



Department
for Environment
Food & Rural Affairs

Darwin



Initiative/Darwin Plus

Projects



Half Year Report
(due 31st October 2021)

Project reference	DPLUS097
Project title	<i>Regional-scale marine conservation through multi-territory tracking of frigatebirds</i>
Country(ies)/territory(ies)	<i>Cayman Islands, Anguilla, British Virgin Islands (BVI), Turks & Caicos Islands (TCI), Montserrat, Bermuda, UK</i>
Lead organisation	<i>University of Liverpool</i>
Partner(s)	<i>Department of Environment (Cayman Islands Government), Anguilla National Trust (Anguilla), Jost van Dykes Preservation Society (BVI), Department of Environment and Coastal Resources (TCI), BirdsCaribbean</i>
Project leader	<i>Dr Jonathan Green and Dr Rhiannon Austin</i>
Report date and number (e.g. HYR1)	<i>HYR 3</i>
Project website/blog/social media	www.caribbeanseabirds.weebly.com

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).

At-sea and onshore distributions of frigatebirds identified: In our Year 2 Annual Report (Y2AR) we explain in detail how COVID-19 induced restrictions have curtailed activities in the field by all project partners. These factors have continued to apply during the last six months (see section 2b), and have also combined with some other difficult circumstances (see section 2a). Despite considerable efforts, hopes of tracking frigatebirds from BVI have now been abandoned. Plans for a final round of frigatebird tracking in Y3 Q1/Q2 at our third site in the Cayman Islands also had to be delayed. However, we have advanced plans to conduct this work during Y3 Q3, to further boost our dataset, and will focus on tracking non-breeding frigatebirds at this colony to allow us to examine habitat use in this life stage (for which we only have a very small sample size currently).

Habitat preferences and hotspots identified: Good progress has been towards this output. State space models have been developed and applied to the data, and behaviour identified in all tracks across years and seasons for populations with high-resolution data that are sufficient to estimate behaviour. We then validated models with altitude datasets available for subsets of populations. We attempted to train hidden Markov models on data from all 7 populations in our extended database, and after much effort at model fitting found poor model fits for data from 5 populations due either to incomplete tracks (large gaps in fix rates), low fix rates or insufficient replication. Thus, we have adapted our initial analysis plan. Behaviour could be estimated in the Cayman Islands population (western Caribbean) and Anguillan population (eastern Caribbean) so we have used these datasets to investigate habitat use in Bayesian Species Distribution Models (SDMs), and validated the regional-scale habitat preference predictions made using each population's model against the other. We are also running a separate environmental space analysis on down-sampled data across the 7 populations (using the temporal resolution of the weakest dataset) to assess the stability of habitat use and likely transferability of habitat model predictions across populations in the region. The results of these models for the breeding period will be presented at the Final Workshop in November, and

models for all seasons will be finished and collected into a report / manuscript draft before the end of Y3.

Movement data from the Cayman Islands population have also been analysed by a PhD student being co-supervised by Dr Austin, to investigate the influence of wind and precipitation on bird distributions. This work was recently accepted for publication (Annexe 1) and presented by our project team at a scientific conference (3rd World Seabird Conference, October 2021).

Development of regional management strategies: Activities and outputs in this area have been adjusted as explained in Y2AR. Our agreed approach is now to liaise and act with relevant regional organisations to support them, and feed our approaches and findings into their programme of activities. Project co-leader Rhiannon Austin has been working with the BirdsCaribbean Seabird Working Group to plan and coordinate activities in this area. Upcoming activities include the Seabird Fest (<https://www.birdscaribbean.org/2021/10/seabird-fest-plans-develop-for-a-regional-caribbean-seabird-census/>) to bring those working with seabirds together to discuss ways forward for a coordinated seabird census programme in the Caribbean, with the first regional census efforts starting in 2023. Related activities include development of a regional database summarising existing population data, and plans for future population work. Dr Austin is also working with BirdLife Americas to gain funding for future seabird-related conservation efforts in the Caribbean that will feed into a review of the existing IBA network in the regional, and allow a regional update of IBA/KBAs (A representative from BirdLife International will present at, and participate in, the Final Workshop – see below for further details).

Identifying training, data and management gaps:

This Output was completed during Y1 of the project. See Y1 report for full details.

Support development and capacity building:

As noted in the Y2AR, actions for next steps in the project Supporting Activities lie primarily with the partners, and COVID-19 has influenced their priorities and capacities to action this work. During the last six months supporting activities were completed in three of the outstanding five partner UKOTs. For TCI, these comprised of a series of meetings, site visits and initial surveys led by project co-leader Austin and partners from DECR and TCI's National Trust (see Annexe 2). As we hoped that they would be, these activities were absolutely instrumental in the development of a Stage 1 Application to Round 10 of Darwin Plus entitled "*Conservation Actions for Seabirds on the Turks & Caicos Cays*" (see Annexe 3), and highlighted a pressing need for future conservation and management activities outlined in this proposed project. In Anguilla, Supporting Activity funding enabled the ANT to conduct the first comprehensive census of breeding seabirds in the Sombrero Island Marine Park Nature Reserve for 11 years. The survey confirmed the status of regionally and globally important seabird populations and the recovery of seabird populations following a recent mouse eradication (see Annexe 4). In the Cayman Islands surveying, restoration and habitat protection work was carried for different species and populations across the territory (see Annexe 5). Supporting activities are now planned for Bermuda to occur in the final two quarters of the project. There have been continued barriers to progress on Supporting Activities in BVI owing to a number of in-territory organisational pressures and constraints. This has led to agreement among project partners that funds dedicated to these activities should be reallocated among project partners at the Final Workshop who have the capability to make best use of them during the remained of the project to extend their Supporting activities (see below).

As well as the Supporting Activities, project partners were consulted on revised plans for the project's Final Workshop (see Y2AR). After further discussions with partners, firm plans are now in place for Monday November 15th (Annexe 6). We will share all findings from the tracking data to that point, and each partner organisation will present on Supporting Activities completed and planned. We will also discuss plans for further Supporting Activities that may be completed from the outstanding project budget. Finally, we will be joined by three guest speakers, requested by project partners, who will present on themes of use to the partners in future environmental research and conservation work: (1) Dr Tom Hart (University of Oxford) who will talk about remote monitoring techniques and citizen science for seabirds (2) Gaby Toscano

from Birdlife Americas who will present on review and design of a Caribbean IBA network and (3) Dr Al Bayliss from SAERI who will outline how tracking data can be used in protected site designation at sea.

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.

Our team is small and depends on key individuals with limited scope for easy replacements of personnel. Several members of the team have had to cope with challenging personal circumstances during the last six months. As noted above, this in addition to ongoing constraints imposed by COVID-19 has slowed progress against a best-case scenario, in particular our team's ability to complete planning tracking work on a number of occasions. This has been compounded by the time and energy taken to plan, and change and update our plans, with knock-on effects for overall progress. However, we continue to be adaptive in the face of these challenges and still believe that, taking into account revisions noted in the Y2AR, the project Outputs and Outcome will be achieved in the final six months of the project.

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.

COVID-19 continues to impact this project and our ability to conduct fieldwork both for frigatebird data collection and Supporting Activities, causing predicted delays in the final outputs. As noted above it now appears that we will not be able to collect new data from one of our three sites (BVI), in part because of this. We believe that we will still be able to achieve the project Outcome and Outputs, but perhaps not quite extensively as originally planned prior to the pandemic. Some Supporting Activities have had to be delayed and moved between years.

More problematically, making and continually changing field plans, and the additional tiers of bureaucracy associated with this planning, has drained valuable time out of the project, especially for project co-leader Austin. This has slowed progress on data analysis and as a result, we had to withdraw one of the planned presentations from a recent conference (3rd World Seabird Conference). This will push back our wide dissemination of project findings further towards the end of the project, and afterwards via other appropriate conferences. However, this is still a plan of our project team who remain committed to the dissemination of project outputs and their ongoing use and legacy. This is an example of the consequences of challenges that the project has faced and it may be that some outputs are slightly more limited than envisioned early on. However, considering the circumstances that we have all had to deal with since March 2020, we think that is acceptable. We also note that our reviewer picked up this point and supported it in their review of Y2AR.

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 <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Estimated underspend: £
<p>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.</p> <p>N/A</p>		
<p>4. Are there any other issues you wish to raise relating to the project or to Darwin's management, monitoring, or financial procedures?</p>		
<p>No.</p>		

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**