

Adaptation and Interaction within Ecosystems

The Hippopotamus and the Gardens of Africa

Chapters

Introduction

Hippos, Humans and Wildlife in Queen Elizabeth National Park (Uganda)

Program Summary

Dawn in the Queen Elizabeth National Park, in western Uganda, part of an area known as 'the Gardens of Africa'.

With first light, a herd of hippopotamuses comes into view.

The hippopotamuses seem to enjoy taking a bath. Even though they are almost completely underwater, they are still able to breathe, smell, see and hear. With their lungs full of air, they can stay underwater for up to 5 minutes. Hippos have the rare ability to walk along the river bottom.

Hippos have a reputation for their aggressive behaviour. The powerful jaws with their razor-sharp, continuously growing canine-teeth are dangerous weapons.

Hippos do most of their sleeping during the day, even though they are not strictly nocturnal.

In Africa hippos are responsible for more human deaths than lions, elephants and buffalos put together.

Every now and again a frightened hippo overturns a boat and the passengers drown.

When hippopotamuses do not feel disturbed they are very peaceful.

The hippos have lived in this pool for years. The cattle egrets eat insects, and enjoy a healthy relationship with the hippos. Not only do the hippos scare the insects into flight for the birds, they also carry them right past the food. If you're an insect-eating bird, this is as good as it gets.

Without any warning, there is a commotion among the hippos. These mock-fights remain harmless when the pecking order is easily resolved. The danger of getting seriously injured is usually avoided.

This mock-fight was over a female.

For hippos, mating is hard work. For the male, the aim is to force all his body weight onto the back of the female, and to stay up there, which is pretty hard when you've only got short legs. The nostrils of the female come up every once in a while to breathe, and then down she goes again.

While the male can breathe freely, the female must hold her breath while mating. After nearly half an hour, the male is exhausted.

In many places, the hippos only ever leave the water during the night. Only where they feel completely safe, will they step onto dry land in the middle of the day. Often they snooze for hours, always near the water's edge, in case of danger.

Off to one side, a hippo mother has escaped with her newborn. The mother will not allow any other hippos near her young. Until they know each other well, they will not return to the rest of the herd.

For hippos, water is the place of birth, mating, escape and rest. The only thing that it does not provide is food. Hippos eat during the night, on land.

Sometimes however, older, more experienced males may leave the water during the day. Their skin is 7 cm thick, and insulates them like a wetsuit. It keeps them warm in the water, but on land they start to sweat. Thousands of fine pores begin to secrete sweat. Mixed with mud, the sweat protects their skin and keeps them cool.

The word hippopotamus comes from the Latin for 'River Horse'. The Ancient Egyptians called them 'River Pigs', and here you can see why.

There is some fresh grass nearby, but walking during the heat of the day is exhausting.

One or two hours later, in the moonlight, the hippos leave the water. Each one goes its own way, barely paying attention to the others.

Almost silent, they follow the beaten paths that wind along the lake's shore. At night, temperatures are much lower than during the day, so the hippos don't get too hot. Hippos usually wander up to 3 kilometers away from the water in search of food. They are vegetarians and live on grass, but they eat between 30 and 40 kilograms of it per night.

In the harsh light of day, we see the tracks that the heavy hippos make on their nightly hikes in search of food. The ground was soft after the rain, and the trampling of the hippos has killed the grass and made this ground vulnerable to erosion.

In the early 1960s, people feared that hippos would destroy the grassland completely, through overgrazing and trampling. Acting on the advice of ecologists, 7000 hippos were killed at Lake Edward. This was a hasty action, that had unpredictable consequences.

The meat of the 7000 killed hippos was sold to the local population. Originally it was seen as worthless, but it became extremely popular. In 1979, war broke out between Idi Amin's army and Tanzanian troops, leading to yet another hippo massacre. Once the political situation finally settled down, the desire for hippopotamus meat and ivory remained.

The mass killings of hippopotamuses had severe consequences for Lake Edward. Birds and fish populations also declined. It was found that the whole ecosystem relies on hippos. The grass that they eat during their land excursions is partially carried back to the lake.

Hippopotamus dung is very important to the local ecosystem – the entire food chain is built upon it. Microorganisms, snails and insect larvae eat it, birds and fish eat them, and other animals eat the fish.

Only the end of hostilities, and a nature reserve on Lake Edward have allowed the hippo population to grow. Slowly the lake has returned to what it once was – one of the most heavily populated fish habitats in the world.

The storm of the last few days has caused quite a rise in Lake Edward, and also the Ishasha River, which runs along the border with Congo.

A young male has joined the herd, and is challenging the dominance of the leader. The older male chases the youngster off. Perhaps rising water levels after the rain drove the young male away from his original territory.

The next morning, there is nothing to indicate that a fight took place. Days later however, where the Ishasha River joins Lake Edward, there is a dead hippo floating in the water. Deadly accidents are not unusual when it comes to fights between bulls.

But no species wipes itself out - the real enemies lurk elsewhere. In Queen Elizabeth Park, first it was the ecologists, then the soldiers, and finally poachers, who have threatened the hippos.

Consequent protection however has helped the hippopotamuses. More and more hippos and also elephants, buffalos and antelopes are once again roaming the landscape in the 'gardens of Africa'.

A. Hippopotamuses: Quick Questions

1. What is another name for the Queen Elizabeth National Park in Western Uganda?
2. When are hippopotamuses most active on land?
3. What senses do hippopotamuses use under the water?
4. How long can hippopotamuses remain underwater?
5. What rare ability do hippopotamuses demonstrate?
6. What type of behaviour are hippopotamuses best known for?
7. What structures of the hippopotamuses may be used as dangerous weapons?
8. How do hippopotamuses spend most of their day?

B. Feeding Relationships: List and Close Passage

1. Make a list of all the other organisms with which hippopotamuses share their environment. Next to each organism write what it eats.
2. Complete the passage using the first letter as a clue:
 1. Hippopotamuses share their e_____ with many other organisms.
 2. African Jacana are b_____ that feed on i_____ and s_____ that live amongst the hippopotamuses. They also search for their food among the l_____ on the water's s_____. Jacana's do not sink into the water because they have long t_____ that disperse their b_____ w_____ evenly.
 3. Cattle egrets are birds that eat i_____. Hippopotamuses help the birds obtain their f_____ by scaring the insects into f_____ and by c_____ them right past the food.
 4. Butterflies are attracted to e_____ d_____ because of the m_____ salts that it contains.
 5. Saddle-Bill-Storks find their food by h_____ down cormorants and waiting for them to r_____. The stork will then carry the regurgitated fish to the water to w_____ off the stomach a_____ of the cormorants.

C. Reproduction: Short Answer Questions:

1. What difficulties are experienced during mating for the:
 - a) male hippopotamus?
 - b) female hippopotamus?
2. What protective behaviour does the female hippopotamus show for her newborn?
3. Where do female hippopotamuses give birth to their young?

D. Skin Functions: Word Matching Exercise

(HINT: There are more words listed than necessary. Choose the BEST answer.)

river pig, protection, insulation, stay cool, play, 7cm, pores, aggressive, food, night time, up to 5 minutes, river horse

- a) This is the only thing that water does not provide.
- b) The thickness of hippopotamuses' skins.
- c) A function of the hippopotamuses skins on land and water.
- d) Their skin has thousands of these that secrete sweat.
- e) The sweat mixed with mud helps the hippopotamus do this.
- f) Latin for hippopotamus.
- g) Ancient Egyptians called hippopotamuses this.

E. Hippopotamuses Environment: Close Passage and Questions

1. Hippopotamuses feed away from the lake mainly at night when temperatures are much _____. They usually wander up to _____ kilometers away from the water feeding on about thirty to _____ kilograms of _____. Based on the type of food hippopotamuses eat, they are called _____.
2. The nightly hikes of the heavy hippopotamuses in their search for _____ cause much of the grass to die, particularly after rain, leaving the ground vulnerable to _____.
3. In the 1960's people feared that the _____ would be completely destroyed by the hippopotamuses, through their _____ and trampling. Upon the hasty advice of _____, 7000 hippos were _____ at Lake Edward. This action had unpredictable _____.
4. Hippopotamus meat was originally seen as worthless, however it did become popular.
 - a) Why did killing hippopotamuses become desirable?
 - b) How are the hippopotamuses' teeth used?
5. What were the severe consequences of the hippopotamus killings on the inhabitants of Lake Edward? Mention each of the following in your response:
 - Bird and fish populations
 - Microorganisms, snails and insect larvae populations.

F. Conclusion: Reflection

The video concludes by stating that,

"no species wipes itself out - the real enemies lurk elsewhere."

1. What do you think is meant by this?
2. Who or what are the "real enemies"?
3. What can be done to help prevent a species from being wiped out?
4. Why should such measures be taken to prevent species from being wiped out?