



The Red-necked Keelback

Bangladesh's Remarkable
Venomous and Poisonous Snake

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Bangladesh is home to more than a hundred species of snakes, yet only a few capture the attention of both scientists and nature lovers. Among them is the Red-necked Keelback (*Rhabdophis subminiatus*), a striking snake recognized by the bright red patch behind its head. Although it is found in the forests and wetlands of southeastern Bangladesh, many people know very little about it. Often mistaken for a dangerous snake and killed out of fear, the Red-necked Keelback is actually an important part of the country's biodiversity and plays a valuable role in maintaining healthy ecosystems.

Where Is It Found?

The Red-necked Keelback is mainly found in the forested regions of southeastern Bangladesh, including the Chattogram Hill Tracts, Chattogram, Cox's Bazar and parts of Sylhet. It prefers places where water is abundant, such as forest streams, marshes, ponds, wetlands and rice fields. If you visit these areas during the daytime, especially near a stream after rainfall, you may be lucky enough to spot one quietly moving through the grass or swimming in shallow water.

How Can You Recognize It?

At first glance, the snake is hard to miss. Its body is usually olive green or brown, covered with rough, keeled scales that give it a textured appearance. Just behind its head is a bright red or orange patch, the feature that gives the snake its common name. Most adults grow between 70 and 100 centimetres in length, though some individuals can become slightly larger.



What Does It Eat?

Unlike many snakes that are active after sunset, the Red-necked Keelback spends most of its day searching for food. It is an excellent swimmer and is often seen close to water. Frogs and toads make up the largest part of its diet, but it also feeds on tadpoles, small fish and occasionally lizards. By controlling populations of these animals, the snake helps maintain the natural balance of wetland ecosystems.

A Snake with Two Powerful Defences

One of the most fascinating features of the Red-necked Keelback is that it is both venomous and poisonous—a rare combination in the animal kingdom. It is venomous because it injects venom through its enlarged rear fangs when it bites. It is also poisonous because it stores toxins obtained from the poisonous toads it eats in special glands located behind its neck. These stored toxins help protect the snake from predators such as birds and mammals.

Unlike cobras and vipers, whose venom-injecting fangs are located at the front of the upper jaw, the Red-necked Keelback has a different dental arrangement. Its enlarged fangs are positioned toward the back of the upper jaw, making it a rear-fanged snake. Although it is generally shy and prefers to avoid humans, its bite can cause medically significant envenomation and should never be ignored. Anyone bitten by this snake should seek immediate medical attention.

Some sources claim that a Red-necked Keelback bite delivers 1.29 ml/kg of venom, said to be equivalent to the venom of a banded krait bite. When threatened, it may flatten its neck, exposing the bright red patch behind its head as a warning display while relying on both its venom and the toxins stored in its neck glands for defence.



Behaviour Around Humans

Despite its impressive defensive strategies, the Red-necked Keelback is not naturally aggressive. Like most snakes, it prefers to avoid confrontation and will usually try to escape when disturbed. If cornered, it may flatten its neck before attempting to flee into nearby vegetation or water.

Because it is a rear-fanged snake, it does not inject venom as efficiently as front-fanged snakes such as cobras and vipers. In many cases, it needs to maintain its bite or chew for some time to deliver a significant amount of venom. Although bites to humans are relatively uncommon, they can still cause serious envenomation, and anyone bitten should seek immediate medical attention.

Threats to Its Survival

Unfortunately, this harmless behaviour is often misunderstood. Many people kill the snake simply because they are afraid of it or mistake it for another dangerous species. Habitat loss is another growing threat. As forests are cleared, wetlands are filled, and streams become polluted, the places where this snake lives continue to shrink. Roads built through forests also increase the number of snakes killed by vehicles.

Why Is It Important?

The Red-necked Keelback plays an important role in Bangladesh's ecosystems. By feeding mainly on frogs and other small animals, it helps maintain ecological balance in wetlands and forests. At the same time, it serves as prey for larger predators, making it an essential link in the food web. Healthy populations of this snake often indicate healthy freshwater and forest ecosystems.



Treatment and Antivenom

Although bites from the Red-necked Keelback are uncommon, they should always be considered a medical emergency. The snake is responsible for a dry bite in many cases, meaning it may bite without injecting a significant amount of venom. However, a dry bite cannot be distinguished from a venomous bite at the time of the incident, so every bite should be treated seriously and the victim should be taken to a hospital immediately for observation and medical care.

At present, there is no specific antivenom available in Bangladesh for Red-necked Keelback envenomation. A species-specific antivenom has been developed in Japan, where bites from closely related Rhabdophis species have been studied extensively. In Bangladesh, treatment mainly consists of

supportive medical care, careful monitoring, and management of complications such as bleeding disorders if they develop. Early medical attention greatly improves the chances of recovery.

Conservation

Conserving the Red-necked Keelback does not require complicated solutions. Protecting forests, streams and wetlands, reducing pollution, and encouraging people not to kill snakes unnecessarily can make a significant difference. Education and awareness are equally important. When people understand the ecological value of snakes, fear is often replaced with respect.



Conclusion

The Red-necked Keelback reminds us that even the most misunderstood animals have an important place in nature. Its unique combination of being both venomous and poisonous, together with its role in maintaining healthy ecosystems, makes it one of Bangladesh's most remarkable reptiles. By protecting this species and the habitats it depends on, we are also protecting the rich natural heritage of Bangladesh for future generations.

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