

Darwin Initiative: Half Year Report

(due 31 October 2008)

Project Ref. No.	16-012
Project Title	Orchid Seed Stores for Sustainable Use (OSSSU)
Country(ies)	Ecuador, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Guatemala, Mexico, China, India, Indonesia, the Philippines, Singapore, Thailand and Vietnam.
UK Organisation	Royal Botanic Gardens, Kew
Collaborator(s)	Jardin Botánico de Quito, Ecuador; University of Cuenca, Ecuador; Universidad Tecnica Particular de Loja, Ecuador; BIOFAN, Universidad Autonoma Gabriel Rene Moreno (UAGRM), Bolivia; Agronomia Faculdade de Ciências Agrárias Universidade do Oeste Paulista – UNOESTE, Brazil; Banco Base de Semillas, Instituto de Investigaciones Agropecuarias (INIA), Chile; Jardín Botánico Nacional, Viña del Mar, Chile; Fundación Jardín Botánico de Cali, Colombia; Jardin Botanico Lankester, Costa Rica; Orquideario Soroa, University of Pinar del Río, Cuba; Universidad del Valle de Guatemala, Guatemala; Jardín Botánico, Universidad Autónoma de México; Sichuan Hengduan Mts Bio-technology, Chengdu, China; Kunming Institute of Botany, Yunnan, China; Beijing Botanic Gardens, China; Institute of Botany, the Chinese Academy of Sciences; Hainan University, College of Horticulture, China; Botanic Garden of Indian Republic (BGIR), India; Bogor Botanic Garden, Indonesia; Purwadadi Botanical Garden, Indonesia; Institute of Plant Breeding, College of Agriculture, the Philippines; Mahidol University, Thailand; Singapore Botanic Gardens, Singapore; Dalat Institute of Biology, Vietnam.
Project Leader	Prof Hugh W. Pritchard
Report date	31 October 2008
Report No. (HYR 1/2/3/4)	1
Project website	Under construction

Thirteen signed MoU's have been received, representing twelve countries. We have been assured that the signed MoU's for Costa Rica and Cuba are currently on their way, which means that institutes representing 14 of the 16 participating countries have signed the agreement. In response to the urgent need to progress the signing of the MoU agreements, Philip Seaton visited the Botanical Gardens of the Universidad Nacional Autonoma de Mexico (UNAM) in March 2008. He met with Dr Javier Caballero (Director of the Botanical Gardens), Dr Gerardo Salazar (a renowned orchid specialist working at UNAM) and other interested parties from the government conservation department and amateur growers. The meeting was very positive, and we are confident that they will also sign in due course.

Philip Seaton travelled to Brazil, Ecuador and Colombia in August 2008. The main target of this trip was to obtain an agreement with, UNOESTE, in Presidente Prudente, Brazil. Philip Seaton, together with project partner Dr Nelson Neto, met with the Director and other members of the Faculty. A translation into Portuguese was provided by the university. UNOESTE signed the MoU after obtaining approval by the representative of the Legal Department at the meeting.

Having already flown to South America, Seaton took the opportunity to visit Ecuador and to meet the authorities at the Ministerio del Ambiente in Quito. Although, the authorities in Ecuador were still unwilling to sign the MoU at this time, we have every reason to be optimistic that permission will be forthcoming for Quito Botanical Gardens and the University

of Cuenca to sign (see comments below). The visit was valuable in providing a deeper understanding of the complex issues surrounding orchid conservation in Ecuador. As the original participants at the Quito workshop had left the Botanical Garden, the opportunity was taken to meet the new staff and discuss the project.

On his way to Cali in Colombia Seaton visited Bogotá Botanical Gardens, which has good micropropagation facilities, and a large living collection of orchid species. He met the Director and Alberto Gómez-Mejía (President of the Colombian Botanic Gardens Network). Both were interested in participating in a future expanded project. Seaton visited Colombia to provide support and exchange expertise in pollination and seed storage and sowing techniques, and to learn about conservation in the region of Cali. Colombia has an up-to-date Red List of orchids, an Action Plan for the conservation of *Cattleya* species. Members of la Asociacion Vallecaucana de Orquideología (AVO), professional orchid growers and staff at Cali Botanical Gardens are engaged in a reintroduction project for *Cattleya quadricolor*.

Prof Pritchard visited Kunming Institute of Botany (KIB), China, in August/September 2008 to discuss their involvement in OSSSU as a counterbalance to the current uncertainty about India and Mexico. The KIB link covers *Paphiopedilum* and *Pleione* species.

With the possible exception of India (see below), all participating institutions at the two workshops are collecting and storing seed, and submitting regular reports about their activities i.e. they are not waiting to begin the project until the formal agreements have been signed.

Our partners have trained 38 undergraduate students and 2 technicians. Dr Sánchez from the University of Cuenca and Dr Thammasiri, of Mahidol University in Thailand, have delivered training in orchid micropropagation techniques devised by OSSSU to 25 participants at workshops in Chile and Thailand respectively. Dr Thammasiri has explained orchid seed storage techniques developed by OSSSU to more than 200 participants at an Orchid Production and Marketing seminar. Margarita Palmieri has delivered two training courses to 33 people at the University Valle de Guatemala. Seaton delivered a seed sowing workshop to ten students at UNAM in Mexico as part of his visit in March, gave a talk to more than 200 undergraduates at UNOESTE, Brazil and gave a presentation about the role of OSSSU in orchid conservation to 50 members of the Cali Orchid Society.

We are in regular contact with our partners via email, telephone visits. We continue to send materials and exchange advice and expertise. For example, all partners have been sent a common formula for Knudson C germination medium to allow comparison of results across the project, and common protocols for pollination, collection, storage and germination testing.

After consultation with Harry Zelenko, a graphic artist based in Quito, Ecuador, a logo has been designed to promote the project. A web page is currently being uploaded onto the web pages for the Millennium Seed Bank Project <http://www.kew.org/msbp/index.htm> under the heading of Associated Projects and Networks. There will be links from the Kew web site to the full OSSSU web site which is being designed by Alison Lontay, a professional graphic designer who is a Trustee of Orchid Conservation International. Material has been gathered from all participating institutions, including images of people, flagship species, and information about each participant and institution. The first consolidated searchable database in the form of a spreadsheet of orchids worked on to date, including dates of pollination, dates of seed harvest and germination percentages on two contrasting media will be available to participants via a password protected link. A full launch of the OSSSU web site is scheduled for the end of November 2008.

Philip Seaton contacted Hereford and Worcester local radio regarding the possibility of an interview, alternative forms of publicity have been obtained. The project was publicised in two local newspapers (*Oeste Noticias* and *O Imparcial*) and the university web site in Brazil during the visit of Philip Seaton, and in two Newsletters of la AVO, based in Cali, Colombia. Kew Publications have agreed to publish *Growing Orchids from Seed* in Spanish. The prospective publication date is February 2009. We are currently exploring the option of

publishing the Chinese translation as a CD. Articles about OSSSU, co-authored by Pritchard and Seaton have appeared in *Samara* (a Kew newsletter; 1pp) and *Orchids* (the journal of the American Orchid Society; 12pp).

Our partners were selected for their expertise in orchid micropropagation. We have purchased and sent specialised seed storage tubes to enhance their seed storage facilities. We carried forward some budget from last year with the approval of the Darwin Initiative, and are using it to ensure the work remains on track, and budgeting for items that are likely to be slightly more expensive than originally envisaged, such as accommodating the potential volume of seed to be stored by our partners in China. We will review our strategy on sending further monies on the basis of our satisfaction with the 6 monthly progress. We are aiming to forward this money to our partners very soon.

Such is the commitment of our project partners, that we are already confident that our targets will be exceeded by a large margin. By the end of the first six months of the project 56 species (exceeding our target of 40 species by 16 species). In the last 6 months an additional 314 species have been pollinated by our partners (comfortably exceeding the 3 year target) although of these, 205 pollinations have been carried out in 3 countries, China, Costa Rica and Thailand. Realistically, other than an initial value, we do not expect all seed to be tested for germination in these 3 countries. Seed capsules representing 74 species have been collected in the last 6 months, and 70 germination tests carried out on those species.

Although there has been a delay in the signing of the MoU by the Botanical Gardens of UNAM in Mexico, the Mexican partners joined the project after the two workshops, and we are confident that they will sign the MoU.

Despite a visit, in August 2008, by Philip Seaton (OSSSU Project Manager) for a meeting at the Ministerio del Ambiente in Quito, accompanied by Pablo Lozano and Rosemarie Zelenko (representing Quito Botanical Gardens) and Dr Eduardo Sanchez (representing the University of Cuenca) we are still experiencing some difficulties with gaining permission from the Ministry for Quito Botanical Gardens and the University of Cuenca to sign the MoU. Prof Pritchard has since been invited to meet Juan Diego Stacey, Third Secretary, Commercial Section at the Ecuadorian Embassy in London. After a very positive meeting, we are confident that permission will be granted before the 3rd Andean Scientific Orchid Conference in February 2009, where Philip Seaton is due to give a paper outlining the progress made with the OSSSU project, and its importance to global orchid conservation. Diego Stacey asked for our help in promoting the conference in the UK, and we were happy to oblige through our extensive network of orchid contacts.

The Universidad Tecnica Particular de Loja (UTPL) in Ecuador, as a private institution, has signed the MoU, meeting our commitment to include Ecuador in the project. Nevertheless, we want the two other institutions to join the project, and will continue to work towards an agreement, even if this means making another visit to Quito.

Our major concern is that we have been unable to maintain strong and effective links with the Botanical Gardens of the Indian Republic (BGIR) in Delhi. Despite telephone contact, email contact has not been maintained, and we are not aware what progress is being made (if any) regarding fulfilling the aims of the project. It is our intention to write a formal letter to the authorities at BGIR and, if necessary, find another partner in India through Udai Pradhan (Chair: Indian Regional Sub-group of the IUCN Orchid Specialist Group), who originally recommended BGIR to us.

Have any of these issues been discussed with the Darwin Secretariat and if so, have changes been made to the original agreement?

Discussed with the DI Secretariat: no

Changes to the project schedule/workplan: no

3. Are there any other issues you wish to raise relating to the project or to Darwin's management, monitoring, or financial procedures? No

If you were asked to provide a response to this year's annual report review with your next half year report, please attach your response to this document.

Please note: Any planned modifications to your project schedule/workplan or budget should not be discussed in this report but raised with the Darwin Secretariat directly.

Please send your **completed form email** to Eilidh Young, Darwin Initiative M&E Programme at Darwin-Projects@ectf-ed.org.uk. The report should be between 1-2 pages maximum. **Please state your project reference number in the header of your email message eg Subject: 14-075 Darwin Half Year Report**

ORCHID SEED STORES FOR SUSTAINABLE USE (OSSU)

LOGICAL FRAMEWORK

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>Goal:</p> <p>To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but poor in resources to achieve</p> <ol style="list-style-type: none"> 1. the conservation of biological diversity, 2. the sustainable use of its components, and 3. the fair and equitable sharing of benefits arising out of the utilisation of genetic resources 			
<p>Purpose</p> <p>To create an orchid seed bank network across 16 countries to: (1) conserve, as seed, 250 species from diverse habitats of varying levels of endangerment; and (2) develop protocols for the production of in vitro plants in support of the sustainable use of threatened species.</p>	<p>Number of countries actively contributing to the science and sharing information</p> <p>Number of countries wishing to join network</p>	<p>DI annual reports, Bulletin Board traffic, etc.</p> <p>Correspondence</p>	<p>No breakdown in communication and trust between UK lead and the collaborating institutes leading to cancellation of MoUs.</p> <p>No institutional realignment</p>
<p>Outputs</p> <p>Improved 'in-country' facilities for seed storage and in vitro germination;</p> <p>Trained staff in orchid conservation biotechnology</p> <p>Data and germination protocols, and</p>	<p>16 countries</p> <p>> 32 trainees (plus cascade to many more)</p>	<p>Institutional annual reports</p> <p>Attendance lists and workshops reports</p> <p>Publications and web uploads</p>	<p>Impact of altered institutional budgets tolerable</p> <p>Loss of trained staff from institutes minimal</p>

<p>storage information;</p> <p>Training materials in Spanish, Chinese and English</p> <p>Distributed, searchable electronic database</p> <p>Advisory replies to enquiries</p> <p>Conservation collections of seeds / in vitro plants created / strengthened</p> <p>Public talks (in-country) on integrated conservation strategies and procedures</p>	<p>250 species</p> <p>1 set of guidelines on orchid seed conservation</p> <p>1 created</p> <p>Response to enquiries within 30 days of receipt</p> <p>1 multispecies collection per institute</p> <p>At least 1 per year per institute</p>	<p>Refer to OSG site</p> <p>Accessible in all 16 countries</p> <p>Correspondence</p> <p>Collections databases held locally</p> <p>Posters / web site notices and head count record</p>	<p>Species germination is not intractable</p> <p>Cost of any translation needs not increase prohibitively</p> <p>Interoperability between countries / software</p> <p>Filing is efficiently performed</p> <p>Created collections maintained adequately / continuity of care</p> <p>Publicity reaches the target audience</p>
<p>Activities</p> <p>Equipment purchase</p> <p>Information consolidation and distribution</p> <p>Species seed collected and conserved, database created</p> <p>Produce in vitro plants via germination.</p> <p>Organise and run two training courses, write and distribute training materials;</p> <p>Education programme established</p>	<p>Activity Milestones</p> <p>Y1: Sign MoUs (12/07); two training workshops (10-11/07); purchase equipment (10/07 – 3/08); initiate lab work (11/07); collect, clean, store and sow c. 40 orchid species (all year); establish and operate clearing house(CH) , and web site (3/08); design data base (3/08); public lectures (all year). Y2 (all year): Collect, clean, store and sow c. 90 orchid species; update database & operate CH; publications and lectures. Y3: Collect, clean, store and sow c. 90 orchid species; update database & operate CH; publications and lectures (all year); Y4: (all year): Collect, clean, store and sow c. 20 orchid species; update database & operate CH; publications and lectures; hold final workshop; issue final guidelines</p>	<p>Assumptions</p> <p>Export of major items from UK avoided;</p> <p>Kew access to databasing and other e-literature maintained and systems compatibility globally;</p> <p>Easy access to (targeted) species / plants / seeds continues;</p> <p>Power supply remains regular and infrastructure intact;</p> <p>Sufficient staff of appropriate calibre identified and available for the courses.</p> <p>Fits institutional priorities / timelines</p>	