

Conservation and monitoring of Meso-American orchids

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This project aims at surveying orchid diversity, establishing long-term monitoring sites and undertaking a pilot study on DNA barcoding for conservation and trade surveillance in Costa Rica. Most projects on DNA barcoding of plants have focused on taxa (e.g. several taxonomic groups from around the world), whereas our work concentrates on a defined geographical area, Costa Rica, for one taxonomic group: the hyper-diverse family Orchidaceae (orchids). Hence, among other activities of this project, we are currently working on the development of a DNA barcode for Mesoamerican orchids, in particular Costa Rican species. The project is funded by the Darwin Initiative for the Survival of Species (14-001)



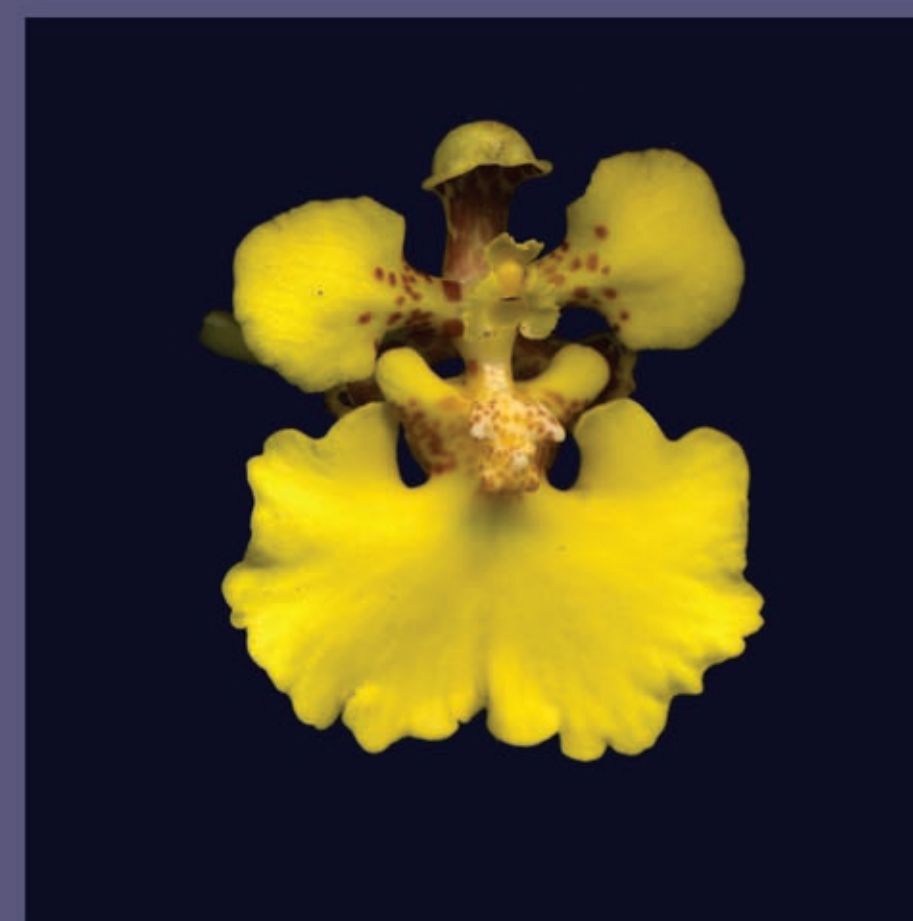
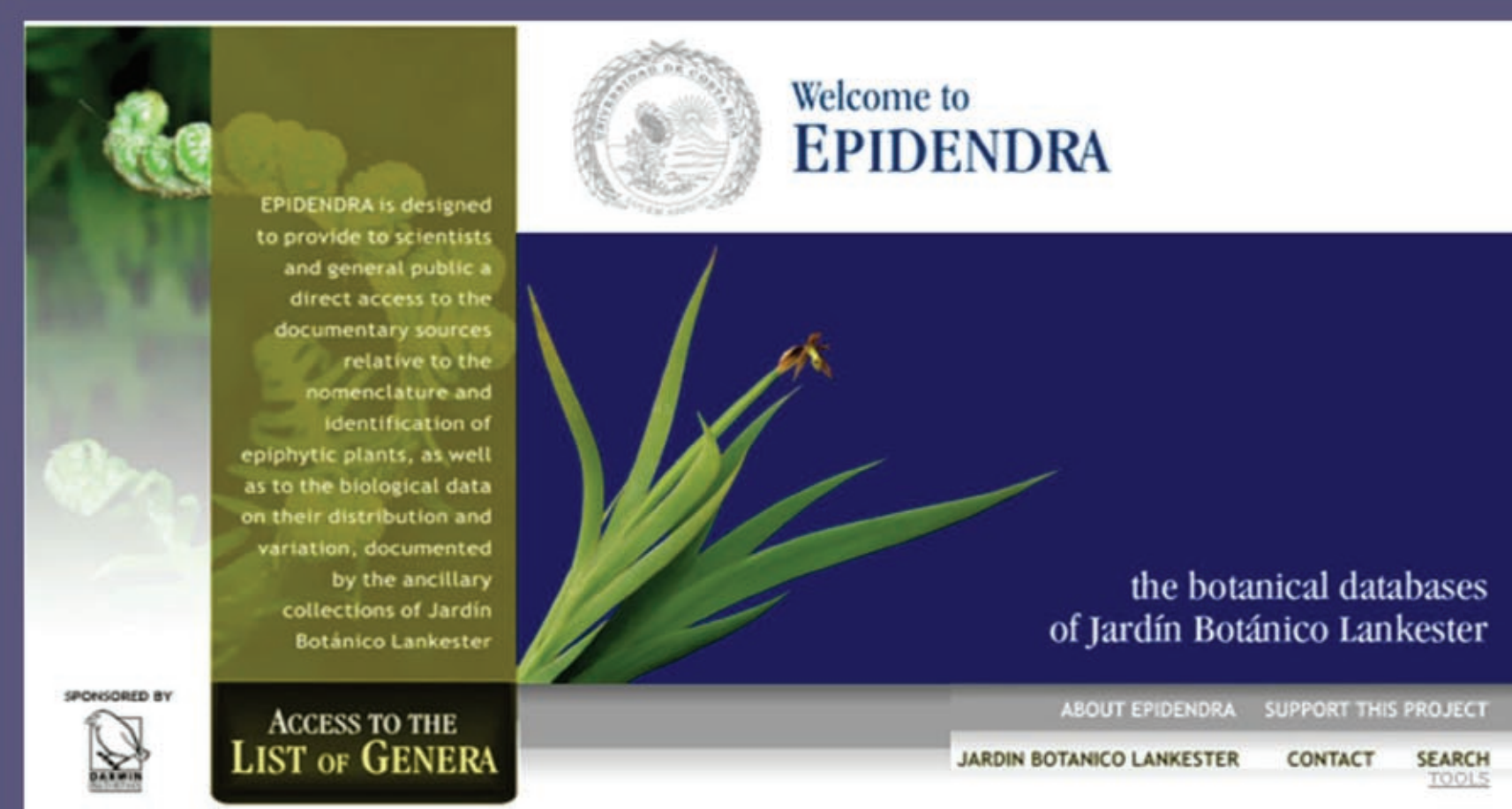
Costa Rica has one of the richest orchid floras in the world, with over 1300 species of orchids on a relatively small territory of 51,000 km². In spite of the fact that this country has a well-developed network of protected areas, the orchid flora remain under constant threat from factors such as deforestation and illegal trade. Furthermore, orchids are well known to be difficult to identify, particularly when they are sterile.

Our geographical approach on DNA barcoding, dedicated to a Mesoamerican hotspot and a hyper-diverse family, will contribute to the international initiative laid by the Plant Working of the CBOL. The use of a standardized identification tool provide many potential uses and applications, such as: identification of different life stages, identification of fragments of plant material, forensics, verification of herbal medicines/food-stuffs, biosecurity and trade in controlled species, inventories and ecological surveys.



Some important results of this project are:

- The assessment of over 1600 barcodes of Meso-American orchids
- The organization of the III International Orchid Conservation Congress (IOCC)
- Training students in GIS and molecular lab work
- Support of the Lankester Botanical Garden databases. See: www.epidendra.org
- The use of UICN Red List Assessments to develop orchid conservation in hotspots areas of Costa Rica
- Field work activities revealed new species from Meso-American area



As part of the project, we digitalized over 650 orchid specimens kept in Kew Herbarium, thereby overcoming a significant taxonomic impediment for local orchid botanist and facilitating access to systematic, ecological and biogeographical information by scientists working on Meso-American orchids



The type specimens are available for researchers and students at Lankester Botanical Garden. Most of the specimens are useful to identify Costa Rican orchids and to develop taxonomic work in countries rich in plant species around Meso-American area. As part of the activities, all digital images are available in Lankester and Kew websites

Kew
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POSSIBILITIES

The Darwin Initiative (DI) for the Survival of Species promotes biodiversity conservation and sustainable use of resources around the world (<http://www.darwin.gov.uk>). It is funded and administered by the UK Department for Environment, Food and Rural Affairs, (DEFRA).

