

WPC Wildlife Tips

SNAKE HIBERNACULA

Why Care About Snakes?

Snakes are often persecuted because of the mistaken belief that they are dangerous pests. However, snakes have a tremendous ecological and cultural value.

Snakes play an important role in ecosystems - they are both predator and prey. By feeding on frogs, mice and other small animals, snakes help to maintain healthy ecosystems. Snakes are also an important source of food and energy for birds and other larger animals. The Red-shouldered hawk, in particular, relies on snakes to feed their young.

Throughout history, snakes have been the subject of many myths and folklore, and several cultures regard snakes as powerful religious symbols. The Rainbow Serpent is a major mythological being for Aboriginal people across Australia. It is seen as the inhabitant of permanent waterholes and in control of water. It is the Rainbow Serpent that replenishes the stores of water, forming gullies and deep channels as he slithers across the landscape, allowing for the collection and distribution of water. In a Christian story about the Garden of Eden, a snake convinces Adam and Eve to eat a forbidden fruit, causing them to be cast out of the garden. The snake was punished by being made to crawl on its belly from then on.

Most people's fear of snakes is based on myths, folklore and religious symbols which seldom portray snakes accurately or positively. More often than not, snakes are portrayed as devious, dangerous creatures. In reality, snakes are shy by nature, move away from danger and try to avoid people. In addition, most snakes are harmless.

In Ontario, there is only one venomous (poisonous) snake - the Massasauga rattlesnake (*Sistrurus catenatus*). At risk of becoming endangered, it is designated as threatened by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and is legally protected. This reclusive, threatened species is only found in four regions of Ontario, the Bruce Peninsula and the eastern side of Georgian Bay, with small, isolated populations at Wainfleet Bog in the Niagara peninsula, and Ojibway Prairie in Windsor.

Why Build a Hibernaculum?

Habitat loss, degradation and fragmentation by roads have had an extremely detrimental affect on snake populations. A lack of adequate hibernacula (singular hibernaculum) has become a major limiting factor. Hibernacula are underground chambers that snakes use through winter to protect them from the cold. While people have the warmth and shelter of buildings to help them survive, snakes have hibernacula. Human structures such as old wells, rock and log piles, building foundations and retaining walls, and natural features such as ant mounds and groundhog or crayfish burrows are examples of snake hibernation sites.

Some snake species hibernate alone, while others may share the same site. A particular, unique congregation of snakes can be seen in Narcisse, Manitoba. Each spring, snakes emerge from their hibernacula to bask, breed and feed for the summer. In Narcisse, the largest over-wintering population of snakes in the world can be seen emerging from their communal dens which house up to 10,000 snakes at a time. Before frost occurs, the snakes head back to the previous year's site for hibernation.

Hibernacula are important for snakes because they require a site below the frost line and close to the water table (so the snakes do not dehydrate) to survive cold, dry winters. Building a hibernaculum will provide more overwintering opportunities for snakes in fragmented and isolated landscapes.

Snakes are not only threatened by urban development but also by human misunderstanding. Snake hibernacula can be constructed as an expression of acceptance and to provide valuable opportunities for education and community stewardship. Visitors to hibernacula will be prompted to ask questions about the natural history of these fascinating creatures and the challenges they face in cold climates.

How to Build a Hibernaculum

1. Select a well-drained site protected from cold winds, with good sun exposure (south-facing). Ensure that surface and ground water flows away from the site (i.e. build on upland areas). If not, drainage pipes below the frost line may be required to prevent flooding.
2. Your snake hibernaculum can be sized to fit the available space, but it must be deeper than the frost line (at least 2 meters deep). Snakes prefer an overwintering site that is close to the water table, but not flooded. Moist air ensures that snakes do not dehydrate over the dry winter months.
3. Place rubble in the bottom to create chambers for the snakes. Chambers created at different depths allow the snakes to move vertically and horizontally to select a preferred temperature/humidity microhabitat.

How to Build a Hibernaculum cont'd

4. Concrete blocks or PVC drain pipes (with holes cut into the sides along the length of the pipe) can be used for entrances and passages to allow the snakes multi-level access. Snakes use these passage ways to move to the bottom of the pit and into the underground chambers. It is necessary to hand place the concrete blocks to ensure that a space or tunnel extends down into the bottom of the pit at each of the corners. Continue to fill the pit with larger rocks, old concrete blocks and slabs, maintaining as many openings and chambers as possible.

5. Cap with an insulating layer of smaller rock rubble. Be sure to leave the entrances open and keep the top clear of shrubs that may grow as the site matures.

6. Protect emerging snakes from predators by having cover objects such as logs, rock piles, brush and uncut grass nearby.

7. In the spring (mid April to late May), monitor your site to determine if wildlife are using the hibernaculum. Don't get discouraged, it may take several years before snakes discover your hibernaculum.

Common Questions

What types of snakes might use a hibernaculum in my neighbourhood?

Eastern garter, DeKay's brown and Milk snakes are the most likely types of snakes that you will see in your neighbourhood.

Are these snakes dangerous?

No. There is only one venomous (poisonous) snake in Ontario - the protected Massasauga rattlesnake.

Will building a hibernaculum attract more snakes to my yard?

No. Building a hibernaculum will provide more habitat opportunities for the snakes that are already around your property and supported by the landscape. It will not attract additional snakes from other areas.