

"Environment" refers to water, soil and air and the interaction between these resources and all plants and other living creatures. Act 107 of 1998 states that "environment means the surroundings within which humans exist and are made up of the land, water and the atmosphere of the earth, micro-organisms, plant and animal life ...". The South African Conservation Act 73 of 1989 defines environment as "the aggregate of surrounding objects, conditions and influences that influence the life and habits of people or any other organism". Often people describe environmental crime as a victimless crime as the criminal actions are not levelled at specific individuals. But in fact all living species, including future generations, are victims of environmental crime.

In this article we will not be focusing on pollution, but on the conservation of plants and in particular cycads. Conservation of fauna and flora species is an increasingly topical and controversial issue, both on a national and international level. Despite the concerted efforts of independent organisations, Government and private individuals, many species face the inevitable prospect of extinction due to environmental degradation and the threat of the illegal trade in wildlife and wildlife products.

Trafficking in various forms of South African wildlife such as abalone, birds, cycads and rhino horn has been infiltrated by organised crime syndicates who make huge profits from smuggling these products on international markets. It is not easy to estimate the extent of illegal trafficking in wildlife as the number of known cases is usually very low. The illegal trading in endangered and protected species has unique characteristics which provide a formidable challenge to law enforcement and conservation officials.

Trafficking in protected flora and fauna may be the result of socio-economic need and poverty. Rural people who have no income and who go hungry every day easily become involved in the illegal trading of plant and wildlife products. The demand for certain plants, animals or animal and plant products and the huge monetary rewards of this illegal trade make it lucrative for many individuals to smuggle these products. The lucrativeness of the illegal trade in these products is evident from the many organised crime networks specialising in the smuggling and trading of protected fauna and flora in South Africa and the rest of Africa.

The slaughter of elephants and rhinos by animal poachers easily draws public attention, but plant poachers who are wreaking havoc with their shovels draw little or no attention. And no other group of plants is being plundered more rapidly than cycads.

CYCADS - MIRACLE PLANTS

People sometimes refer to cycads as "living fossils". These plants date back to the Jurassic period almost 300 million years ago and it is believed that herbivorous dinosaurs such as Stegosaurs and Iguanodonts fed on its leathery leaves. We know that cycads existed during that period because some of them have been preserved as fossils.

Although these prehistoric plants that look like squat palm trees have survived several extinction events where many of the world's plants and animals disappeared forever, they are becoming more rare as they are facing another wave of extinction - poaching. Cycads are found in several parts of the world, but the biggest concentration of the Encephalartos group of cycads is found in South Africa.

South Africa is one of the richest areas in the world for cycads as 39 different cycad species are found here, some of them are highly endangered. The poaching of cycads has always been a serious problem. Even the more common cycads are being poached which can result in common cycads of today, becoming the rare cycads of tomorrow. "Living fossils" are even "kidnapped" from botanical and private gardens.

CYCADS AT RISK

In an *Agri TV* programme that was broadcast on 12 July 2003 it was said that of the 39 cycad species that occur in South Africa, 15 species are critically endangered, 1 is officially recognised as being extinct while another 5 to 6 species are probably extinct - they just haven't been recognised and acknowledged as such. On 15 September 2004, the *Mall & Guardian* reported that two more cycad species have become extinct in the past 2 years according to data from the South African National Biodiversity Institute (SANBI).

POLLINATION OF THE OLDEST SEED PLANTS

Cycads are gymnosperms which means that they are cone-bearing, like pine trees. Sometimes people confuse cycads with palm trees and tree ferns because of their leaf shape, but they are not related to these plants. Cycads have both male and female plants and pollination (the transfer of pollen from the male plant to the female) must occur for a seed to be produced. Pollination in cycads is carried out by special beetles. When adult cycads are removed from the wild, bigger gaps between male and female plants occur that makes pollination more difficult. Without pollination, no fertile seeds are produced and no seedlings are produced to replace the old cycads when they die. Cycads in gardens are not always there for conservation reasons - remember there must be a male and female plant of the same species near each other to ensure seed production!



The leaf of an indigenous cycad - no veins can be seen

Studies have shown that insects may play a major role in natural pollination. For effective natural pollination to take place, male and female plants should be positioned quite close to each other. Unfortunately some species have been depleted to such an extent in their habitats that natural pollination does not occur at all. Plants literally occur on "islands" and the long distances between male and female plants means that natural pollination of female cones cannot take place. This is where artificial pollination has to play an important role. Personnel from nature conservation have to help with this process, to ensure that our offspring can see cycads in the wild one day. But this is not always possible as cones sometimes only occur every 15 years, and then male and female cones are not always available at the same time.

Cycads are highly prized ornamental plants that take many years to grow from seed. Depending on the species (there are dwarf species as well), a plant 3 m or 4 m tall could be 400 years old. Some plants only grow 1 cm per year depending on the circumstances.

INSECTS AND CYCADS

Not only do cycads become endangered when removing them from their natural habitats, the insects who live on them also face extinction. Many insects have a special relationship