Darwin Initiative: Half Year Report

(due 31 October 2014)

Project Ref No	DPLUS016
Project Title:	**Caicos pine forests: mitigation for climate change and invasive species**
Country(ies)	Turks and Caicos Islands
Lead Organisation	Royal Botanic Gardens Kew
Collaborator(s)	Department of Environment and Maritime Affairs (DEMA)
Project Leader	*Martin Hamilton*
Report date and number (eg HYR3)	*HYR1*
Project website	*http://www.kew.org/science-conservation/research-data/science-directory/projects/turks-and-caicos-islands-pine-recovery*

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).

The project started well and outputs set out for Q1 and Q2 of year 1 have been achieved. The project has been highlighted through Twitter, a blog post, articles in TCI and UK magazines, presentations at Kew and an International Conference and the Darwin Initiative newsletter. See **Appendix 1** for a full listing of Media/Publications, Community engagement, Main collections and Other activities.

Output 1: We had a successful field visit to TCI in May 2014 with the participation of 7 members of the Kew research team, 2 TCI DEMA staff and 2 members of the local community. Sampling and experimental designs were developed and tested (Output 1.1) in the field for genetics, mycology, chemistry, entomology and restoration ecology (Population Viability Analysis and water relations) and more than 550 samples were collected (Output 1.2). Samples are being analysed at the Jodrell Laboratory, Kew and results being reported during quarterly project meetings (Outputs 1.3, 1.4, 1.5).

Output 2: The *ex-situ* collection has been expanded with c.220 new seedlings (Output 2.3) grown from seed and Kew staff trained local DEMA staff on nursery standards, seed sowing techniques and pest control. As a direct result of project staff monitoring the pine population, seed collecting started earlier than planned due to environmental conditions (Output 2.1).

Output 3: Local project staff members were trained on sampling techniques and collection of monitoring data by the Kew team (Output 3.2). Local staff participated in most of field activities. Participation was limited by health issues of the local project manager at the beginning of the field visit.

Output 4: Data collection and monitoring standards were developed, field tested, refined and agreed with partners during May 2014 fieldwork (Outputs 4.1, 4.2).

2a. Give details of any notable problems or unexpected developments 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.
Between April and September 2014, a few minor issues have arisen (e.g. a hurricane and subsequent flooding as well as project vehicle maintenance issue limited local activities for several weeks), but the project team have been able to deal with these and there are no notable problems that we feel will have a lasting impact on the project budget or delivery of project activities.
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: No
Formal change request submitted: No
Received confirmation of change acceptance No

3a. Do you currently expect to have any significant (eg more than £5,000) underspend in your budget for this year?
Yes ☐ **No** ☒ Estimated underspend: £
N/A

4. Are there any other issues you wish to raise relating to the project or to Darwin's management, monitoring, or financial procedures?
Kew is currently undergoing a full restructuring of the science directorate. The project coordinator role funded by Darwin Plus is outside the scope of the restructuring; however, other posts directly involved in the Darwin Plus funded project may be impacted. Senior management have stated that all project commitments will be honoured. If significant impacts are foreseen, LTS will be notified by Kew.

Darwin Initiative: Half Year Report Appendix 1

DPLUS016

Media/Publications:

Manco, B. N. (2014). Caicos Pine Recovery Project: Saving the National Tree. Island Life and Times. Providenciales, TCI. Available at: http://www.islandlifeandtimes.com/islanders/caicos-pine-recovery/

Manco, B. N. (2014). A new lease on life for TCI's National Tree- Caicos Pine Recovery project receives funding from Darwin Plus. Times of the Islands. Providenciales, TCI, Times Publications Ltd.**:** 23.

Sanchez, M. (2014). Rescuing the threatened Caicos pine in the Turks and Caicos Islands. Blog in the Kew website: http://www.kew.org/discover/blogs/rescuing-threatened-caicos-pine

Marcella Corcoran- Tweeter during fieldwork in TCI in May 2014. https://storify.com/KewUKOTs/recovering-habitats-turks-and-caicos-islands

Kew Scientist, Spring 2014, Issue 45- Genetic diversity in Caribbean pine. Note about publication of genetic data in Bot. J.Linnean Society 174, 359 (2014) with mention to DP and John Ellermann funding.

Page on Caribbean Pine updated in the Kew internet site by M.Sanchez, available at http://www.kew.org/science-conservation/plants-fungi/pinus-caribaea-caribbean-pine

Pain, Stephanie (2014). Kew helps to rescue the Caribbean pine. Science News. Kew Magazine Autumn 2014 Issue, pg. 24

Multi-disciplinary research and international collaboration to rescue the Caicos pine forests. Darwin Initiative Newsletter: UK Overseas Territories. August 2014, pg.9. Available at: http://www.darwininitiative.org.uk/assets/uploads/2014/05/Darwin-Initiative-Newsletter-UKOTs-August-2014-v2.pdf

B.Naqqi Manco (2014) *Pinus caribaea* var. *bahamensis* habitat recovery in the Turks & Caicos Islands. Pine Rockland Workgroup Symposium 2014, Miami, Florida, USA

Green, P. W.C. e*t al*. (IN PRESS) The scope for using the volatile profiles of *Pinus caribaea* var. *bahamensis* as indicators of susceptibility to pine tortoise scale and as predictors of environmental stresses. Chemistry & Biodiversity.

Brown Bag Lunchtime Seminar Talk 'Mobilising Kew Science to save the Caicos pine' by M.Sanchez and M.Hamilton, Jodrell Laboratory at Kew. October 13th 2014.

Community engagement:

International Day for Biological Diversity activities in North Caicos, TCI. Kew and DEMA hosted half-day workshop with displays on 21/05/14. Joined by the Bottle Creek High School environmental club and several community members.

Two members of the community helped with conservation work during May 2014 fieldwork

Main collections:

- CPRP Nursery: Stock checked and new seedlings accessioned. Plants repotted and selected for planting outdoors in the farm and in the restoration plots in Pine Cay. Circa **1000 pine seeds sown with 220 germinated** up to 8th July. Pines treated for pests. **25 seedlings** from the nursery **planted out** in Pine Cay restoration plots
- **261 Pine DNA collections**: 21 mature trees in the wild with second year cones; 31 new seedlings from permanent plots and 209 new material from the nursery – 184 samples extracted and PCR analysis started
- Fungi: **166 ectomycorrhizal pine roots** in CTAB; 5 fruiting bodies; 18 DNA & root samples of other plant species - 2/3 of samples have been processed
- **35 pine needles** dried in silica for Total N analysis
- **31 Insect traps** – sent to FERA for identification
- **32 carbon filters** with chemical compounds extracted from pine needles – all samples analysed
- **462 monitoring records** from permanent monitoring plots with new seedlings accessioned, marked and recorded
- Population viability study and water stress **data collected** from all three pine islands – PVA modelling training undertaken in USA

Other activities:

- Fire breaks cleared around plots in all islands and new area for prescribed fire marked in Middle Caicos
- Broadleaf removed around pines from permanent plots with treatment
- Potential scale predators observed, recorded and collected
- Seed viability experiment laid out and started
- Rain gages installed in all pine yards for data collection