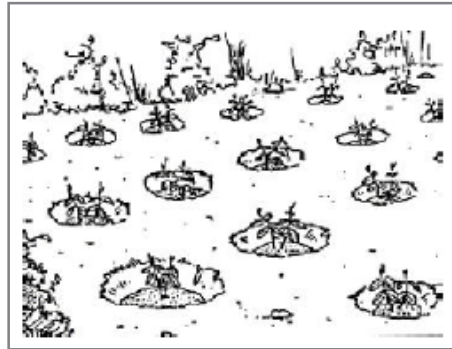


can grow under difficult conditions. You can help them get a good start by making a large planting hole - 50 x 50 x 50 cm, and fill it up with compost and old manure.



Restoring Vegetation

- ◆ Make holes and fill up with soil and compost
- ◆ Find seedlings of the trees during the rainy season
- ◆ Or find seeds and grow your own seedlings
- ◆ Dig them up and make sure you get the soil along with the roots
- ◆ Plant them in the holes and cover, but let them be lower than the ground to catch water

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HOW TO PROTECT NATURAL AREAS

What you should know about protecting local natural areas



Why protect natural areas

There are many reasons why we should protect the nature around us.

One reason is that we have no right to destroy nature just because we have the power to do so. We humans are just one of the 10-15 million different

species on the Earth, and all other organisms have just as much right to be here as us.

Why should we care if there are some of all these other species which disappear forever.

A very direct reason is that we humans need the nature - in fact we depend totally on it. There are numerous historical

examples of civilisations falling apart, because they did not manage their natural resources sustainably. The Mayas, the people of Easter Island or Iceland. The whole Mediterranean Region, the Assyrians, etc., etc. The greater the number of species, the more stable the nature is. This means that the natural systems are able to survive the changes which occur regularly. And we need these natural areas to purify the water and air. With a degraded nature, the water cycle is destroyed, and the topsoil which has been built up over centuries is washed to the sea. The looming climate changes makes us increasingly dependent on a healthy nature. Only with a large number of species can the nature be stable and support life on Earth for all - humans included. Furthermore there are the direct benefits people have of the many species.

Much tourism income is based on spectacular nature and wildlife.

Over half of the prescribed drugs in the US originate from plants, and only a fraction of the existing plants have yet been screened for medical properties.

So there are many reasons to take care of the nature around us. In the following we describe some examples.

Gwembe district - How degraded nature results in more hardship

The area of Munyumbwe in Gwembe District was flooded for several weeks in 2003 because of heavy rains. Cars and trucks could not pass the river for two weeks.

This was not only because of heavy rains. Such rains come maybe every ten years. But the problem has become much

Often the areas close to water courses are sloping, and this means they are more prone to erosion. This is why it is so important that there is a good vegetation cover. When much of the plant cover has been spoiled it is necessary to stop the rainwater from running down the hills, removing nutrients and fertile topsoil. This can be done mechanically by making terraces with stones, soil or branches. It can also be made by planting grasses like the vetiver grass along the contour lines of the slope (lines at the same level). This will stop



much of the rainwater and make it sink into the soil.

You should find a wet area, where it is easy to make a vetiver nursery. Here the grasses can multiply and you can take slips - the new shoots - and plant where you need to

stop soil erosion. (see the manual about vetiver)

Some areas are so destroyed that they need more help to be restored. This is for example if the fertile topsoil has been washed totally away. The school must then start a nursery of some plants which can help restore nutrients in the soil.

These are for example the legume plants, which all have fruits which look like beans. The pigeon pea is one of these, and it can grow on poor soil and dry conditions. You can plant these in the degraded area, and at the same time

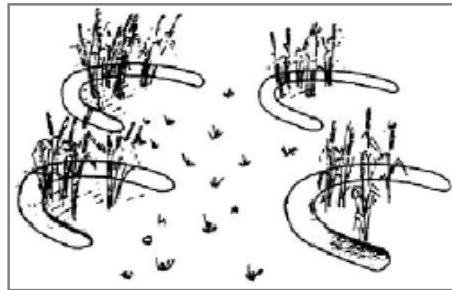


stop the erosion. After few years the soil will have improved, and other trees will start to establish themselves. You can also plant the kinds of native trees, which you know

must look for seedlings of this kind of tree. Seedlings are the very young trees which are growing from the seeds and which do not yet have a large root system. Dig carefully around these seedlings, and make sure that you get much of the soil with you, then it is often possible to move these seedlings to a new place. If all the soil falls from the roots, they will often die.

The best time to find these seedlings is halfway into the rainy season, and this will also be the best time to move them. You should plant the seedlings in the same kind of area as you found them.

It is good to make a small ridge - in the form of a half circle - on the downhill side of the planted trees. This will ensure that more rainwater will sink into the ground and your trees grow better. This system is good if the ground is not too steep. Make them two m across from end to end, and with the circle down the slope.



You can improve this further by planting vetiver grass on these small ridges.

If you cannot find any seedlings of the tree you want, then maybe you can find the seeds, and make your own seedling. The seeds must be collected during the dry season, when they are ripe. This is when the fruit opens, so that the seeds can fall out or when it is ripe so that it is eaten by birds or animals. It is normally best to let the seeds dry, and then let them soak in warm water during a night. Next day you can plant them in small containers - small plastic bags or half a plastic bottle. It is best if you can mix some old manure or compost in the soil some time before planting the seeds.



worse because the vegetation is disappearing on the hills. People are clearing new fields and trees are cut down for charcoal and firewood. When there are less trees more water flows off the hills instead of entering the ground. Much of the topsoil is carried with this rainwater and ends up in the river beds. Because the river beds are filled with the eroded material there is less space for the water, and the low lying areas are easily flooded. This was what happened in 2003. Not only were the crops destroyed by the water, but the floods also deposited a big layer of sand on the fields. The

farmers have thus lost their fertile soil and have infertile sand instead.

We do not have statistics from the area but some people were telling us that the problem has become worse over the years. This is a good example of why it is important to protect the nature.

In the Bana River system in Rajasthan, India, there was exactly the same problem many years ago. But people started planting trees and making systems to stop the water from running off. Twenty years later the water is running again in the streams and the valleys have become green again.

It is possible to restore degraded natural areas and re-establish the balances which are so important for all life.

What can you do in your area

The first step is to decide which area should be protected. Critical areas are for example water catchment areas along the streams or rivers. This is where much of the rainwater gets a chance to sink into the ground and end up as groundwater, which then supplies water to the streams into the dry season.

It must be decided what it means to protect the area. This will depend on the local conditions and various degrees of protection can be decided. If there is lack of firewood in the area one model can be to select a smaller area, which is totally protected, and a larger area outside this, where it is allowed to collect dead branches, etc.

In other areas there are trees which grow many shoots from the roots - especially after fires. In such an area it can benefit

the regrowth to harvest the smaller shoots, and let only one - the largest - develop into a tree. This applies to mopane trees, but also to many of the trees in the miombo and acacia woodlands.

Similar decisions must be taken regarding grazing of goats and cattle, which will depend on food availability in the area. The best is if it is possible to decide that no grazing is allowed in the protected area. If that is not possible, then it maybe it is possible to have a system of systematic grazing in the area. This means that animals can graze when they are together with someone who make sure that they graze one area at a time. The animals are not let back into the area until new grass has grown up.

Much destruction comes if there are frequent fires. The new small trees are killed before they grow large enough to survive the fires. It is therefore very important to

Restoring degraded vegetation in areas essential for the water balance

The first step is to find out which area it is most important to restore. This will again be the areas around the streams, rivers and lakes.

In some places it is sufficient to protect the area against fire and grazing, and the vegetation will come up again by itself - because of seeds in the ground or because new shoots come from existing roots.

In other places you will need to actively plant some of the trees which have been destroyed. Use the chance to learn about these trees by talking to the old people of your area. They can tell you which trees used to be there, and where you can find them now.

When you have found the trees which need to be planted you

prevent the protected area from burning. This can be done by making a fire belt around the protected area. Early in the dry season, when fires still can be controlled easily, a firebreak is burned around the area. It is best to do this early in the morning or late in the afternoon. The vegetation in the firebreak can also be kept low by letting animals graze there.

Other critical areas are wetlands, ponds or lakes. Normally it will not be possible to protect a whole lake, as people are using the water, fishing etc. But it can help much just to protect a part of the lake. People will find that if a part is protected, they will benefit in the form of bigger fish caught outside this area.

Such discussions must be taken at village meetings, and lead to the community selecting one or more areas to protect.