

Ornithorhynchus anatinus - the duckbill platypus



Introduction

Ornithorhynchus anatinus - the duckbill platypus (figure 1), is a unique mammal native to Queensland, New South Wales, Victoria, South Australia, and Tasmania (figure 2).



Figure 1 - *Ornithorhynchus anatinus*



Figure 2- distribution of platypus Australia

The duck-billed platypus is a small semi-aquatic mammal that inhabits streams and small rivers in eastern Australia and Tasmania.

Living platypuses exist nowhere else in the world and date back 1.6 million years ago to the Pleistocene era.

The platypus lives in burrows dug out of the banks of rivers. The animal is approximately 50 cm in length, about the same size of a family cat, and its body is covered by a thick brown fur. The platypus also has webbed forefeet to paddle its way through the water and a beaver like tail.

The most notable feature of the platypus is its rubbery bill, which resembles that of a duck, which contains electro receptive sensors used in the search for food.

But what makes the duck-billed platypus extremely unique is that it has the physical and biological characteristics of both mammals and reptiles. Early botanists who came across the platypus in the 18th century found it so bizarre and unconformist, that many thought it was a fake until it was proven later to be genuine.

The duck-billed platypus came under much scrutiny because it was like no other known mammals; as it has the possession of hair and mammary glands but has a few skeletal features in common with the reptiles, and together with the fact that female platypus lay eggs in order to reproduce.

So what do we class *Ornithorhynchus anatinus* as? Primitive Mammal or hairy reptile? Well the possession of hair and mammary glands is enough to place the platypus into the class Mammalia, even though it is certainly a very different mammal. The platypus was placed in the order Monotremata. All animals of this order have the special feature that they have only one opening for their reproductive, excretory and digestive systems.

Genus: *Ornithorhynchus*

Species: *anatinus*

Due to Australia's geological past the ecology of Australasia has developed differently to that of the other continents, as due to plate tectonics Australasia drifted away from the main 'cluster' of continents around 200 million years ago (*see Figure3 below*) due to this we find many unique species including *Ornithorhynchus anatinus* - the duckbill platypus.

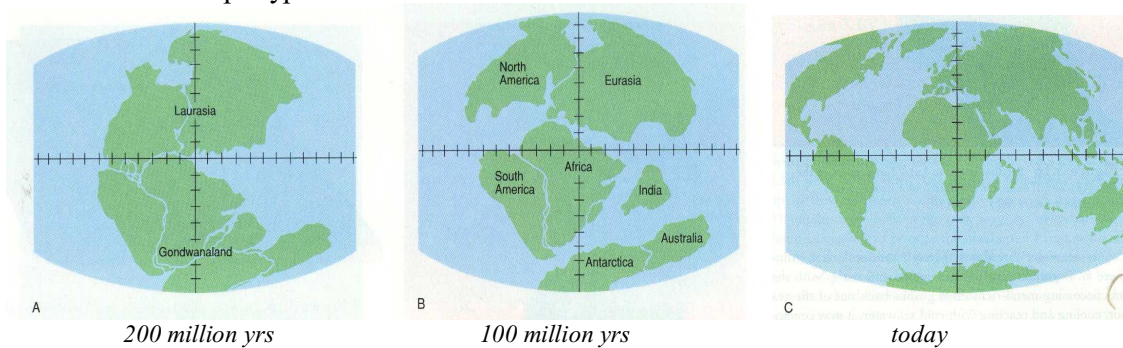


Figure3 – continental drift during the last 200 million years

Duck-billed platypus are only found on the east coast of Australia due to abundance of wetlands and fresh water systems and the vast amounts of woodlands and forests which provide food and shelter, as in relation to the rest of Australia which is mainly dry, exposed, arid - desert environment with very few all year round permanent fluvial river systems.

Habitat and lifestyle

The duck-billed platypus lives in the fresh water wetlands and river systems, which drain in to the pacific sea along the east coast of Australia.

Platypus are solitary and territorial, usually only one adult occupies a 500 metres stretch of waterway and live in two burrows, one for rest and sleeping and one for nesting.

Burrows are located along the riverbanks in soft mud and open above water and may be as much as sixty feet deep.



Figure 4 – platypus burrow

Platypus reach sexual maturity at around two years and mate between August and October, the mating process takes place in the water.

When the female lays eggs 2 weeks after mating she incubates the eggs for 10-14 days.

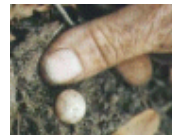


Figure 5 - platypus egg

There are usually two babies in each clutch. The babies live with their mother while they are being raised. Unlike most mammals, female monotremes have no teats instead the mother's milk simply oozes out onto a patch of fur, which the young platypus sucks on. Nourished on their mother's iron-rich milk.

The father does not help raise the young platypus. The female nurses her young until the juveniles can get food for them selves.

Juveniles tend to leave its mother's burrow after 17 weeks.

As adults live by themselves and each one has its own territory, if the territory gets too crowded, the juvenile finds a new territory and settles in. The platypus can live up to 15 years.

Platypuses have developed well-webbed feet and a flat tail used to swim and swim mainly with their forefeet. Thick fur keeps them dry and warm this dense fur traps a layer of air next to the skin, providing excellent insulation. Their tails store fat for energy, and broad nails help them for digging burrows and walking although they restrict the amount of walking on dry land on the river bank a never leave the safety of the river bank and hence have no legs and move slowly on land but have keen sight and hearing on dry land to reduce the risk of being caught on land by predators.

Their bill has electro receptors, which are used for predation purposes as platypus are carnivores, they use their bills to probe mud and gravel beds in rivers and lakes with the end of the rubbery bill; they prey on crayfish, shrimp, snails, and larvae of water insects, worms, tadpoles, and small

fish. The platypus is totally dependent on its bill as under water its eyes and ears are useless.



Figure 6 – underside of a platypus bill

Platypus surface once they have collected enough food to chew and digest their meal at the surface. Platypus usually feed during the early in the morning and in the evening.

Located on the inside of each hind leg is a hard spur, which is absent on mature females but adult males spurs use these as a defensive mechanism to inject venom into a predator the venom is grown in glands and is strong enough to kill a dog. Scientists also think this defensive mechanism it is

used for fighting other males for females during the mating season.

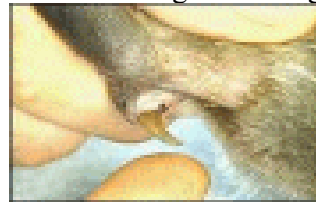


Figure 7 – male platypus spur

Population size and conservation

Since the 18th century the platypus was hunted for its precious fur and as ornaments being stuffed by taxidermists and put on show due to their rarity and bizarre morphology. It would take many as 70 platypuses to produce full-length coat. However local fisheries and loss of habitat and pollution of the waterways and wetlands are more of threat to the platypus population today.

These factors have had a devastating affect on the platypus population, to such an extent that the Government introduced laws to protect them and conservation programmes to increase their numbers, platypus are on the verge of being extinct, since records of platypus numbers where recorded in the 1960's numbers have fallen dramatically from around an estimated 6000 in 1960 too just under a thousand in the late 1980s

Now it has protection by law in the National Parks and Wildlife Act of 1974 (from hunters and fishermen), and the population has grown back to a healthy size, the platypus was adopted as the official animal of New South Wales in 1971 to help boost local public awareness and appreciation.

