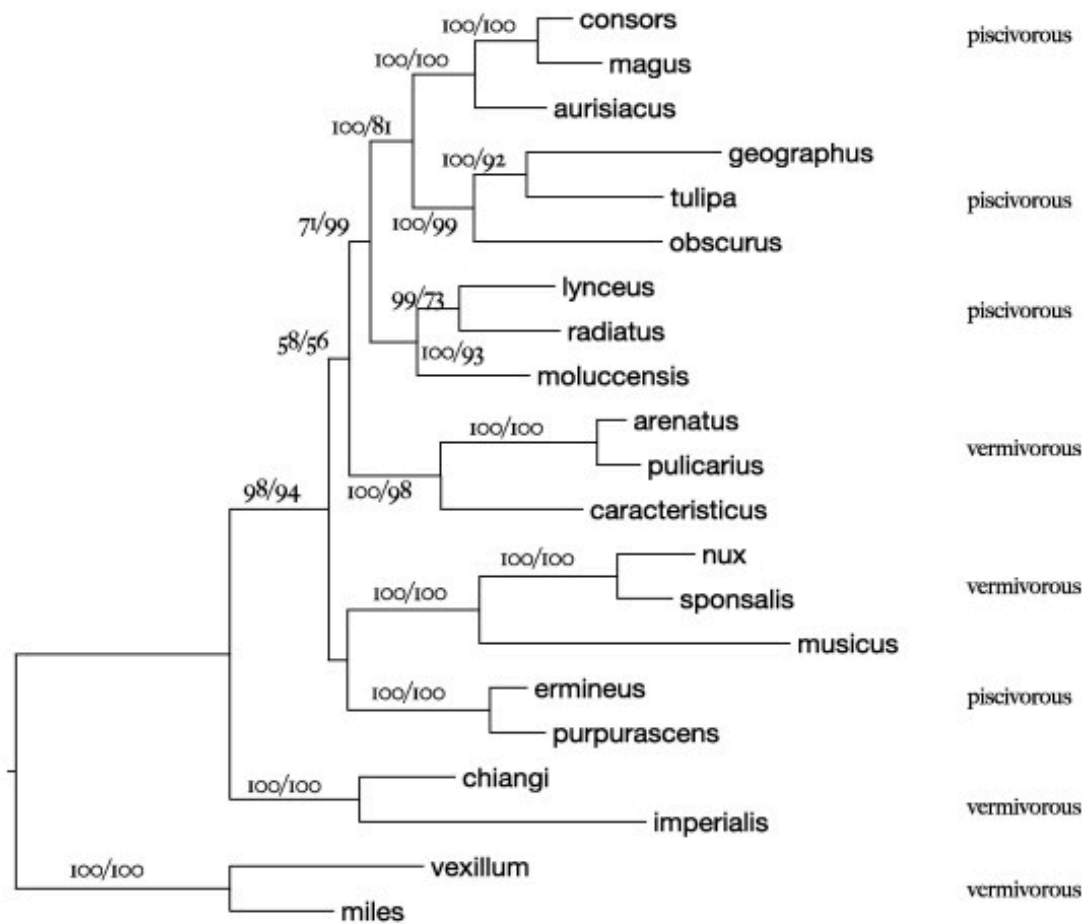


Cone Snail case

Cone snail molecular phylogeny



Cone snail video

Snail Venom Yields Potent Painkiller, But Delivering The Drug Is Tricky

Updated August 4, 2015 10:52 AM ET Published August 3, 2015 3:30 PM ET

<http://www.npr.org/sections/health-shots/2015/08/03/428990755/snail-venom-yields-potent-painkiller-but-delivering-the-drug-is-tricky>

Magician's cone (*Conus magus*)



The magician's cone, *Conus magus*, is a fish-hunting, or piscivorous cone snail found in the Western Pacific. It is so common in some of small Pacific islands, especially in the Philippines, that it is routinely sold in the market as food. The magician's cone attacks its fish prey by sticking out its light yellowish proboscis, from which venom is pushed through a harpoon-like tooth. It hunts by the hook-and-line method and so will engulf its prey after it has been paralyzed. To learn more about hook-and-line hunters, click [here](#).

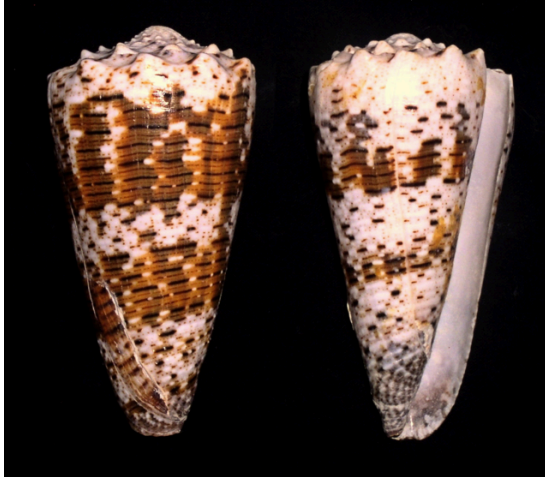
Scientists have analyzed the venom of the magician's cone and one of its venom components was discovered to have a unique pharmacological activity by blocking a specific calcium channel (N-type). After this venom component was isolated and characterized in a laboratory, researchers realized that it had potential medical application. By blocking N-type calcium channels, the venom blocks channels that when open convey pain from nerve cells. If this is blocked, the brain cannot perceive these pain signals. It was developed as a pain management drug, and is now chemically synthesized and sold under the trade name *Prialt*. This drug is given to patients who have very severe pain that is not alliviated by morphine.

Conus magus is an extremely variable cone species with respect to its shell pattern. Different specimens of *Conus magus* collected from different islands will look different from each other; it is not well understood why some species of *Conus* are very constant in their shell pattern, while the shells of other species, such as *Conus magus*, are extremely variable. Looking at two different *Conus magus* often makes one think that they are in fact different species of cone snails.

Research at the University of Utah on Cone snails:

https://nihrecord.nih.gov/newsletters/2005/03_01_2005/story03.htm

Imperial cone (*Conus imperialis*)



Imperial Cone eating fireworm video:

<http://www.hhmi.org/biointeractive/conus-imperialis-strikes-worm>

Conus imperialis, common name the imperial cone, is a species of sea snail, a marine gastropod mollusk in the family Conidae, the cone snails and their allies.^[2]

Like all species within the genus *Conus*, these snails are predatory and venomous. They are capable of "stinging" humans, therefore live ones should be handled carefully or not at all.

Glory of Bengal cone (*Conus bengalensis*)



This species occurs in the Bay of Bengal, the Andaman Sea, and off South East India.

Geography cone (*Conus geographus*)



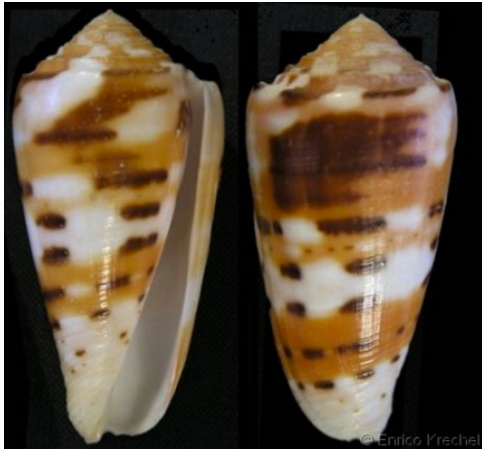
The incredibly toxic venom of the geographic cone snail has to be strong enough to paralyze instantly. Otherwise, the fish it preys on would swim away to die, and the slow-moving gastropod would have nothing for its efforts.

Indigenous to the reefs of the Indo-Pacific, geographic cones grow to about 6 inches (15 centimeters) in length and have intricately patterned brown-and-white shells highly prized by shell collectors.

The geographic cone is the most venomous of the 500 known cone snail species, and several human deaths have been attributed to them. Their venom, a complex concoction of hundreds of different toxins, is delivered via a harpoonlike tooth propelled from an extendable proboscis. There is no antivenin for a cone snail sting, and treatment is limited to merely keeping victims alive until the toxins wear off.

Ironically, among the compounds found in cone snail venom are proteins which, when isolated, have enormous potential as pain-killing drugs. Research shows that certain of these proteins target specific human pain receptors and can be up to 10,000 times more potent than morphine without morphine's addictive properties and side-effects.

Barthelemy's cone (*Conus barthelemyi*)



This species occurs off islands throughout the Indian Ocean, ranging from Réunion to the Maldives and Seychelles; it also occurs around Christmas Island (Röckel *et al.* 1995). At Christmas Island, this species occupies a unique niche; only seven specimens are known but the species is extant. It is found on coral walls in caves, 30-60 m deep. The Christmas island population is isolated from other populations (H. Morrison pers. comm. 2011). The EOO, AOO, and number of locations for this species exceed the criteria for B1, B2, and D2 classification.

Glory of the sea cone (*Conus gloriamaris*)



Although the Glory of the Seas Cone Shell is perhaps the most famous and coveted shell in the history of conchology, it is neither the most attractive nor rarest species

of the Cone family. When first described in 1777, however, it enjoyed what could only be described as true 'celebrity status' amongst rich European collectors. Specimens changed hands at auction houses for very large sums of money especially the larger and more impressive examples. *Conus gloriamaris* belongs to the group of 'tent-marked' cones, many of which are known to be dangerous to humans. The species may reach a length of over 140 mm and even today its past fame still attracts attention. The Queensland Museum houses a fresh beach-collected specimen (length 83mm) of the species.

The Glory of the Sea or *Conus gloriamaris* is venomous having a specialized radula system which is used for spearing intended prey with a poisoned bard. Its radular tooth is characterized by a serrated shaft and a prominent basal barb. It refers to hunt other mullusks. Its bite is a very dangerous to man thus caution is advised when dealing with living specimens.

Virgin cone (*Conus virgo*)



This marine species occurs in the [Red Sea](#) and in the tropical Indo-West Pacific off [Tanzania](#), [Madagascar](#), [Aldabra](#), [Chagos](#), the [Mascarene Islands](#); [India](#), the [Philippines](#) and Australia ([Northern Territory](#), [Queensland](#), [Western Australia](#)).