Darwin Initiative/Darwin Plus Projects
Half Year Report
(due 31st October 2020)

Project reference	DPLUS088
Project title	Addressing drivers of ecological change in Lake Akrotiri SBA, Cyprus
Country(ies)/territory(ies)	Akrotiri SBA, Cyprus
Lead organisation	UK Centre for Ecology and Hydrology (UKCEH)
Partner(s)	Joint Services Health Unit Akrotiri Environmental Education Centre
Project leader	Helen Roy and Jodey Peyton
Report date and number (e.g. HYR3)	*HYR2*
Project website/blog/social media	Researching Invasive Species of Kýpros https://www.ris-ky.info/ @RisKyAliens, Facebook

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

Despite the challenges of reduced travel with COVID-19 and the impacts that this has had on fieldwork, meetings and workshops, we are making good progress towards the deliverables of the project. Meetings are held monthly via Zoom with the project team and in addition, regular email contact is maintained.

AR1 responses:

Please see a list of requests for the HY2 report from the AR1 reviewer comments:

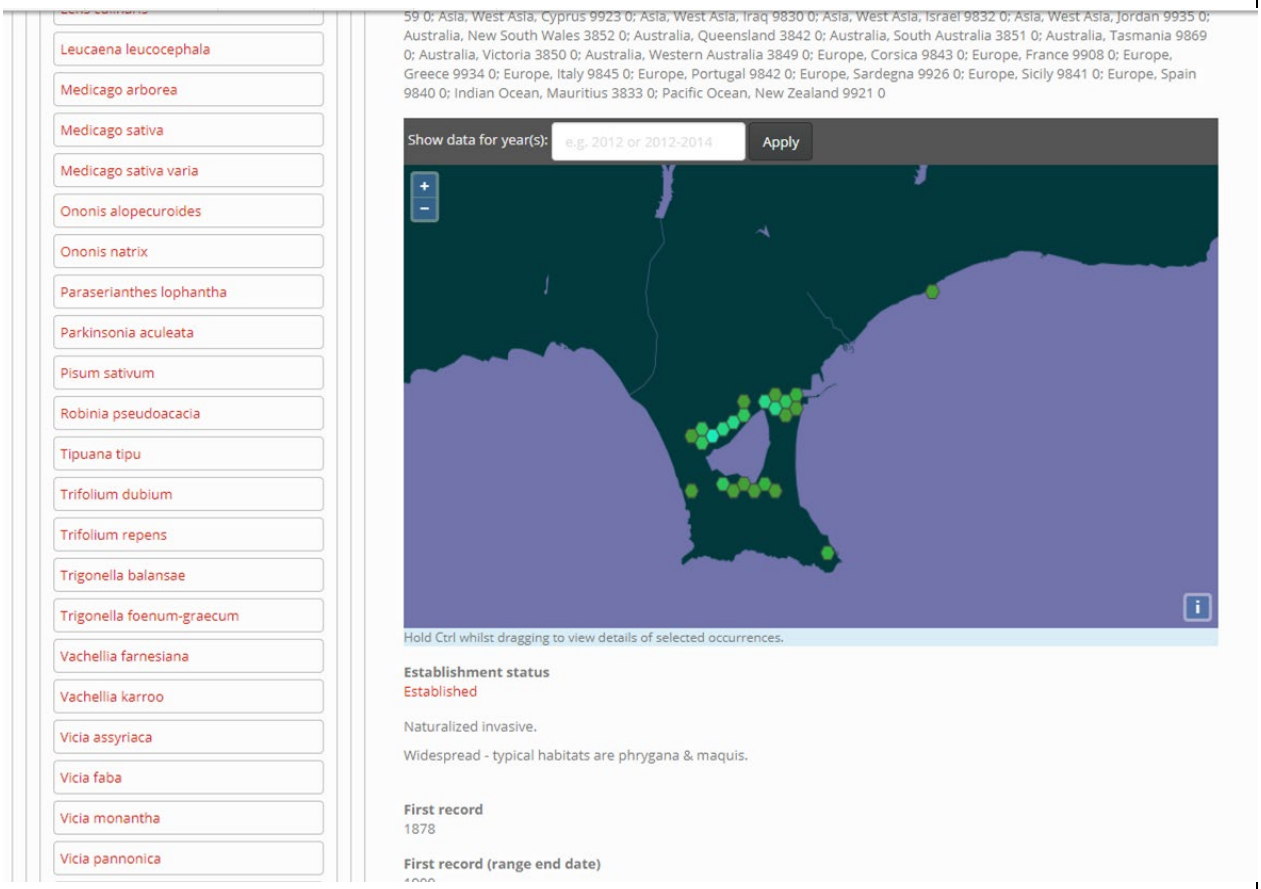
1. We have attached a work plan as requested.
2. The Akrotiri salt lake is the responsibility of the Sovereign Base area Administration, aspects of reporting and monitoring are undertaken by both SBAA and the Republic of Cyprus. Mosquito monitoring and management is the responsibility of the Joint Services Health Unit.
3. Workshop gender and profession disaggregated statistics:
    a. Horizon scanning workshop:

	Day 1	Day 2	Day 3
Female	16	16	15
Male	24	19	18
Volunteer expert	31 – 1 SBA, 11 Cyprus, 19 Other country	28 – 1 SBA, 10 Cyprus, 17 Other country	27 – 1 SBA, 8 Cyprus, 18 Other country
Student	2 – Cyprus	1 – Cyprus	1 – Cyprus
Project partner	7 – 5 SBA, 2 Other country	6– 4 SBA, 2 Other country	5 –3 SBA, 2 Other country

Reporting against project implementation plan:

Output 1: Development and maintenance of up-to-date database of INNS (Invasive Non-Native Species) in Cyprus (CyDAS) across taxa and environments, with innovative tools, potentially including mobile applications, for recording native and non-native species

Over 6,000 plant records from surveys spanning 5 years in the SBAs (including from DPLUS056 and DPLUS088) were made available on GBIF (these have already received around 4000 downloads from GBIF as of 21/10/2020). Please see the article here for more information on collation of the records. These data, along with knowledge of the locality of the UKCEH botanist on the DPLUS088 team, will be used as a proxy for ground-truthing the remote sensing data. This data directly feeds back into the appropriate CyDAS species page as demonstrated here with the records of *Acacia saligna* around Akrotiri lake.



In addition to this data mobilisation, we have also either added or edited (new photos or species account details etc.) around 150 CyDAS accounts during this project to date. As a result of these updates, we have also supplied a new set of data to the Global Register of Introduced and Invasive Species (GRIIS) Cyprus (updated 14/09/2020) team at the IUCN, and provided the data for a new GRIIS dataset specifically for the Cyprus SBAs (currently found here, but not yet updated with our contributions).

We are co-developing a Pollinator Monitoring Scheme (PoMS) app in partnership with others (We are co-developing a Pollinator Monitoring Scheme (PoMS) app in partnership with others (UK PoMS https://www.ceh.ac.uk/our-science/projects/pollinator-monitoring, SURPASS (South America) https://bee-surpass.org/) , UKCEH) for undertaking Flower Insect Timed counts as developed by POMS and adapted for PoMS-Ky https://www.ris-ky.info/poms-ky. A demonstration version of this app will be available in March 2021.

Output 2: Hydrological and vegetation sampling to generate baseline measures of Lake Akrotiri for water quality, and vegetation data for two seasons and work with local key stakeholders to understand and discuss results

COVID-19 travel restrictions meant that pre-planned fieldwork due to take place in March 2020 were postponed. Given the ongoing risks associated with fieldwork travel, UKCEH and JSHU arranged for JSHU to undertake the sampling. For quality assurance we developed a short video outlining the water sampling methods step-by-step, see the methods section here on the project website. This sampling commenced in August 2020 and has been repeated in September and October at three of the initial eight sites. The reduced number of sampling sites is due to limited access following a dry summer. COVID-19 permitting, this sampling will continue until February 2021.

Due to COVID-19 and the delayed sampling, we have not been able to share results of the water chemistry data with the stakeholders. However, the plan is to share these with the project team and wider stakeholder network at the end of the project in a final meeting.

A report for Good Ecological Status of saline water bodies is published, alongside methods for water sampling here on the project website.

A final short report on lake condition, including information from water chemistry and remote sensing data, as well as existing vegetation data, will be published in February 2021 and shared with stakeholders in advance of a wash-up meeting in March 2021. Feedback will be sought in this meeting from project stakeholders.

AEEC staff members underwent training for underwater diving and H&S, which has meant that diving surveys of INNS in some of the waterbodies in the Akrotiri peninsula is now possible.

Output 3: Employ remote sensing of Lake Akrotiri lake and environs to give baseline assessment of plant communities and land cover, linking to ground-truthing data collected in DPLUS056 and Output 2. This work will also generate methods for others to interpret satellite data for ongoing analysis of saline Mediterranean wetland site quality

Methods for habitat survey using remote sensing (drones) were developed and added to our project website here. This guidance was shared on the project Facebook site (273 members) and details of the methods will also be shared in the training sessions (outlined below).

Lake condition information from remote sensing data will also form part of the report listed in Output 2.

Due to the limitations for fieldwork for both the water sampling and remote sensing ground-truthing methods, the following additional work has been undertaken:

4. Increased water sampling undertaken by JSHU and increased analyses by UKCEH.
5. Increased engagement tools including collaborative development of a wetlands Field Studies Council chart (in production).
6. Training of SBA and JSHU staff in remote sensing techniques (four staff members) – a series of seven training sessions are being delivered virtually by UKCEH enabling SBA and JSHU staff to independently assess satellite and remote sensing imagery for the presence of INNS.
7. Increased use of existing imagery for the ground-truthing of remote sensing data.

Output 4: Generation of outreach and engagement material around species network interactions and further recording of species network data:

The Code of Practice for wetland management was published in an Open Access journal https://wiley.altmetric.com/details/79544686 along with a blog https://appliedecologistsblog.com/2020/05/28/code-of-practice-for-mosquito-management-in-wetlands/

Production of an interactive infographic on the Akrotiri wetland https://www.ris-ky.info/explore-akrotiri/

Filming of education video by the European Service Network on the methods of PoMS-Ky.

FSC wetland macroinvertebrate guide is with translators and should be finalised and printed by November 2020.

The Importance of Wetlands lecture notes are available on the project website here under "Teaching Resources". These have been shared with the AEEC education staff ready to use in lessons.

The QR codes education game is now live and ready for use in the AEEC for students and visitors.

Group PoMS-Ky surveys have not been undertaken due to COVID-19, but preparations for a manuscript are underway from existing data collected. Survey are planned for Spring 2021 COVID-19 permitting. Eleven individual PoMS-Ky surveys have been undertaken between March and May.

Output 5: Training and capacity building provided for OT government and military staff on biosecurity and continued biological recording of INNS

Meetings and planning for a biosecurity workshop with the GB Non-Native Species Secretariat (GBNNSS) and SBAA and JSHU have resulted in a plan for a cross sector Biosecurity Working Group, who will take forward the work suggested by GBNNSS and (COVID-19 permitting) run a workshop in January 2021 for this. This workshop and associated training / report / guidance has been delayed due to the impacts of COVID-19.

Biosecurity Alert for INNS poster for AEEC draft complete and shared with AEEC ready for translation and dissemination when supporting infrastructure for reporting ready.

Paper published in Frontiers in Ecology and Evolution for special issue on horizon scanning: Horizon scanning to predict and prioritise invasive alien species with the potential to threaten human health and economies on Cyprus

Meetings with community leaders and other stakeholders, regarding mosquito management in Limassol, Cyprus and with university students about protecting yourself from mosquitoes.

Workshop: **"**Monitoring and reporting on the health of wetlands in the eastern Mediterranean" being hosted by UKCEH for project via GoToWebinar on 17th and 18th February 2021. Programme being finalised over autumn 2020.

2a. Give details of any notable problems or unexpected developments/lessons learnt that the project has encountered over the last 6 months (for Covid-19 specific delays/problems, please use 2b). Explain what impact these could have on the project and whether the changes will affect the budget and timetable of project activities.

NA

2b. Please outline any specific issues which your project has encountered as a result of Covid-19. Where you have adapted your project activities in response to the pandemic, please briefly outline how you have done so here. Explain what residual impact there may be on your project and whether the changes will affect the budget and timetable of project activities.

Fortunately, the only major notable challenge experienced by the project was the loss of ability to undertake fieldwork for remote-sensing ground-truthing and vegetation and water sampling. Fortunately, mobilising datasets and use of other remote sensing imagery can be used as an alternative. Smaller issues around being unable to host in-person workshops have been/will be, overcome through using virtual workshop tools such as Zoom, Teams and GoToWebinar. LTS approved the transfer of fund from T&S to UKCEH staff time to enable increased capability to deliver training and training materials, as well as undertaking increased water sampling and remote sensing validation work.

2c. 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
Formal change request submitted: Yes
Received confirmation of change acceptance Yes

3a. Do you currently expect to have any significant (e.g. more than £5,000) underspend in your budget for this year? **Yes** ☐ **No X** ☐ 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. Please DO NOT send these in the same email as your report.**

4. Are there any other issues you wish to raise relating to the project or to Darwin's management, monitoring, or financial procedures?
NA

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 DO NOT send these in the same email.

Please send your **completed report by email** to 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: 25-001 Darwin Half Year Report**