

# SNAKES

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Though maligned since the advent of Christianity, snakes were revered and worshipped by many cultures. North American Indians attached spiritual significance to the snake and its habit of shedding its skin was considered evidence of its longevity and even immortality.

Reptiles made their appearance during the Mesozoic era approximately two hundred million years ago and dominated the earth under the rule of the dinosaur. Their reign however was short lived and only those species who adapted to the changing environment survived. Today snakes represent one facet of that reptilian adaptation and its unique characteristics have arisen in answer to the laws of survival.

In Canada there are twenty-three species of snakes, the majority of which are completely harmless, and only in the western provinces and Ontario do poisonous varieties occur. In Canada any snake with a pointed tail is harmless.

Snakes rely heavily on their senses for survival with sight probably occupying the position of greatest importance. The eyelids in snakes have become fused together to form a fixed transparent structure called the spectacle thus affording continual protection to the underlying eye. The middle and external ear are absent, consequently sound waves transmitted in air play a minor role in the hearing of the snake. More importantly vibrations transmitted through the ground to the inner ear help in providing information about the environment. Odours are detected not only by the nostrils but also by the tongue which contrary to popular belief is not a "stinger". Two specialized structures in the roof of the mouth called Organs of Jacobson which also contain olfactory epithelium like the nose receive particles picked up by the tongue and relay the information to the brain. In



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Western Plains Garter Snake

rattlesnakes and other pit vipers an accessory sensory organ exists in the form of a temperature sensitive pit located midway between the eye and the nostril.

Many people may have found the discarded skin of a snake exact in every detail but colourless and consisting of a friable transparent replica of its owner. Unlike fish whose scales are detachable the scales of a snake are merely folds in the skin with a common attachment at their base. In humans the superficial layers of the skin are continually being rubbed off in bits and pieces and replaced by growth from deeper layers. In snakes there is a definite moulting period when the outer layer of the skin is shed in its entirety. The number of moults is variable among species and even among different individuals within a species but is dependent upon such factors as rate of growth,



Bullsnake

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temperature, parasites and moisture in the environment. The clouding of the spectacle heralds the onset of moulting. For two to three weeks the snake is quite irritable and anorexic and usually resorts to hiding as a result of its impaired vision. Several days before the actual moult the eyes clear again and the snake emerges. The skin is shed from the lips backwards and is worked off by rubbing against a stone or stick. The rattlesnake's "rattle" is a specialized skin structure consisting of interlocking segments of keratin, the same material from which hair and fingernails are made. A new segment is added each time the skin is shed but rarely are more than eight to ten segments possessed by a snake in the wild because of breakage. Consequently the age of a rattlesnake cannot be calculated from the number of tail segments.

All snakes swim and in addition many are adept at climbing. Either of these methods may be utilized in capturing prey which is ultimately subdued by constriction, injection of poison or ingestion alive. A full com-

plement of teeth are a part of every snake's armature but in spite of this it is unable to chew and must swallow its prey whole.

Spring initiates the ritual of courtship and in the case of garter snakes and rattlesnakes which hibernate in communal dens, mates are readily at hand. The male and female may glide along beside each other, the male caressing the female with his chin and flicking his tongue over her body. Unlike other vertebrates, snakes and lizards have developed paired copulatory organs at the base of the tail known as hemipenes. Only one hemipenis however is used at a time; the choice of right or left being determined by the side which is nearest the female. In many species tiny spiny projections cover the organ and help keep it in place within the female. Mating lasts up to several hours. Development of the young occurs in eggs which are either layed or retained within the body of the female ensuring a more secure and homogeneous environment. The eggshells are soft and leathery and in late August with the aid of a specializ-

ed tooth on the nose the young snake works his way free. From the outset the young must fend for themselves for no parental care is given.

All animals have enemies and several methods of defense have evolved in reptiles. Poisonous individuals rely on venom which is injected by a pair fangs. Rattlesnakes use this type of defense but prefer flight to fight and use their "rattle" to caution potential adversaries. The Smooth Green Snake and others use noxious secretions produced by their anal glands as a deterrent. Mimicry is successfully used by the Fox Snake and Bull Snake which vibrate their tails in an attempt to imitate their poisonous relatives. The Academy Award however goes to the Hognose Snake. When threatened it inflates its neck in the manner of a cobra, hisses and strikes repeatedly with a closed mouth. If this fails to intimidate the enemy it rolls on its back, jerks and writhes momentarily and then lies perfectly still with its mouth gaping.

Snakes are most active when temperatures range between 70-90 F. Unlike birds and mammals who control the temperature of their bodies at

a constant level (homeothermic) using hair and feathers for insulation the snake has a body temperature similar to its environment (poikilothermic). When temperatures drop the snake becomes sleepy and sluggish and throughout Canada winter is a time of hibernation. Animal burrows, tree roots and building foundations serve as suitable locations.

The modern proponents of Freudian psychoanalysis would define a herpetologist as one whose childhood sexual identity was misdirected resulting in a pathological preoccupation with a socially acceptable phallic replacement. But when all is said and done, maybe some people just like snakes?

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Bullsnake

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