased analysis of the evidence. If this is done, the rest of the case will follow. The forensic entomologist generally does not "solve" the crime. The entomologist presents a part of the entire puzzle.

2. Cross examination can be an uncomfortable experience since the opposing attorney wants to discredit your findings. If the entomologist has done the analyses properly and only testifies within their area of expertise, there should be no real problems. If a mistake is discovered, admit the mistake and move on.

3. The forensic investigator can best convince a jury of their findings by presenting them in a straight forward manner. Avoid jargon and complex explanations. Talk to the jury as if you were having a conversation. Do not assume an air of superiority.

4. At trial, the expert must be prepared to produce all reports he has written, data (such as weather data) used in the analysis and notes taken at the scene and during the analyses of specimens. Often the actual specimens collected from the body are requested.

GLOSSARY

Adventive species. Insects or arthropods that are not decomposers but use the body or corpse as an extension of their normal habitat.
Abdomen. The third body division of an insect.
Ametabolous metamorphosis. Development without change or metamorphosis. The immature form is similar to the adult insect. (Ex. springtails and silverfish).
Antennae. (sing., antenna). Pair of segmented appendages located on the head and usually sensory in function - the 'feelers'.
Arthropoda. "Jointed leg". A phylum of animals with segmented body, exoskeleton, and jointed legs.
Arthropods. Animals belonging to the phylum Arthropoda.

Berlese Funnel. A device used by entomologists to separate insects from a sample of moist soil, humus, compost, or leaf litter.

Carrion. The dead and rotting flesh of an animal.
Chitin. The light yet tough material that makes up an insect's exoskeleton and wings.
Coleoptera. Order of insects having stiff anterior pair of wings (elytra) that cover membranous wings underneath. The mouth parts form two pairs of jaws (mandibles and maxill[ae]) that are adapted for chewing. Most Coleoptera are known as beetles and weevils.
Compound eye. An eye consisting of many individual elements facets that produces multiple images and allows vision in many directions.
Corpse. The dead body of a human being.

Diptera. Order of insects with one pair of wings, the second ones modified to halteres. Includes flies and mosquitoes.

Ecdysis. "Stripping" Molting process of insects; shedding of exoskeleton.
Ectoparasite. Any parasite which lives on the outside of animals (Ex. lice, mosquitoes).
Elytra. The two stiff anterior wings of a beetle which protect the posterior membranous functional wings.
Entomologist. "Entomo = notched (animals)". A scientist who studies insects.
Entomology. The scientific study of insects.
Entomotoxicology. The use of carrion-feeding insects to identify drugs and toxins present in corpse tissues.
Exoskeleton. The outside "skin" of an insect or arthropod, made from tough chitin.

Forensics. The use of science and technology to investigate and establish facts in criminal or civil courts of law.
Forensic Entomology. The application of insect biology as reliable evidence in criminal or civil cases.
Haltere. One of the club-shaped 'balancers' found on each side of the metathorax among the true flies (Diptera). They are the much-modified hind wings.
Holometabolous. Complete metamorphosis involving egg, larva, pupa and adult. Includes flies, beetles, butterflies, wasps.

Hygrothermograph. An instrument that measures and records temperature and relative humidity changes.

Incomplete Metamorphosis. See Paurometabolous.
Instar. Stages of an insect or arthropod between molts.

Larva. (Larvae pl.) An immature insect form that is markedly different from the adult: caterpillars and fly maggots are good examples. Larvae is plural.

Maggot. A fly larva; a larva without legs and without a well-developed head.
Mandible. The jaw of an insect. It may be sharply toothed and used for biting, as in grasshoppers and wasps, or it may be drawn out to form a slender needle as in mosquitoes. Mandibles are completely absent in most flies, butterflies and moths.
Maxilla. (plural maxillae) One of the two components of the insect mouth-parts lying just behind the jaws. They assist with the detection and manipulation of food and are often drawn out into tubular structures for sucking up liquids.
Metamorphosis. The changes that take place during an insect's life as it turns from a young animal to an adult (incomplete metamorphosis) or from egg, larva, pupa, adult (complete metamorphosis).
Molt. Shedding the outer covering of the body - the exoskeleton.
Muscoid flies. Flies (Diptera)that belong to the Family Muscidae (Ex. Houseflies). **Myiasis.** When maggots (fly larvae) feed on living tissue and not decaying tissue.

Necrophagous. "Death, feeding". Species that feed on carrion or corpses, includes some flies and beetles.
Nymph. Young stages insects that undergo an incomplete metamorphosis. The nymph is usually quite similar to the adult except that its wings are not fully developed.

Ocellus. (Plural Ocelli) One of the simple eyes of insects, usually occurring in a group of three on the top of the head, although one or more may be absent from many insects.
Omnivorous. "All, feeding". Species that feed on corpses and are also predators of other insects present on a corpse (Ex. wasps, ants, and some types of beetles).

Paurometabolous. Incomplete or “gradual metamorphosis”. The eggs hatch into an immature form that resembles the adult , but is smaller and without wings (Ex. cockroaches, grasshoppers, praying mantis).
Postmortem Interval (PMI). The time since death of a victim.
Predator species. One that feeds on other insects or arthropods (Ex. Spiders, wasps, and some types of beetles that prey on fly larvae, eggs and pupae).

Pupa. (pl., pupae). The third stage in the life history of flies, butterflies and other insects undergoing a complete metamorphosis. The pupa is a non-feeding and usually immobile.
Pupate. To turn into and exist as a pupa.

Redi, Francisco. An Italian physician and naturalist who demonstrated in the 1600s that flies did not arise as a result of “spontaneous generation” from rotting meat. He showed that meat, shielded from egg-laying flies by cloth, never developed maggots.

Rigor mortis. "Stiffness, death". Muscular stiffening following death.

Spiracle. One of the breathing pores - openings of the tracheal system - through which diffusion of gases takes place. In maggots, the number of spiracles present helps entomologists determine the age of the larvae.
Succession. The natural change and replacement of insects on corpses that happens in a fairly predictable sequence and can be used in estimating time of death.

Thorax. The middle segment of the three major divisions of an insect body. The legs and wings (if present) are always attached to the thorax.
Trachea. (Plural tracheae). One of the internal minute tubes that permeate the insect body and carry gases to and from the various organs, etc. They open to the air at the spiracles.

RESOURCES

Books and Publications

A Fly for the Prosecution: How Insect Evidence Helps Solve Crimes, M. Lee Goff, Harvard University Press: 2000

Photographic Atlas of Entomology and Guide to Insect Identification, James L. Castner , Feline Press: 2000

Forensic Entomology: Utility of Arthropods in Legal Investigations, Jason H. Byrd, James L. Castner H. ,CRC Press: 2000

Forensic Insect Identification Cards (laminated), Jason H. Byrd, James L. Castner , Feline Press: 2000

Entomology and the Law: Flies as Forensic Indicators, Bernard Greenberg, John Charles Kunich, Cambridge University Press: 2002

The Practical Entomologist (An introductory guide to observing and understanding the world of insects), Rick Imes, Simon and Schuster/Fireside Publication, 1992.

Encyclopedia of Insects, (The newly published consummate guide to everything and anything insect related. Includes a chapter on forensic entomology by Dr. Goff.) Vincent Resh & Ring Cerde, Academic Press, 2003.

Web sites

http://www.aafs.org
The web site for the American Academy of Forensic Sciences includes a Resource/Forensic section that provides additional links to forensic publications and organizations.

www.missouri.edu/~agwww/entomology/
Official page of the American Board of Forensic Entomology.

http://www.Tncrimlaw.com/forensic/
Provided by the Tennessee Criminal Law Defense Resources, this site provides definitions and web site links for many fields within the broad umbrella of forensic investigations.

http://www.fbi.gov/hq/lab/handbook/intro.htm
This is a link to the FBI's Handbook of Forensic Services. This handbook provides guidance and procedures for safe and efficient methods of collecting and preserving evidence and to describe the forensic examinations performed by the FBI Laboratory.

http://www.deathonline.net/decomposition/index.htm
Describes the natural biological process that occurs after death. Body changes, insect interaction, decomposition, and forensic evidence. **Please note**: this site contains graphic images and descriptions.

http://www.uky.edu/Agriculture/Entomology/ythfacts/entyouth.htm
This University of Kentucky Entomology Department site is designed for teachers and young students. Basic insect information, resources and related activities are found here.

www.ent.iastate.edu/List/
Entomology index of Internet resources, Iowa State University; VanDyk, J.K. and Bjostad, L.B.

Web sites/Videos

http://www.deathonline.net/decomposition/decomposition/index.htm
An extension to the cite noted above; contains a movie clip showing an animal at various points of decomposition.

Please note: this site contains graphic images that may not be appropriate for some young children.