

## Reserves can help save the oldest seed plants on earth

### SSC Cycad Specialist Group



Cycads, the oldest seed plants on earth, are now also amongst the most threatened plants in the world. Two species have already gone extinct in the wild, and continuing pressures from modern lifestyles suggest that more are likely to join them. These palm-like plants first appeared in the fossil record about 300 million years ago, well before the dinosaurs roamed the planet. Today, there are about 297 species and sub-species distributed over Africa, Asia, Australia and the New World (Americas). They range in size, from small species found under the forest canopy to tall species either growing in the forest canopy or out in the open.

### Africa

Reserves exist for 24 southern African cycad species, but 16 of these do not have adequate access controls and plants have disappeared from several of these reserves. Probably the most spectacular example is the massive decline in numbers of *Encephalartos laevifolius* in the Starvation Creek area in Mpumalanga (South Africa), where 80% of the known plants in one population were illegally removed between 1989 and 1996.

At least 25 African cycad species are included in one or more reserves. However, 13 Critically Endangered taxa and a further four Endangered and eight Vulnerable species do not appear to occur in any protected area. There is also a need to distinguish between different types of reserve and the way they are likely to function in cycad conservation. All reserves are important for reducing the effects of habitat destruction, but not all reserves will effectively reduce illegal trade in wild-collected plants. Collecting is likely to be eliminated only in reserves that have restricted access and tightly controlled entry and exit points. Despite the dramatic decline of *E. laevifolius*, 19 cycad species do occur in reserves with appropriate protection.

There is a strong relationship between initial rarity and population decline, due to collectors focusing on rare species. This means that strict access controls to reserves may only be necessary in the case of the most threatened and sought after species where there is a strong incentive to collect plants even from within protected areas. It also highlights the extreme vulnerability of threatened species that are not included in reserves.

### Mesoamerica

In Mexico, special attention is needed with respect to narrowly endemic *Ceratozamia* spp. where the expansion of coffee plantations is encroaching on habitats of *C. zoquorum* in Chiapas, and *C. mexicana* and *C. morettii* in Veracruz. Even though about 50% of the species occur in reserves there is no long-term guarantee of their survival because of clandestine deforestation and other human-related activities. However, some species in the El Triunfo and La Sepultura Biosphere Reserves of Chiapas are being sustainably managed in campesino cycad nurseries. These nursery-managed species have a better long-term survival prospect as long as the nurseries can provide a sustainable livelihood for campesino farmers. Cycads are listed, amongst other threatened flora and fauna, as a national conservation priority in Mexico.

Habitat destruction has such a large effect on New World cycads that conservation measures will only succeed if they can stop the ongoing deforestation. Establishing reserves for the most threatened species seems to be one of the only ways to protect them from rampant habitat destruction. However, at present, an inadequate number of the New World cycads occur in reserves. Panama has the highest proportion of

cycads in reserves (58%), followed by Mexico with 50%. Only 14% of the Cuban cycads occur in reserves and none of the cycads in Colombia, Peru, or Guatemala occur within reserves. Efforts are underway to establish reserves and parks in both Colombia and Guatemala.

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*Photo by J. S. Donaldson*