

Queensland News

Rainforest Live

November 10, 1997

Volume 2, Number 7

LINKING CLASSROOMS AROUND THE WORLD TO RESEARCH SITES AROUND THE WORLD

Animals Adapt in Order to Survive...



Marc Hiller
Emory University
October 24, 1997
Animal Adaptation

The study of geology tells us that in the past the earth

looked very different than today. The location and size of continents and the climates on those continents have changed greatly over time. If animals do not change when their surroundings do they may not be able to survive these new conditions and they may become extinct.

Animals adapt to changes in their community. A community is a group of animals that live in the same area and interact with each other and the environment. If one species in a community were to

leave, other species would be affected by it and need to adapt. Adaptation is a response by a species to a change in its environment which increases its ability to survive.

An example of an adaptation we see in the rainforest is the timing when animals mate. During the dry season, fewer plants and trees are fruiting, leaving little food for animals to eat. Most insect and fruit eating birds and some mammals like the musky rat kangaroo, wait until the dry season to mate.

Their young are then born in the beginning of the wet season, when there is an abundance of rainforest foods available. The adaptation increases the likelihood that offspring will live furthering the survival of the species.



QUOTABLE QUOTE

“Adopt the pace of nature: her secret is patience”

Ralph Waldo Emerson

Adapting to a changing environment is a process that takes a long time. Because rainforests are being destroyed at such a rapid rate, animals do not have the time necessary to adapt to the new ecosystems, and are going extinct much faster than new species are being created.

EXTRA! EXTRA!

- 10/21** Discussion group on environmental policy. Afternoon case study on data collection at Ross Chapman's dairy farm. Field lecture on private economic benefits of riparian reforestation.
- 10/22** Students will spend the day working on their case study write-up.
- 10/23** Directed research day.
- 10/24** Everyone will spend the day studying for case study exam, doing warrowork and packing for break.
- 10/25** Case study II exam. We all leave for semester break!
- 10/26 - 10/30** Students on semester break.
- 10/31** Getting back into the swing of things with a new case study. Activities for today will include: morning lectures, preparations for improvements to shadehouse, afternoon sports and time to ourselves. Today is also parent's day, two parents are visiting the site!

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Student Journals



Beth Fenstermacher
Boston University
October 23, 1997
Hiking

Sunday is the designated day off for students here at CRS. Due to limited transportation we have limited activities, but sometimes there is an organized activity such as swimming at Lake Eacham, visiting falls in the area, strawberry picking, or just hiking around the site. Some people enjoy hiking or running to our only easily-accessible tourist site—Danbulla State Forest which houses Gillie’s Outlook and the Cathedral Fig. It’s quite a time investment to go on this hike so many students make it a day long trip by bringing their lunch, a book to read, and their journals to write in.

The walk there is as great as the destination. The trail from our site brings you through the forest then through the pasture fields of our friendly neighbor. Walking through the pasture is an adventure in itself. One must strategically avoid the many cow droppings while enjoying the beautiful

view of the surrounding countryside. Once you’ve conquered this, you meet up with a hilly, curvy country road. The road brings you past many curious cows and horses that interrupt their grazing in order to watch you walk by. I always like to stop and talk to the animals since they were nice enough to interrupt their feeding to greet us. There is a farm on the corner just before you enter the state forest. If you’re lucky enough you will get to see his pet peacock.

After you have completed this walk which is about 14 kilometers you are greeted by an amazing sight at the Gillie’s Outlook. You can see the many twists and turns of the Mulgrave River down below as well as those of the Gillie’s Highway which leads up the mountain to our site. A blanket of forest interrupted by pasture land adds to the beautiful view. There are usually a few adventure-some hanggliders to watch take flight. Further down the road is the Cathedral Fig, a magnificent strangler fig found in the forest. This enormous tree is definitely picture worthy. Danbulla Forest provides us with a great way to escape on our days off.



Leah DiChiaro
Mount Holyoke College
October 16, 1997
The Experience of a Lifetime

As I sit in the classroom, I stare at the faces of people who have come before me. On the wall to my left are class photographs from previous sessions. Many faces seem oddly familiar, although I

cannot explain why. Clothing, boots, sandals, hairstyles, all are equivalent to present fashions. If there were no labels on the pictures, I would be unable to guess the year of their origin. Neither would I be able to arrange them in chronological order.



It occurs to me now that these smiling faces are not just mannequins immortalized in one second with the click of a button. I wonder where they are and what they are doing. How do they feel when they remember the days they spent here? How will I feel when I reflect on this semester five years from now? Three months is such a small amount of time in one’s life span—the blink of an eye. I cannot clearly remember three months from my sophomore year in high school, only five years ago. Yet I am positive I will remember these three months more vividly than any that have come before or will come after. Perhaps that is why the faces in the photographs look familiar. We are all connected by our unique experiences at the Center for Rainforest Studies.

Visit our website
www.sitalive.com
to see the sights and hear
the sounds of the
Queensland Rainforest!

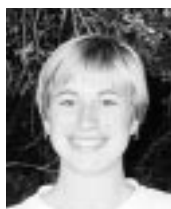


Q&A

Q. What part of the rainforest do cassowaries live in, do they live in the emergent layer?

*Mrs. Sandora's 2nd grade Science Class
Pittsburgh, PA, USA*

A. The Southern Cassowary (*Casuarius casuarius*) is a large flightless bird that lives on the forest floor. It can weigh as much as



80 kilograms or 76 pounds and may grow to be 2 meters (about 6 feet) tall. These birds live in rainforests between Cape York and

Townsville in northeast Queensland. Cassowaries have large home ranges of about 1500 hectares and fiercely defend their territories. So far we have seen 6 cassowaries—one last week at Errol Wile's tree plantation, four during our Mission Beach field trip, and one at Lake Barrine where we frequently go to buy ice cream.

The cassowary eats large, fleshy fruits and excretes the seeds intact and undigested. Because cassowaries travel long distances foraging for food and defending their territories, they disperse seeds throughout the rainforest. Cassowaries are the sole seed disperser of 100 rainforest plant species and co-disperser of another 200.

Cassowaries are an endangered species and with their extinction the rainforest ecology would change drastically. Many

plant species would not be dispersed and could possibly become extinct. Therefore, preservation of the cassowary is important to Australia's rainforests.

Valerie Hansard

Q. Do you know how many species of ants there are in the Rainforest?

*Mrs. Sandora's 2nd grade Science Class
Pittsburgh, PA, USA*

A. Australia is home to about ten percent of the world's ant species, containing at least 1,100 species of ants. Ants are a member of the family *Formicoidea*. The largest ants in the world are found here in the state of Queensland. The Queensland bulldog ant grows to 35 mm in length. Some species are considered annoying pests because of their ability to infest food and inflict severe stings.

Our biggest problem with ants is in the kitchen when they climb into the honey pot.



We have recently tried to protect our precious honey by putting a bowl of water underneath the honey jar in an attempt to prevent the ants from venturing up the sides of the sticky jar. It is also frustrating that some ants have the ability to interrupt and distract me from a beautiful view or having a peaceful moment at a quiet creek side by biting and stinging me.

Ants can also be very useful to humans because they function as scavengers, soil aerators and as predators of insect pests. On one of our field trips we also discovered another use for ants. The green tree ant lacks stingers and releases formic acid to protect itself from predators. This formic acid tastes like sour citrus fruit.

Many people in our class tried this delicacy on one of our field trips through the rainforest. Aborigines eat these ants for their taste as well as their medicinal benefits as a treatment of asthma. It is important to keep in mind that besides the impact that ants have on humans, they play a vital role in the delicate balance of their environment.

Sarah R. Good

Q. How big is the Rhinoceros Beetle?

*Mrs. Sandora's 2nd grade Science Class
Pittsburgh, PA, USA*

A. I have never seen a rhinoceros beetle, probably because they are nocturnal (active at night). From



what I have read, I know that male rhinoceros beetles have a skinny, curved horn on their heads and have black or brown bodies. The larvae (immature beetles) usually live in rotting tree trunks or compost heaps.

Besides rhinoceros beetles, there are a ton of other insects that we see often. One of our favorites is a kind of green ant that lives in the leaves of rainforest trees and is a little smaller than a centimeter. If you're fast enough to catch them you can eat them because the back of their abdomens have a really sour taste.

We also see lots of ticks, which are not so much fun. All of us have ended up with some on our skin and had to have them removed. But none of the ticks found around here carry diseases (like Lyme disease in the U.S.) and so they aren't really a big deal to us anymore.

Kristen Haley



Ken Weagle

Center Director

Faculty Essay—Research at CRS

Every student that comes to CRS is involved in detailed research projects. The students choose their project from a list that is presented by the faculty. This list usually contains eight topics, and we try to have no more than eight students per faculty member working on a project.

Students are introduced to all aspects of field research including project design, data collection methodologies, data storage, data analysis and statistics, quality assurance and quality control, and project risk management. During all phases of the project there is extensive interaction between the faculty and students to ensure the highest quality projects possible. Emphasis is also put on the write-up of the project because the ability to report project findings is essential in today's work world. The final projects are high quality research reports that in many cases result in a published scientific paper for the student and faculty member.

This hands-on method of teaching research techniques has proven itself in many ways. Recent surveys have shown that over 35% of our students continue on to graduate school and many continue research in areas similar to their SFS directed research project.

Home Connection: Adaptation Activities

For a beginning activity discuss different physical features of animals that might be found in the rainforest. Think about what helps the animal when they are finding food, moving or simply trying to survive. Think of each of these characteristics as adaptations. Make a list of the animals that you discussed, along with their special adaptations.

To better understand how adaptations work, design an animal that might live in a pond with green water and that eats worms. What does this animal look like? How big is it? What color is it? How are its mouth and body parts specialized for catching and eating its food? How does it move around? How does it hide from its predators? Draw a picture of your animal. Think of other animals that might live in unusual habitats. For example: What would an animal look like that lives on a bookshelf and eats pizza and chocolate cake. What about an animal that lives in the refrigerator and eats macaroni and cheese? The more unusual the habitat the more fun it will be!

Glossary

adaptation: a characteristic, like a body part or behavior, that helps a plant or animal survive in its environment

habitat: the place where a plant or animal lives



1. What happens to animals that cannot change when their environment does?
2. How much can a cassowary weigh? How tall is the flightless bird?
3. Why have the students been unable to see many rhinoceros beetles?
4. Since green tree ants lack stingers, how do they defend themselves from predators?

Site's Log

11/5/97

TIME: 1:00 p.m. AEST

(Australian Eastern Standard Time)

AIR TEMP: 28° C

RAINFALL: 0 mm

WX: hot, sunny and dry!

KEY:

°C=degrees Celsius

mm=millimeter

1. They may not be able to survive the new conditions and may become extinct.
2. The Cassowary can weigh as much as 80 kg or 76 lb and may grow to be as tall as to 2 m or 6 ft.
3. Rhinoceros beetles are nocturnal which means they are active at night.
4. Green tree ants release formic acid to defend themselves.

Answers to Quiz



Nov. 10, 1997

Volume 2, No. 7

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Send us your questions!

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