



**The Mystery of
Lyle and Louise**

Nature's Witness

Forensic Entomology



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Entomology – the study of insects

- Insects are the most diverse and abundant forms of life on earth.
- There are over a million described species (that's more than a third of all known organisms).
- Estimates predict that if the **biomass** (mass of biological tissue) of all humans and all insects were measured, insects would outweigh humans more than 30 to 1.

Forensic Entomologist

A forensic entomologist:

- Identifies the immature insects
- Determines the size and development of the insects
- Calculates the growth of the insects and passage through stages of the life cycle in laboratory
- Compares the growth against weather conditions to estimate time of oviposition (egg laying)

Fly life cycle



egg



adult



Pupae



1st instar



2nd instar



3rd instar

Once burrowed, the maggots enclose themselves in a hard shell and begin the metamorphosis (change) that will result in an adult fly.

At this stage, the maggots are now known as **pupae**.

The Post Mortem Interval

Different insects are attracted to each of the four different stages of decomposition. The ordered series of insects attracted to the decomposing body is called a succession.

The succession pattern is useful in estimating how long a cadaver has been exposed to the insects.

Calculating PMI from Accumulated Degree Hours (ADH)

From	To	Temp	Hours	ADH	Total
Egg	1 st Instar	70° F	23	1610	1610
1 st Instar	2 nd Instar	70° F	27	1890	3500
2 nd Instar	3 rd Instar	70° F	22	1540	5040
3 rd Instar	Pupa	70° F	130	9100	14140
Pupa	Adult Fly	70° F	143	10010	24150

For More...

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