

# Penzance B.S.A.C. Conservation Officers Report September 2011

In the only known instance of a mammal acquiring a lethal toxin from a plant for defence, researchers have discovered that the African crested rat gets its poison from the *Acokanthera* tree, the same source used by East African hunters for their poison arrows. The rodent applies the poisonous plant toxin to sponge-like hair on its flanks. It is a fascinating example of how a species can evolve a unique set of defences in response to pressure from predation. Scientists have long suspected that the African crested rat is poisonous, primarily due to the animal's specialized behaviour, such as exposing a black-and-white colouration on its flanks when threatened by predators, and accounts of dogs becoming ill or dying after encounters with the rat. The rat gnaws and masticates the bark of the tree, (avoiding the leaves and fruit) and applies the 'slaver' to special hairs on its flanks, which have a unique structure. When examined under the electron microscope they were found to have a perforated cylindrical structure that facilitated the rapid absorption of the poisonous saliva. Interestingly, this poison, ouabain, has also been used by doctors for centuries as a clinical treatment against congestive heart failure



African crested  
rat

A dolphin that lives around the east coast of South America called the Guiana Dolphin (*Sotalia guianensis*) resembles the much more common Bottlenose Dolphin and like all of the toothed cetaceans it hunts and locate food using sound, but researchers have discovered that at close range, it can also sense electrical signals. They are not as sensitive as sharks and rays, but can detect signals of the same size as those produced in water when fish move their muscles. Electroreception is well known in fish and amphibians, but until now the only mammal example was the platypus. The researchers first found that structures on the animals head were probably sensory organs, then found that it could detect electric fields in water. The Guiana Dolphin feeds a lot on the bottom of the sea, and it lives in water where there can be a lot of silt and mud suspended, so electrolocation would be a great benefit in these conditions.



A 78-million-year-old, 15.4 ft long fossil of an adult plesiosaur, *Polycotylus latippinus*, one of the giant, carnivorous, four-flipped reptiles that lived in the Mesozoic Era was found to be pregnant with the fossilized remains of the embryo inside. The embryonic skeleton contained within, shows much of the developing body, including ribs, 20 vertebrae, shoulders, hips, and paddle bones. The research establishes that these dual fossils are the first evidence that plesiosaurs gave birth to live young, rather than hatching their offspring from eggs on land. Although live birth (or viviparity) has been documented in several other groups of Mesozoic aquatic reptiles, no previous evidence of it has been found in the important order of plesiosaurs. The First Basking Shark of the year turned up off Roskilly on March 20<sup>th</sup>, seen by BDMLR divers at a depth of 8 metres. There were 4 more sightings in April, these were 3 singles and a pod of three young ones and a further 4 reports during May, which were 3 singles and a pair which makes 12 sharks in total up to the end of May. During the same period last year there were 46 reported sightings with well over 100 sharks seen. I wonder if the sharks are still here but the plankton is remaining deeper and the sharks feeding deeper, like the first one seen in March, and so the sharks are not being seen. Only 11 were reported in June, 12 in July and 11 in August, so only 80 have been reported up to the end of August. Bottlenose Dolphins were reported 5 times and Common Dolphins 17 times, 5 other reports of small pods of unidentified dolphins were probably Bottlenose and one report of a pod of over 50 off St Agnes were probably Common Dolphins. 25 reports of Harbour Porpoises were all between Porthgwarra and Pendeen, largest pod was of 18 off Gwennap Head. 6 reports of Minke Whales were of 4 singles and 2 pairs. There were 13 reported sightings of Ocean Sunfish 11 were single fish and there was a pair off Gwennap Head on the 14th and 4 there on the 2nd of August. 25 reports of Grey Seals were all from the Gwennap Head area and there was a reported sighting of 3 Blue Sharks from a boat off The Lizard on the 28th of the month

