Darwin Initiative Main/Post/D+ Project
Half Year Report
(due 31 October 2016)

Project Ref No	21-003
Project Title	Protecting Ugandan endemic cycads from biodiversity loss and trafficking
Country(ies)/Territory(ies)	Uganda, RSA, Thailand, China, Philippines
Lead Organisation	Royal Botanic Gardens, Kew, UK
Partner(s)	JERA (Uganda), SANBI (RSA), Nong Nooch Tropical Botanical Garden (Thailand), Fairylake BG (China), De La Salle Univ. (Philippines).
Project Leader	Prof Hugh W. Pritchard
Report date and number (e.g., HYR3)	HYR3 (1 April 2016 to 30 September 2016)
Project website/ Twitter/ Blog/ Instagram etc	
Funder (DFID/Defra)	Defra

1. Outline progress over the last 6 months (April – Sept) against the agreed baseline timetable for the project (if your project has started less than 6 months ago, please report on the period since start up to end September).

Output 1 Increased biodiversity knowledge for NDF on cycads

Activity 1.2 Conduct field study to evaluate population size, distribution, phenology and meteorological data of *E. equatorialis, E. macrostrobilus* and *E. whitelockii*.

General field work has continued. A Non-detriment Finding (NDF) was completed on the second species (*E. equatorialis*) at the end of Y2-early Y3 (April 2016). During that time the full extent of the imperilment of the species became more obvious as no fertile seeds were found. An attempt was made by Dennis and Simon (JERA) to overcome this problem by using harvested pollen to artificially pollinate some cones in the population. Whether this intervention has been successful will be reviewed during fieldwork (to remove any seeds formed, cut open and assess embryo formation) in November 2016.

The security situation on the northern border with Sudan, in the area that two further cycad species grow (including target species *E. macrostrobilus*), has continued to be monitored. We still hope that the population study (however limited) can be achieved before the end of Y3.

Some parallel fieldwork has been undertaken by DI project assistant at De La Salle University who has monitored populations of *Cycas riuminiana* for pollen sources.

Also NTBG and SANBI are working closely together on the *in vitro* germination methods for the assessmen of cycad pollen quality. Old and fresh pollen of *Encephalartos whitelockii* and *Encephalartos ituriensis (*as well as *Cycas wadei*) has been provided by NTBG to SANBI for DI research assistant Phakamani to work on.

Activity 1.4 Collect reproductive biology data for other closely related *Encephalartos* sp from Nong Nooch Tropical Botanical Garden and Fairy Lake Botanical Gardens' *ex situ* collections.

Anders Lindstrom has included phenology information from the records of NTBG (Thailand) in the 12 species reports written in the last 6 months for the Cultivation Manual.

Activity 1.5 Write two peer-reviewed papers (on population trends of Ugandan cycads and another on cycad pollen and seed biology)

One paper (a review) was drafted towards the end of Year 2 (under revision) and another has been written for the peer-review journal *Plant Diversity*: Wade EM, Nadarajan J, Yang X-Y, Ballesteros D, Sun W-B, Pritchard HW (2016 in press). Plant species with extremely small populations (PSESP) in China: a seed and spore biology perspective. This paper highlights the importance of seed biology studies on 11 *Cycas* species in China, and another ~ 100 threatened plant species in the country.

Activity 1.6 Write an e-compendium volume of *Encephalartos* biology and cultivation

Anders Lindstrom (Nongnooch Tropical BG) has written 12 more species pages for the cultivation manual: *Encephalartos bubalinus, E. chimanimaniensis, E. concinnus, E. ferox, E. gratus, E. laurentianus, E. mackenzei, E. manikensis, E. munchii, E. poggei, E. pterogonus, E. septentrionalis*. This brings the total species pages drafted by Lindstrom to 20. The target is to have detailed descriptions for at least half the species in the genus, with other species covered under cultivation groupings. Maribel Agoo (Philippines) has started writing the introduction to the cultivation manual: evolutionary history; taxonomy; world distribution; cycad morphology.

Output 2 Improved monitoring of cycad trade in and out of Uganda

Activities 2.1-2.3 Micro-chipping cycads

There have been technical challenges in transferring this technology (from SANBI to JERA). We still hope to make progress before the end of the project, on the basis that JERA will continue to monitor populations in coming years as part of the sustainability / legacy commitments. The project team are reviewing whether other monitoring tools could be improved, e.g. isotope fingerprinting which has been trialled on cycads.

Activity 2.4 Submit project report (annually) to CITES and CBD focal points before their annual report is due

In this review period, WCMC completed a 'Review of Uganda's Annual Reports to CITES' which states 'Notwithstanding the overall good quality of Uganda's reports, there were several areas identified during the review of annual reports that, if addressed, would improve timeliness and accuracy of reporting. The following provides an overview of these general areas where Uganda's CITES trade reporting could be improved:' 1) Annual reports should be submitted in accordance with CITES reporting deadlines; 2) Destination country and country of origin should always be provided for re-exports; 3) Export permit numbers should be consistently reported for all trade records; 4) Only scientific names of the species in trade are required (common names and higher taxonomy can be excluded). This report has been sent to the CITES authorities in Uganda, including: Commissioner Wildlife Conservation; Executive Director, Ugandan Wildlife Authority; Commissioner, Ministry of Water and Environment; and Executive Director, Ugandan Wildlife Conservation Education Centre. Follow-up will be possible during the final project meeting in Kampala in March 2017, when WCMC staff will visit the CITES office.

Activity 2.5 Training of Ugandan enforcement officers using the 'CITES and Cycads' training CD Rom.

The book and CD-rom were provided in Y1 and training is scheduled to be part of the final project meeting in Kampala in March 2017, when Kew staff will spend half a day with enforcement officers.

Activity 2.6 Collate trade data for *E. equatorialis, E. macrostrobilus and E. whitelockii* to understand the demand and supply chain.

See comments in Y2 Annual Report on these Ugandan cycads. In addition, Maribel Agoo (Philippines) has started to gather trade data (export/import) on cycads at CITES Manila office.

Output 3 Reduced demand for wild sourced cycads

Activity 3.2 Suitable plot for nursery agreed between JERA and the local communities in the villages of Ntarama and Karuhuguma

The gender balance of the community involvement in the nursery activity has been collated and has a F: M ratio of 13:65.

Activities 3.4-3.5 Seedling replanting and sale to local community.

Awaiting information from JERA.

Output 4 Strengthened capacity in cycad cultivation and knowledge transfer

Activity 4.2 In house (and cascade) training of other members of staff at JERA and (>50) students of Makerere University

Pritchard offered to give a lecture there during his visit in April 2016. Whilst this was agreed, the arrangements were not concluded. Pritchard has written to senior staff at the university offering his services during the week of the final project workshop (March 2017). Also the possibility of holding a Café Scientifique public event on cycads during the same week in Kampala is being explored.

Activity 4.4 Cascade training on cultivation of cycads to around 20 staffs of De La Salle University, Philippines as they develop an institutional botanic garden.

In September 2016 Phakamani Xaba delivered a Cycad Training Workshop at De La Salle University in the Phillipines for DI Project member Mirabel Agoo Esperanza and her students. JERA participation in this knowledge transfer workshop was compromised by visa issues (plans are in motion for the visit by JERA staff to the Philippines in early 2017). The university has established two small cycad nurseries so far, with 30 plants (mostly immature individuals) which Xaba advised on. He also: 1) visited two different gardens with ex situ cycads collection [one in Makiling Botanical Gardens (UPLB, Laguna) the other at Calamba Conference Center (Calamba, Laguna)] 2) gave two laboratory demonstrations on cycad cultivation, including pollen viability testing, using *Encephalartos whitelockii* and *E. ituriensis* pollen provided by DI Project partner NTBG (Thailand); 3) gave a lecture on cycad pollen biology at De Sale University; 4) gave a talk to the De la Salle Brotherhood Board, which is currently at an advance stage of planning a new botanical garden in Clark; 5) visited the future gardens site (including for cycads) of La Salle Botanic Gardens in Alviera Pampanga Real Estate Development Porac, Pampanga; 6) a fieldtrip to see *Cycas riuminiana in situ* in Mt. Arayat National Park and *Cycas zambalensis* at Mt. Pundaquit.

Activity 4.5 Ongoing training and progress meeting between JERA project manager and S. African partner (SANBI) once every 6 months.

As planned, Phakamani Xaba (SANBI) visited Uganda in April 2016 and will return in November 2016.

Activity 4.7 Present findings in scientific conference (Y2, 3), at final workshop (Y3) and public talks (Y1-3).

With the objective of sharing knowledge across the cycad community on the cultivation of cycads, including insights gained from the DI project, NTBG (Thailand) staged a 'Cycad Horticulture Conference and Workshop' from 19 -24 September, 2016. The 40 participants from 13 countries toured the new NTBG cycad nursery and looked at soil conditions and growing conditions. The next day participants visited a population of *Cycas siamensis* in habitat and visited two other cycad nurseries nearby. Days 3 and 4 were spent touring Nongnooch TBG (near Pattaya) and doing hands on work with repotting, hand pollination, both wet and dry as well as sucker removals. Every night two speakers from different countries talked about their experience cultivating cycads, including Phakamani Xaba (DI cycad research assistant, SANBI) whose participation as an invited speaker was part-funded by the project. The workshop produced a cultivation booklet that carries the DI logo.

Output 5 Community cycad projects established in Uganda

Activity 5.4-5.5 Training of local people and 'Cycads for Children' school programme

Dennis Kamoga (JERA) produced two one-page posters on 'Cycad Distribution in Uganda' and 'Cycad Reproduction' for schools education and support training of local people. These have

been used in the community and distributed to the ~30 members of the Cycad Specialist Group. Feedback was positive. For example, Cristina Lopez-Gallego commented “It is nice to see this type of initiatives for Cycad conservation, Education is definitively a fundamental component for conservation. Thanks for this” and “We are working in some educational materials for Cycad conservation here in Colombia, this will be an inspiration!“ Alberto Taylor (CSG) said “ I am supposed to uphold a Cycad (especially the Isthmian's group) conservation and protection interactive seminar in about three weeks at Panama University and these posters are right on the mark for this endeavor. Thanks galore!“ Finally, Patrick Griffith noted “These are great -- Thank you!“

Management - Communications

The Project Leader has continued regular email correspondence to partners in the project (JERA, WCMC, De la Salle Univ, Nongnooch, SANBI) on 51 days over the first 6 months of Year 3. The Project Leader visited JERA, Kampala, Uganda for one week in April 2016 to review progress in Year 2 and the workplan for Y3. This visit was carefully arranged to ensure that SANBI DI research assistant (Phakamani Xaba) was also available for the discussions. Thereafter JERA and SANBI staff conducted field work.

A summary of the Y2 report with the concluding comments of the evaluator has been distributed to c. 60 staff in CITES / CBD Offices in all partner countries (Uganda, RSA, Philippines, Thailand, China and the UK).

2a. Give details of any notable problems or unexpected developments/lessons learnt that the project has encountered over the last 6 months. Explain what impact these could have on the project and whether the changes will affect the budget and timetable of project activities.

Dennis Kamoga has been hospitalised and I am waiting for inputs to some sections of this report, e.g. Outputs 1 and 3. He will be released soon and will send his report to me by mid-November. If you approve, I can send a modified report then; or I can incorporate all details into the annual report.

2b. Have any of these issues been discussed with LTS International and if so, have changes been made to the original agreement?

Discussed with LTS:	Yes/ **No**
Formal change request submitted:	Yes/ **No**
Received confirmation of change acceptance	Yes/ **No**

3a. Do you currently expect to have any significant (e.g., more than £5,000) underspend in your budget for this year?

Yes ☐ **No** ☐ ✓ Estimated underspend: £

3b. If yes, then you need to consider your project budget needs carefully. Please remember that any funds agreed for this financial year are only available to the project in this financial year.

If you anticipate a significant underspend because of justifiable changes within the project please submit a rebudget Change Request as soon as possible. There is no guarantee that Defra will agree a rebudget so please ensure you have enough time to make appropriate changes if necessary.

4. 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 can be discussed in this report but should also be raised with LTS International through a Change Request.

Please send your **completed report by email** to Eilidh Young at Darwin-Projects@ltsi.co.uk . The report should be between 2-3 pages maximum. **Please state your project reference number in the header of your email message e.g., Subject: 22-035 Darwin Half Year Report**