








RELATIONSHIPS

Everyone and everything around (and including) us is connected through relationships. A relationship is a link or tie between two things. Relationships often help living things to get energy (food) for them to survive. Non-living things can also have a connection with other non-living things. Relationships are extremely important to keep our world healthy and balanced.

Can you think of any relationships that you have?

Look at some kinds of relationships below:

<p>LIVING ↔ LIVING</p>	<p>NON-LIVING ↔ LIVING</p>	<p>NON-LIVING ↔ NON-LIVING</p>
<p>FAMILY In a family relationship the members support, protect and provide for one another. This eland mother is protecting her young calf.</p>  <p>M. Dürr</p>	<p>PHOTOSYNTHESIS Sun and plants are linked in the process of photosynthesis. Leaves change the sun's light into chemical energy (food) for the tree to grow and produce oranges.</p> 	<p>WEATHERING Over a long period of time rocks are broken down into smaller rocks and eventually into soil. Wind, water, sand and other forces may be the cause of weathering.</p> 
<p>PREDATOR & PREY All animals are part of the food chain. This lion rests after eating a springbok she worked hard to hunt.</p>  <p>M. Dürr</p>  <p>M. Dürr</p>	<p>RAIN Rain provides relief and life for many living things in Namibia. With only a small amount of rain, some frogs are adapted to breed in the newly formed rock pools.</p>  <p>P. Bridgeford</p>	<p>LUNAR CYCLE 70 % of the Earth's surface is made up of oceans. The oceans are constantly moving. This creates tides. The cycle of the moon causes this rise and fall of the water.</p> 

Relationships are flexible and change over time. These changes can have a positive and / or negative effect on the relationship. In some cases, this can cause an 'imbalance' in the natural environment.

SYMBIOTIC RELATIONSHIP: a close relationship

Symbiosis is a word that comes from the Greek language. The two parts of the word mean:
syn = to be together
bios = life

Symbiosis is a special relationship that means "living together". In a symbiotic relationship, two or more different kinds of things live together in a very close relationship. Let's investigate some symbiotic relationships!

There are THREE kinds of symbiotic relationships:

MUTUALISM

COMMENSALISM

PARASITISM



MUTUALISM: A relationship in which BOTH members benefit.



EXAMPLE: A PLANT AND A BACTERIA

PARTNER 1: "Leguminous Plant"

These plants produce their seeds in a pod. The seeds often have a lot of protein. Camel thorn acacias, sweet peas and lucerne are all leguminous plants.

PARTNER 2: "Rhizobium Bacteria"

This bacteria is special because it lives in root nodules. It is a one-celled organism that can only be seen with a microscope. It converts nitrogen gas into chemical forms (nitrates) that can be used by plants.



Lucerne is a domesticated plant that provides food for livestock. An outflow pipe from a bath provides 're-used' water for lucerne.

Rhizobium bacteria lives in nodes on the legumes' roots.



What is a nodule?
It is a small rounded lump.

Did you know?

78% of our air consists of nitrogen gas. Nitrogen must be changed into nitrates before it can be used by plants. Plants need it to grow properly.

THE RELATIONSHIP: The *Rhizobium* bacteria lives in tiny nodules on the roots of the legume plant. The *Rhizobium* produces nitrates for the legume to grow. The leguminous plant in return provides the *Rhizobium* bacteria with carbohydrates and other minerals. The bacteria needs these to survive.

CODED WORD GAME

It is difficult for some plants to grow in our Namibian soil. Plants that do not have *Rhizobium* still need to get nitrates from other kinds of bacteria to grow. These bacteria however do not survive well in dry soils. To find out what you can do to help plants grow well in Namibia's soil solve the puzzle below.

DIRECTIONS: To decode the answer, write down the letters that come in the alphabet before the letters written below.

BEE DPNQPTU UP ZPVS HBSEFO

SYMBIOTIC RELATIONSHIP: a close relationship



COMMENSALISM: A relationship where one member benefits and the other does not benefit nor is it harmed.



EXAMPLE: A BIRD AND A TREE

PARTNER 1: "Black-breasted Snake Eagle". This raptor is 55 cm tall and hunts from a perch or during flight. It lays one egg in the breeding season in a saucer-shaped nest. The nest is made on the top of a low tree.

PARTNER 2: "Camel Thorn Tree"

In the South, the Camel Thorn is a very common tree. Although it can survive in several habitats, it is often found in the desert. It grows between 2-16m high and has a wide, spreading top.

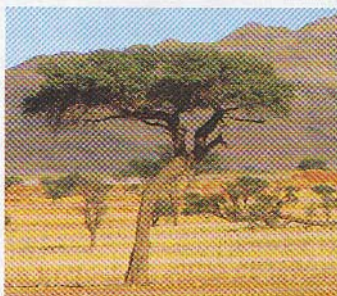


Black-breasted snake eagle



M. Durir

Nest



Camel Thorn Tree

THE RELATIONSHIP: The eagle needs to build a nest to raise its young. The nest must be in a protected and safe location. The tree provides shelter for the nest. The tree does not benefit from the nest nor does it suffer.



PARASITISM: A relationship in which one member benefits and the other is harmed.



EXAMPLE: A TICK AND A HUMAN

PARTNER 1: Hard Tick, *Rhipicephalus*

Ticks are related to spiders and scorpions. Ticks survive by sucking the blood of animals. Their elastic bodies allow them to expand quickly as they suck their host's blood. They often attach themselves to humans, pets and livestock.

PARTNER 2: "Christina"

This female human being, like all people, is a mammal. She has three brothers and one sister. She also has one daughter. Although Christina is from Maltahöhe, she is adaptable and can live in many different environments.

THE RELATIONSHIP: The *Rhipicephalus* tick needs a host animal to get its food and shelter. Christina, like other humans, can be a host to a *Rhipicephalus* tick. The tick benefits by having a home and food. Christina is harmed by the tick because the bite itches, she loses some blood and her body is vulnerable to infection and disease.

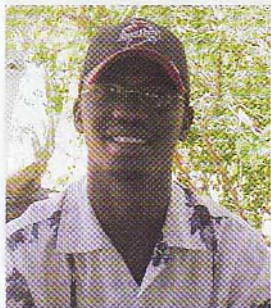


Stilene Net



Did you know? The *Rhipicephalus* tick sometimes carries a bacteria called *Rickettsia conorii*. This bacteria can cause the disease "Tick Bite Fever". Tick Bite Fever gives the host a rash, fever and a headache. Although today doctors can provide medication, it is very dangerous and can cause death.

People and Personalities in Conservation



M. Furter

Name: Erol Podewiltz

Organisation: Namibian Community Based Tourism Association (Nacobta)

Job Title: Logistics officer

No of years on the job: 3.5 years

What does Nacobta do?

Nacobta is a non-governmental organisation initiated in 1995 by communities who live in rural areas and needed to make a living out of their environment. We help the communities in identifying areas that have a tourism potential. Nacobta then helps the communities in creating business plans, marketing, product development, joint venture agreements, small grant support and training.



What are your main job responsibilities?

I am currently changing job descriptions as I am getting a new duty as Monitoring and Evaluation officer. Nacobta has a management system called Performance Indicator Database (PID). It deals with collecting information about finances, human resources, tourism and training activities. The PID information is then analysed and used to give better business advice, improve marketing and provide needed training.

How does Nacobta benefit Namibians (or local communities)?

Nacobta is trying to achieve a better living condition for people in rural areas through sustainable tourism. The organisation does not support individuals and the enterprise has to be managed by the communities or a committee from the community. This also benefits the community as locals are employed. If a joint venture takes place the community members also benefit as the money goes into a community trust or bank account.

What qualifications does someone need to work for Nacobta?

For myself, I did a community facilitators course in Johannesburg. Working for a long time in the tourism industry and by learning as you go along provides a lot of experience. For the industry, you need to be a businessperson and have management skills in travel and tourism.

What is most challenging to you in your work?

The tourism industry is very sensitive. The communities are also challenging, as at times they are very unpredictable.

Erol's message to Namibia's youth:


Work hard but also have fun. Being entrepreneurial (undertaking and managing your own business) is the 'in thing'. Be your own manager!

IS IT ALWAYS TRUE?

MINI-CONTEST

On pages 2-3, we learned about three different kinds of symbiotic relationships. Go back and look at the example of commensalism. Do you think that a bird and a tree always have a relationship where the bird benefits and the tree is unaffected? Look at the picture and enter the contest below:

Mini-Contest questions:

- 1) Name the bird that makes these nests.  What kind of symbiotic relationship do the bird and tree have in this picture? Why?



To enter the contest send your answers written on a piece of paper together with your name, address and age to:

"Is it always true?" Contest, NaDEET, P.O. Box 31017, Pioneers Park, Windhoek

All entries must be received by: 22. August 2003

First prize is a full-sized colour photograph!

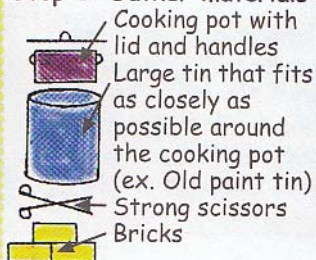
HOW TO BUILD YOUR OWN FUEL-EFFICIENT STOVE

Read page 7 for Jersay's question about deforestation!

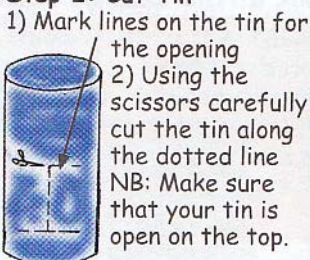
Fuel-efficient stoves are easy to make and good for the environment! Follow the easy steps below to make your own fuel-efficient stove and save on firewood and work!



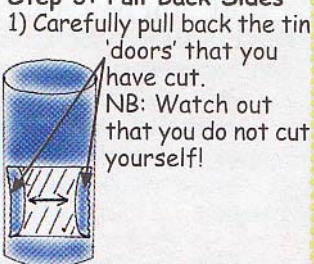
Step 1: Gather materials



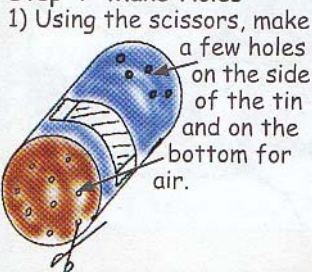
Step 2: Cut Tin



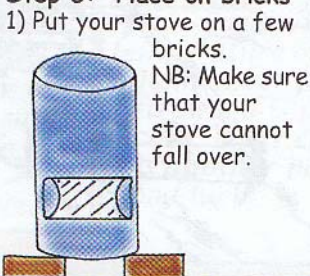
Step 3: Pull Back Sides



Step 4: Make Holes



Step 5: Place on bricks



Step 6: Cook



Drawings:
E. Kiebusch

The BIGGER Picture

The 'Relationship Balance' is Lost

We have looked at a variety of relationships, especially symbiotic relationships. There is usually a **balance** between the two partners of the relationship, even in parasitic relationships. (Remember, the parasite rarely kills its host, otherwise it will lose its ability to survive!) Are there times when a relationship does become unbalanced? Unfortunately, yes.

PARTNER 1: "The natural environment"

WCSZ/ICCE



The environment is everything in the physical surroundings. This includes the sun, air, water, soil, minerals, plants, animals and much more.

PARTNER 2: "Human Beings"

Humans are mammals that are related to primates (apes). Humans need food, water and shelter to survive. There are more than 6 billion humans in the world.



ShareNet

THE RELATIONSHIP: Human beings depend on the natural resources in the environment. For example, they use trees to build homes and to prepare food. Humans use water for their livestock, crops and to drink. The environment provides as many resources as it can. It needs time though to be able to make more resources. For example, a tree needs several years to grow from a seed into a tall tree. A dam which provides water needs rain to become full again.

Do we humans have a balanced relationship with our natural environment?
Look at the example below:

WEATHERING: SOIL EROSION

Soil erosion is a natural process (see page 1). However, humans have sped up the process of soil erosion through some of their actions. This has caused soil erosion to be an environmental problem.

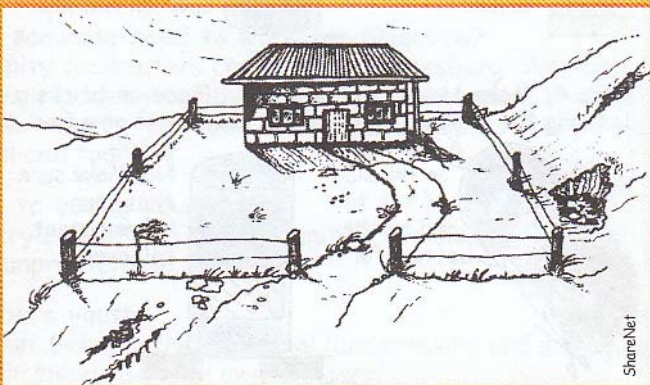
Some human actions that may cause soil erosion:

- ⊗ Cutting down too many trees
- ⊗ Overgrazing & overstocking
- ⊗ Growing crops without 'resting' soil
- ⊗ Growing crops in poor soils

The ERODED homestead

Look at the picture of the homestead. Does this look like a place you would like to live? How could the homestead be improved?

COLOUR IN the picture and draw in your solutions to fix the soil erosion problem.



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Chinga's & Nzovu's Corner



Since the last edition, Chinga and Nzovu have spent a lot of time together answering everyone's questions. By working together they have become a good team. If you have any questions for Chinga and Nzovu, please write to:

Chinga & Nzovu, NaDEET, P.O. Box 31017,
Pioneers Park, Windhoek

Dear Chinga and Nzovu,

How much does the small animal called a Damara dik-dik weigh? How old does it get? What kind of plants does a Damara dik-dik eat to become large or fat?

From Martha in Ondangwa

Dear Martha,

Damara dik-dik are the smallest antelope in Namibia. They usually have a mass of about 5 kg and can get to be 9 years old.

Because of their tiny size, Damara dik-dik eat plants that are very nutritious. They are mostly browsers. They eat seed pods, fruits and leaves. They usually do not eat grasses.

Did you know that the Damara dik-dik live in pairs and have the same mate for their whole life?

Chinga and Nzovu

Dear Chinga and Nzovu,

My parents send me to collect wood for cooking. I know that this can cause deforestation in our village, but I can't go home without wood or I will be beaten by my mom. Should I go without wood and lie to her?

Jersay in Ondangwa West

Dear Jersay,

This is a very difficult situation. It is hard to choose between your family's needs and the needs of the environment. In this case I would advise you to talk to your parents about the need to conserve firewood and limit how much you use. Here are a few things you can do:

- Keep the lid on as much as possible to keep the heat from escaping
- Use a fuel efficient stove which encloses the pot so that heat stays inside. (See page 5 to learn how to make one)
- Remember that once food is boiling, adding more wood will not increase its temperature or make it cook faster.
- Remember for the future, that firewood is not the only way to cook. Solar cooking for example is another possibility.



Good luck!

Chinga and Nzovu

Update from the last edition...

"NEW NAME CONTEST"

Thank you to all the readers who participated in the new name contest! It was very difficult to choose a new name for the former "Carnivore Times". Some of the suggestions were EnviroNews, Biodiversity Times and Nature's Network. We received a total of 26 entries. We finally chose Bush Telegraph because we felt it was fun, unique and described well what this mini-magazine is about.

A prize of an environmental education book went to:

Ashia Whitelock and her family in Windhoek

Pg 2: The name of the region is "OMUSATI"

Something to think about...

Some people would say that humans are parasites as they survive by using nature for their own advantage and give nothing in return.



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yes, please send me additional copies.

Please note that we have a new home and address. Please send all subscriptions to: Namib Desert Environmental Education Trust (NaDEET), P.O. Box 31017, Pioneers Park, Windhoek



Thank you to the British High Commission for your support for 2003!

The Bush Telegraph is written by Viktoria Paulick.