# The Evolutionary Mystery: Crocodile Survives

**A** Crocodiles have been around for 200 million years, but they're certainly not primitive. The early forms of crocodiles are known as Crocodilia. Since they



spent most of their life beneath water, accordingly their body adapted to aquatic lifestyle. Due to the changes formed within their body shape and tendency to adapt according to the climate they were able to survive when most of the reptiles of their

period are just a part of history. In their tenure on Earth, they've endured the impacts of **meteors**, planetary refrigeration, extreme upheavals of the Earth's

tectonic surface and profound climate change. They were around for the rise and fall of the dinosaurs, and even 65 million years of supposed mammalian dominance has failed to loosen their grip on the environments they inhabit.



- B The first crocodile-like ancestors appeared about 230 million years ago, with many of the features that make crocs such successful stealth hunters already in place: streamlined body, long tail, protective armour and long jaws. They have long head and a long tail that helps them to change their direction in water while moving. They have four legs which are short and are webbed. Never underestimate their ability to move on ground. When they move they can move at such a speed that won't give you a second chance to make a mistake by going close to them especially when hungry. They can lift their whole body within seconds from ground.
- C Crocodilians have no lips. When submerged in their classic 'sit and wait' position, their mouths fill with water. The **nostrils** on the tip of the elongated snout lead into canals that run through bone to open behind the **valve** allowing the



crocodilian to breathe through its nostrils even though its mouth is under water. When the animal is totally submerged, another valve seals the nostrils, so the crocodilian can open its mouth to catch prey with no fear of drowning. The thin skin on the crocodilian head and face is covered with tiny, pigmented domes, forming a network of neural pressure receptors that can detect barely perceptible vibrations in the water. This enables a crocodile lying in silent darkness to suddenly throw its head sideways and grasp with deadly accuracy small prey moving close by.

**D** Like other reptiles, crocodiles are endothermic animals (cold-blooded, or whose body temperature varies with the temperature of the surrounding environment)

and, therefore, need to sunbathe, to raise the temperature of the body. On the contrary, if it is too hot, they prefer being in water or in the shade. Being a cold-blooded species, the crocodilian heart is unique in having an actively controlled valve that can



redirect, at will, blood flow away from the lungs and recirculate it around the



body, taking oxygen to where it's needed most. In addition, their metabolism is a very slow one, so, they can survive for long periods without feeding. Crocodiles are capable of slowing their metabolism even further allowing them to survive for a full year without feeding.

- E Crocodiles use a very effective technique to catch the prey. The prey remains almost unaware of the fact that there can be any crocodile beneath water. The crocodile is successful because it switches its feeding methods. It hunts fish, grabs birds at the surface, hides among the water edge vegetation to wait for a gazelle to come by, and when there is a chance for an ambush, the crocodile lunges forward, knocks the animal with its powerful tail and then drags it to water where it quickly drowns. Another way is to wait motionless for an animal to come to the water's edge and grabs it by its nose where it is held to drown.
- F In many places inhabited by crocodilians, the hot season brings drought that dries up their hunting grounds and takes away the means to regulate their body temperature. They allowed reptiles to dominate the terrestrial environment. Furthermore, many crocs protect themselves from this by digging burrows and entombing themselves in mud, waiting for months without access to food or water, until the rains arrive. To do this, they sink into a quiescent state called aestivation
- G Most of (At least nine species of) crocodilian are thought to aestivate during dry periods. Kennett and Christian's six-year study of Australian freshwater crocodiles- Crocodylus johnstoni (the King Crocodiles). The crocodiles spent almost four months a year underground without access to water. Doubly labeled water was used to measure field metabolic rates and water flux, and plasma (and

cloacal fluid samples were taken at approximately monthly intervals during some years to monitorthe effects of aestivation with respect to the accumulation of nitrogenous wastes and electrolyte concentrations. Doubly found that the crocodiles' metabolic engines tick over, producing waste and using up water and fat reserves. Waste products are stored in the urine, which gets increasingly concentrated as the months pass. However, the concentration of waste products in the blood changes very little, allowing the crocodiles to function normally. Furthermore, though the animals lost water and body mass (just over one-tenth of their initial mass) while underground, the losses were proportional: on emergence, the aestivating crocodiles were not dehydrated and exhibited no other detrimental effects such as a decreased growth rate. Kennett and Christian believe this ability of individuals to sit out the bad times and endure long periods of enforced starvation must surely be key to the survival of the crocodilian line through time.

#### Questions 14-20

Reading passage 2 has seven paragraphs, A-G; Choose the correct heading for paragraphs A-G from the list below.

Write the correct number, i-xi, in boxes 14-20 on your answer sheet.

## **List of Headings**

- *i* The competitors with the dinosaur
- *ii* A historical event for the Supreme survivors.
- iii What makes the crocodile the fastest running animal on land
- iv Regulated body temperature by the surrounding environment
- Underwater aid in body structure offered to a successful predator
- vi The perfectly designed body for a great land roamer
- vii Slow metabolisms which makes crocodile a unique reptile
- viii The favorable features in the impact of a drought
- ix Shifting Eating habits and food intake
- x A project on a special mechanism
- xi A unique findings has been achieved recently
- 14 Paragraph A
- 15 Paragraph B
- 16 Paragraph C
- 17 Paragraph D
- 18 Paragraph E
- 19 Paragraph F
- 20 Paragraph G

# Mystery in Easter Island

A One of the world's most famous yet least visited archaeological sites, Easter Island is a small, hilly, now treeless island of volcanic origin. Located in the Pacific Ocean at 27 degrees south of the equator and some 2200 miles (3600 kilometers) off the coast of Chile, it is considered to be the world's most remote inhabited island. The island is, technically



speaking, a single massive volcano rising over ten thousand feet from the Pacific Ocean floor. The island received its most well-known current name, Easter Island, from the Dutch sea captain Jacob Roggeveen who became the first European to visit Easter Sunday, April 5, 1722.

B In the early 1950s, the Norwegian explorer Thor Heyerdahl popularized the idea that the island had been originally settled by advanced societies of Indians from the coast of South America. Extensive archaeological, ethnographic and linguistic research has conclusively shown this hypothesis to be inaccurate. It is now recognized that the original inhabitants of Easter Island are of **Polynesian** 

stock (DNA extracts from skeletons have confirmed this

), that they most probably came from the Marquesas or Society islands, and that they arrived as early as 318 AD (carbon dating

of reeds from a grave confirms this). At the time of their arrival, much of the island was forested, was teeming with land birds, and was perhaps the most productive breeding site for seabirds in the Polynesia region. Because of the plentiful bird, fish and plant food sources, the human population grew and gave rise to a rich religious and artistic culture.



C That culture's most famous features are its enormous stone statues called moai, at least 288 of which once stood upon massive stone platforms called *ahu*. There are some 250 of these *ahu* platforms spaced approximately one half mile apart and creating an almost unbroken line



around the perimeter of the island. Another 600 moai statues, in various stages of completion, are scattered around the island, either in **quarries** ( ) or along ancient roads between the quarries and the coastal areas where the statues were most

often erected. Nearly all the moai are carved from the tough stone of the *Rano Raraku* volcano. The average statue is 14 feet and 6 inches tall and weighs 14 tons. Some moai were as large as 33 feet and weighed more than 80 tons. Depending upon the size of the statues, it has been estimated that between 50 and 150 people were needed to drag them across the countryside on sleds and rollers made from the island's trees.

- D Scholars are unable to definitively explain the function and use of the moai statues. It is assumed that their carving and erection derived from an idea rooted in similar practices found elsewhere in Polynesia but which evolved in a unique way on Easter Island. Archaeological and iconographic analysis indicates that the statue cult was based on an ideology of male, lineage-based authority incorporating anthropomorphic symbolism. The statues were thus symbols of authority and power, both religious and political. But they were not only symbols. To the people who erected and used them, they were actual repositories of sacred spirit. Carved stone and wooden objects in ancient Polynesian religions, when properly fashioned and ritually prepared, were believed to be charged by a magical spiritual essence called *mana*. The ahu platforms of Easter Island were the sanctuaries of the people, and the moai statues were the ritually charged sacred objects of those sanctuaries.
- E Besides its more well-known name, Easter Island is also known as *Te-Pito-O-Te-Henua*, meaning 'The Navel of the World', and as *Mata-Ki-Te-Rani*, meaning 'Eyes Looking at Heaven'. These ancient name and a host of mythological details ignored by mainstream archaeologists, point to the possibility that the remote island may once have been a **geodetic** marker and the site of an astronomical observatory of a long forgotten civilization. In his book, Heaven's Mirror, Graham Hancock suggests that Easter Island may once have been a significant scientific outpost of this **antediluvian** ( ) civilization and that its location had extreme importance in a planet-spanning, mathematically precise grid of sacred sites. Two other alternative scholars, Christopher Knight and Robert Lomas, have extensively studied the location and possible function of these geodetic markers. In their

fascinating book, Uriel's Machine, they suggest that one purpose of the geodetic markers was as part of global network of sophisticated astronomical observatories dedicated to predicting and preparing for future commentary impacts and crystal displacement cataclysms. (

F In the latter years of the 20th century and the first years of the 21st century various writers and scientists have advanced theories regarding the rapid decline of Easter Island's magnificent civilization around the time of the first European contact. Principal among these theories, and now shown to be inaccurate, is that postulated by Jared Diamond in his book *Collapse : How Societies Choose to Fail or Survive*.

Basically these theories state that a few centuries after Easter Island's initial colonization the resource needs of the growing population had begun to outpace the island's capacity to renew itself ecologically. By the 1400s the forests had been entirely cut, the rich ground cover had eroded away, the springs had dried up, and the vast flocks of birds coming to roost on the island had disappeared. With no logs to build canoes for offshore fishing, with depleted bird and wildlife food sources, and with declining crop yields because of the erosion of good soil, the nutritional intake of the people plummeted. First famine, then cannibalism, set in.

Because the island could no longer feed the chiefs bureaucrats and priests who kept the complex society running, the resulting chaos triggered a social and cultural collapse. By 1700 the population dropped to between one-quarter and one-tenth of its former number, and many of the statues were toppled during

supposed "clan wars" of the 1600 and 1700s.

G The faulty notions presented in these theories began with the racist assumptions of Thor Heyerdahl and have been perpetuated by writers, such as Jared Diamond, who do not have sufficient archaeological and historical understanding of the actual events which occurred on Easter Island. The real truth regarding the tremendous social devastation which occurred on Easter Island is that it was a direct consequence of the inhumane behavior of many of the first European visitors, particularly the slavers who raped and murdered the islanders, introduced small pox and other diseases, and brutally removed the natives to mainland South America.

#### **READING PASSAGE 3**

You should spend about 20 minutes on Questions 27 - 40 which are based on Reading Passage 3 below. (IELTS test papers offered by ipredicting.com, copyright)

#### The reading passage has seven paragraphs, A-G

Choose the correct heading for paragraphs A-G from the list below. Write the correct number, i-xi, in boxes 27-31 on your answer sheet.

NB There are more headings than paragraphs

, so you will not use them

#### **List of Headings**

- i The famous moai
- ii The status represented symbols of combined purposes
- iii The ancient spots which indicates scientific application
- The story of the name iv
- Early immigrants, rise and prosperity v
- The geology of Easter Island vi
- The begin of Thor Heyerdahl's discovery vii
- The countering explaination to the misconceptions viii
  - politaically manipulated Symbols of authority and power
- ix
- The Navel of the World x
- The norweigian Invaders'legacy xi

#### Questions 27-31

Example	Answer
Paragraph A	iv
27 Paragraph B	
Paragraph C	i
0 1	

- 28 Paragraph D
- 29 Paragraph E
- 30 Paragraph G

# **BOOBIES**

A Boobies are a small group of seabirds native to tropical and subtropical oceans throughout the world. Their diet consists mainly of fish. They are specialised fish eaters feeding on small school fish like sardines, anchovies, mackerel, and flying fish. When their prey is in sight, they fold their long wings back around their streamlined bodies and plunge into the water from as high as 80 feet, so streamlined they barely make a splash. They travel in parties of about 12 to areas of water with



large schools of small fish. When the lead bird sees a fish shoal in the water, it will signal the rest of the group and they will all dive together. Surprisingly, individuals do not eat with the hunting group, preferring to eat on their own, usually in the early morning or late afternoon.

**B** There are three varieties on the Galapagos: the blue-footed, red-footed, and masked boobies. They are all members of the same family, and are not



only different in appearance but also in behaviours. The blue-footed and red-footed boobies mate throughout the year, while the masked boobies have an annual mating cycle that differs from island to island. All catch fish in a similar manner, but in different areas: the blue-footed booby does its fishing close to shore, while the masked booby goes slightly farther out, and the red-footed booby fishes at the farthest distances from shore.

C Although it is unknown where the name "Booby" emanates from ), some conjecture ) it may come from the Spanish word for clown, "bobo", meaning 'stupid'. Its name was probably inspired by the bird's clumsiness on land and apparently unwarranted bravery. The blue footed booby is extremely vulnerable to human visitors because it does not appear to fear them. Therefore these birds received such name for their clumsiness on land in which they were easily, captured, killed, and eaten by humans.

**D** The blue-footed booby's characteristic feet play a significant part in their famous courtship ) ceremony, the 'booby dance'. The male walks



around the female, raising his bright blue feet straight up in the air, while bringing his 'shoulders' towards the ground and crossing the bottom tips of his wings high above the ground. Plus he'll raise his bill up towards the sky ('skypointing') to try to win his mate over. The female may also partake in these activities – lifting her feet, skypointing, and of course squawking at her mate. After mating, another ritual occurs - the nest-building which

ironically is never used because they nest on the bare ground. When the female is ready to lay her eggs, they scrape the existing nest away so she can nest on exposed ground. Sun-baked islands form the booby's breeding grounds. When ready the female Blue Footed Booby lays one to three eggs.

E After mating, two or three eggs are laid in a shallow depression on flat or gently sloping ground. Both male and female take turns incubating

the eggs. Unlike most birds, booby doesn't develop brood patches (areas of bare skin on the breast) to warm the eggs during incubation. Instead, it uses the its broad webbed feet, which have large numbers of prominent blood vessels ), to transmit heat essential for incubation. The eggs are thick-shelled so they can withstand the full weight of an incubating bird.



- F After hatching, the male plays a major role in bringing fish home. He can bring back a constant supply of small fish for the chicks, which must be fed continuously. The reason is that the male has a longer tail than the female in relation to his body size, which makes him able to execute shallower dives and to feed closer to shore. Then the female takes a greater part as time proceeds. Sooner or later, the need to feed the young becomes greater than the need to protect them and both adults must fish to provide enough.
- G When times are good, the parents may successfully fledge all three chicks, but, in harder times, they may still lay as many eggs yet only obtain enough food to raise one. The problem is usually solved by the somewhat callous-sounding system of 'opportunistic sibling ) murder.' The first-born chick is larger and stronger than its nest mate(s) as a result of

hatching a few days earlier and also because the parents feed the larger chick first. If food is scarce, the first born will get more food than its nest mate(s) and will outcompete them, causing them to starve. The above system optimizes the reproductive capacity of the blue-foot in an unpredictable ane carvatio, environment. The system ensures that, if possible, at least one chick will survive a period of shortage rather than all three dying of starvation under a

You should spend about 20 minutes on question 1-13, which are based on reading passage 1 on the following pages.

#### Questions 1-6

#### The reading passage has seven paragraphs, A-G

Choose the correct heading for paragraphs A-G from the list below. Write the correct number, i-ix, in boxes 1-6 on your answer sheet.

## **List of Headings**

- i Unusual way of hatching the chicks
- ii Feeding habit of the red-footed booby
- iii Folding wings for purpose
- iv Rearing the young
- v Classification of boobies
- vi Diving for seafood
- vii Surviving mechanism during the food shortage period
- viii Mating and breeding
- ix Origin of the booby's name
- 1 Paragraph A
- 2 Paragraph B

Example	Answer
Paragraph C	ix

- 3 Paragraph D
- 4 Paragraph E
- 5 Paragraph F
- 6 Paragraph G

### Questions 21 – 26

Complete the flow-chart below

Choose SIX answers from the box and write the correct letter, A-H, next to Questions 21-26.

A patterns B names C sources D questions

E employees F solutions G headings H officials

#### STAGES IN DOING A TOURISM CASE STUDY

#### RESEARCH

Locate and read relevant articles, noting key information and also 21......

Identify a problem or need

Select interviewees – these may be site 22....., visitors or city 23......

Prepare and carry out interviews. If possible, collect statistics.

Check whether 24...... of interviewees can be used.

#### **ANALYSIS**

Select relevant information and try to identify 25......

Decide on the best form of visuals.

WRITING THE CASE STUDY

Give some background before writing the main sections

Do NOT end with 26......

Task - 1

