

Firefly fact sheet

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Over 2000 different species of fireflies are found in temperate and tropical habitats of the world.

Firefly beetles are anything from 3mm – 30mm in length, parallel sided, soft bodied, mostly black or brown with the males having very large eyes and the female winged or wingless.

Both male and female adults have chemical-producing light organs, usually (females) on penultimate or (males) on the last two segments of the abdomen.

Two species have been identified and listed in South Africa:

Classification: Insecta

Order: Coleoptera (Beetles)

Suborder: Polyphaga (Polyphags)

Infraorder: Elateroidea (Click Beetles)

Family: Lampyridae (Fireflies)

Subspecies:

1. *Lampyris nepalensis*
2. *Luciola tagensis*

Lampyris

The males are larger than the females with their heads concealed under the pronotum and the females are wingless with the larvae resembling the female 'wingless beetle' but being distinctly different if one looks closely. The larvae also grow mostly larger than the female.

Luciola

Unlike some other fireflies, the females of *Luciola* are fully winged. The pronotum (dorsal part of the prothorax i.e. the 1st thoracic segment) only partially covers the head in males and both sexes are winged.

The juveniles are commonly referred to as 'glow worms'. This is theoretically incorrect as glow worms are from the family Mycetophilidae a family of small flies where the larvae are actually wormlike.

In saying that: calling firefly beetles 'fireflies' is incorrect, as aforementioned, as they are actually beetles.

Fireflies are mostly nocturnal. Males are far more active than the females, in the flying species, which rest on the vegetation and under logs and stones and glow to attract the males. Adults do not feed and their larvae are predatory, feeding mainly on snails.

The production of light: Light production in fireflies is due to a type of chemical reaction called bioluminescence. This process occurs in specialized light-emitting organs, usually on a firefly's lower abdomen. The enzyme luciferase acts on the luciferin, in the presence of magnesium ions, ATP, and oxygen to produce light.

All fireflies glow as larvae.

Bioluminescence serves a different function in lampyrid larvae than it does in adults. It appears to be a warning signal to predators, since many firefly larvae contain chemicals that are distasteful or toxic.

Light in adult beetles was originally thought to be used for similar warning purposes, but now its primary purpose is thought to be used in mate selection. Fireflies are a classic example of an organism that uses bioluminescence for sexual selection.

The female firefly is predominantly able to emit light for longer than males, whilst the male just for a few instants but some males have more than one bioluminescent segment enabling the pulshttp://www.africaninsight.co.za/ing of light.

The light fireflies produce is probably the most efficient. An incandescent light bulb, for example, converts into light only 10% of the energy, whilst the remaining 90% is dispersed in the form of heat. A firefly is instead able to use almost 100% of the energy generated by the chemical reaction to produce light.

Most fireflies are quite distasteful to eat and sometimes poisonous to vertebrate predators. This is due to at least in part to a group of steroid pyrones known as lucibufagins, which are similar to cardiotonicbufadienolides found in some poisonous toads.

Firefly larvae and beetles are ferocious predators feeding on slugs, snails and earthworms. Some adult species don't feed.

References and Sources:

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