

# Nature's Detectives

## The Hidden Forensic Power of Insects

"Insects never lie; they are tiny witnesses"

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Bottle fly, *Calliphora* sp  
(Source: E.S. Ross)



A blue bottle fly, *Calliphora vicina*



A green bottle fly, *Chrysomya* sp.



Black blow flies *Phormia regina*

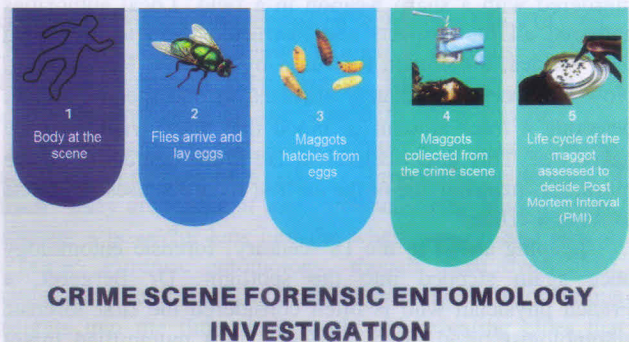
**I**N the tense climax of Thomas Harris's novel, *The Silence of the Lambs*, FBI agent Clarice Starling sits across from a seemingly ordinary man, her nerves on edge, trying to mask her growing suspicion. Suddenly, a Death Head Hawkmoth flutters into view, a rare insect not native to the area, but unmistakably familiar. The same moth had been found in the throats of the victims, a signature left by the serial killer. And now this moth was in this man's house. In that instant, Clarice knew without a doubt that she was sitting face-to-face with Buffalo Bill himself, the psychopath responsible for the gruesome murders. This was the man she had been hunting, the elusive serial killer, his identity betrayed by a single, silent clue from the insect world. This chilling moment underscores a powerful truth: in the world of crime, even the smallest clues can unmask a killer. Welcome to forensic entomology, where insects serve as nature's tiny detectives, revealing secrets that might otherwise remain hidden.

Forensic entomology is the scientific study of insects and other arthropods in criminal investigations. Its primary role is estimating the time since death, known as the Post-mortem Interval (PMI), but it can also uncover details about a body's history, whether it was moved, disturbed, or exposed to toxins, and sometimes even point to the perpetrator. Investigators can gather crucial evidence that often plays a decisive role in solving cases and reconstructing events during investigations.

Forensic entomology turns insects into crime-solving allies. Was it a natural death or something more sinister? Toxins or drugs involved? Did it happen last week or last month? Insects have played a crucial role in assisting investigators to answer these questions, solve cases and catch the killers. Studying insects can thus offer better effectiveness in solving crimes.

### From Blow Flies to Beetles: Insects of Forensic Relevance

Flies are the ultimate detectives of the insect world, drawn to anything from spilt food to the scent of a decaying body. Picture this: you're out in the garden, and a fly buzzes around — no big deal, just swat it away. But when you're no longer alive, the tables turn. With no ability to brush them off, the flies will investigate your body like seasoned investigators. If they're ready to lay their eggs, they won't waste time finding the perfect spot on you to start a new generation. And just like that, the cycle of life begins anew, with these tiny creatures playing an unexpected yet crucial role in solving mysteries of life and death.



Sequence of insect arrival and activity on a decomposing body

The process of insect invasion starts as decomposition of the body begins. For instance, blowflies (*Calliphoridae*) are among the most valuable in forensic entomology. These metallic-hued flies, blue, green, or black, arrive first, sometimes within minutes of death, detecting decay from up to 16 kilometres away. They lay eggs in moist areas like