

# Scalloped Snail: The only animal on earth that is literally 'armored'

Scalloped snails (*Chrysomallon squamiferum*) were first discovered in 2003 in the seabed of the Indian Ocean. Its strange biological characteristics have amazed scientists.

Scalloped snails are about the size of a garden snail, with a length of about 2cm. They live in hydrothermal vents below 2000 meters deep, where water pressure, temperature and acidity are high, while the oxygen content is very low.

The harsh environment has caused the scalloped snail to evolve a unique set of armor. Their shell consists of three layers, each of which is said to have a protective function.



1. Outer layer: Made of iron sulfide ( $\text{Fe}_3\text{S}_4$ ) about 30 micrometers thick. This is the only animal on Earth that uses iron compounds as a protective layer.
2. Middle layer: Organic horn, which is the thickest and hardest of the three crusts.
3. Inner layer: Is aragonite - a form of calcium carbonate commonly found in the shells of many different mollusks and corals.



The legs of the scalloped snail are covered with hundreds of iron mineralized debris, including iron sulfide greigite and pyrite, which may be for protection or simply as toxic sulfide waste from deposited endosymbionts. again.

Scalloped snails obtain all their nutrients from the chemical autotrophs of the endosymbiotic bacteria, so they are required to live in symbiosis with the bacteria throughout their lives.





This strange snail has both male and female sex organs, ripening at the same time.

Scalloped snails are listed as Endangered because their habitats are affected by the impacts of deep-sea mining.

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