



NDF Workshop  
**WG 3 - Succulents and Cycads**  
**CASE STUDY 3 SUMMARY**  
*Dioon edule*  
Country – **Mexico**  
Original Language – English

## **CYCADALES IN MEXICO(DIOON EDULE).**

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The results of demographic and population genetic studies on *Dioon edule* has enabled us to elaborate a conservation strategy through sustainable utilization. We now know that within natural populations of *D. edule* there is a high seedling mortality and seed loss, largely through the prolonged dry season of the habitat. The species maintains an unexpectedly high genetic variation and that especially the seeds are a genetic reservoir. Seed harvest for propagation in the Monte Oscuro (MO) nursery is not considered detrimental owing to the natural mortality rate of seedlings in the field. However, habitat disturbance influences the population dynamics of *D. edule* as a function of adult plant persistence and elasticity matrix projection has shown that the conservation of reproductive adult plants is critical for the species survival. We recommend the reintroduction of a low number nursery grown reproductive plants rather than large amounts of seedlings. Reintroduction of nursery grown seedlings of 2, 4 and 7 year old seedlings since 1997 has shown so far a low mortality rate (ca 20%) but extremely slow growth that is consistent with findings from the demographic study. However seedlings of the same cohorts maintained in the nursery have shown a growth and leaf production rate of about five times that of the field seedlings, and reproduction events initiated after 15 years for males plants and 17 years for females. This has given us further impetus for cultivation improvement in the Botanic Garden involving root pruning and use of mycorrhiza (experiments in process). Findings will be passed on to the producers.

The project at MO is now in its 18<sup>th</sup> year and there have been some domestic sales that benefited the producers though inconsistent. Export has been so far unsuccessful. However the habitat is being conserved and illegal collecting has been discouraged. Efforts have been made to improve marketing by promoting the nursery through two sales points and a web page. We regard the following recommendations to be crucial to a project of this kind:

i) Marketing assessment is crucial during the early stages of innovative sustainable management projects.

- ii) More long-term funding is required to get projects such as this one working.
- iii) A multidisciplinary team is required for these projects especially in the fields of conservation biology, horticulture, anthropology and sociology as well as marketing expertise.
- iv) Projects involving sustainable management of threatened species should be encouraged nationally and internationally, especially within buffer zones of biosphere reserves.
- v) It is highly recommended to start first with small medium-term pilot project and grow on from this rather than to inject mega-scale funding on a short-term basis.
- vi) The species to be managed should be on the farmers' collective (ejido) or individual private property and the habitat must be an integral part of the management system in which the habitat is managed for seed, thus creating incentive to conserve. Establishing mother seed plants at the nursery is contrary to this since independence from the habitat is not recommended.
- vii) There should be a mechanism for assisting the growers during their permit renewal applications and other paperwork, since on a local basis in Mexico the farming communities are in remote communities on Reserves.