The Rufford Foundation
Final Report

Congratulations on the completion of your project that was supported by The Rufford Foundation.

We ask all grant recipients to complete a Final Report Form that helps us to gauge the success of our grant giving. The Final Report must be sent in **word format** and not PDF format or any other format. We understand that projects often do not follow the predicted course but knowledge of your experiences is valuable to us and others who may be undertaking similar work. Please be as honest as you can in answering the questions – remember that negative experiences are just as valuable as positive ones if they help others to learn from them.

Please complete the form in English and be as clear and concise as you can. Please note that the information may be edited for clarity. We will ask for further information if required. If you have any other materials produced by the project, particularly a few relevant photographs, please send these to us separately.

Please submit your final report to jane@rufford.org.

Thank you for your help.

Josh Cole, Grants Director

Grant Recipient Details	
Your name	Maya Wilson
Project title	The ecology, life history and conservation of the Bahama Swallow (*Tachycineta cyaneoviridis*), an endangered passerine of the northern Bahamas
RSG reference	15135-1
Reporting period	May - July 2014
Amount of grant	£5765
Your email address	mayaw@vt.edu
Date of this report	12 April 2015

1. Please indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.

Objective	Not achieved	Partially achieved	Fully achieved	Comments
Assess habitat use and availability		X		Through behavioural observations and nest searches, I was able to determine the different type of habitat that *T. cyaneoviridis* utilizes for foraging and breeding.
Assess breeding abundance and distribution		X		I initiated a capture-recapture programme and developed methods for population surveys.
Determine phenology and reproductive success of active nests		X		I located active nests in a variety of structures. Although I could not monitor individual nests due to their locations, I was able to estimate phenology based on behavioural observations.
Identify species interactions that could influence population dynamics		X		I identified several species that could impact *T. cyaneoviridis* populations, and interactions with these species will be investigated further.
Involve the local community in this research		X		See question 4
				All of these objectives have only been partially achieved because this project is expected to continue over a period of 3-4 breeding seasons (see questions 5).

2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).

Capturing individual birds has the potential to answer several questions about *T. cyaneoviridis*, including population abundance and dispersal. Since this species will not breed in nest boxes, the only viable way to capture individuals is by using mist nets. However, as an insectivore that catches food on the wing, this species can easily detect barriers and manoeuvre quickly to avoid them. Also, they only forage within the height range of the mist net (~2.5 m) in open areas with little vegetation. These circumstances require capture locations where the mist net will be less visible but still within foraging range, of

which there are very few. Additionally, the ground in the Bahamas is primarily limestone, which will not allow for the use of rebar to erect the mist netting poles.

The inability to use rebar meant that I had to use another method to keep the mist net poles up. Consultation with another researcher who had used mist nets on these islands provided me with an alternative – tying ropes to rocks, trees and other structures to stabilise the poles. I tested this method and concluded that it was not the solution to catch this species, because the areas where I needed to set up the net often did not have sufficient structures to tie ropes to. To solve this problem, I had to design and build a novel structure made out of PVC piping, various connectors, and weights (gallon jugs filled with wet sand). This setup has been quite successful, and I plan to build another to use during the next field seasons.

Determining the best locations to set up the mist net required observations of birds throughout the breeding season. I had very little success toward the beginning of the season. However, with my increasing knowledge of where the birds were likely to forage and the layout of the habitat, along with the forming of flocks as fledging occurred, I was able to catch many individuals toward the end of the field season.

I was hoping to be able to collect nest-specific data regarding phenology and breeding biology. Unfortunately, I was only able to locate one active nest that was accessible enough to monitor its status. This was mostly due to the structures that *T. cyaneoviridis* builds nests (see question 3), and so it was not something that I was able to overcome during this field season, although I will be able to monitor nests in future field seasons through the use of specialised equipment (see question 5). However, I was able to determine when some nests became inactive and estimate when nests began to fledge by the presence of fledglings on the islands.

3. Briefly describe the three most important outcomes of your project.

I was able to capture a total of 57 individuals during this initial field season. These records are the foundation of a larger capture-recapture data set that I will collect over the next several years. Capture-recapture data has the potential to provide estimates of *T. cyaneoviridis* population abundance, and the degree of movement (dispersal) within and between islands.

I located 57 active nest sites throughout the field season, in cavities in several types of structures. As previous research would predict, I found nests in abandoned woodpecker cavities in both pine snags and utility poles. I also found breeding pairs nesting in cell phone service towers and in the roofs of buildings. Knowledge of the types of cavities that *T. cyaneoviridis* will use for breeding will improve my ability to locate active nests in future seasons, and will assist in the redesign of nest boxes to encourage occupation.

In searching for *T. cyaneoviridis* and their nests throughout the islands, I was able to determine types of habitat that the species will forage and breed in. This information is vital for assessing the availability of suitable habitat and how it has changed over time.

4. Briefly describe the involvement of local communities and how they have benefitted from the project (if relevant).

I am collaborating with several organisations in the Bahamas to facilitate and promote this project, and to educate the public about *T. cyaneoviridis* and other bird species in the ecosystem. The Bahamas National Trust (BNT), the organisation that is responsible for managing all the protected areas in the Bahamas, has been very supportive of this project. I am hopeful that the results of this project can contribute to conservation strategies for the species and the ecosystem, which will require the cooperation of the local community. Aside from chance encounters with locals, there were no opportunities to directly present this project to the public during this field season. However I was able to develop a collaborative relationship with BNT and Friends of the Environment, an organisation that focuses on protecting Abaco's natural resources through educational programme. I will participate in outreach activities hosted by these organizations in future seasons, starting with an event for the Caribbean Endemic Bird Festival on 16 May 2015.

5. Are there any plans to continue this work?

This work is the focus of my doctoral dissertation, and so it expected to continue for an additional three to four breeding seasons. I will conduct the second field season from 25th March to 15th July 2015. During this 4-month field season, I will continue to collect data to assess: (1) population abundance, distribution, and dispersal; (2) life history traits and strategies; and (3) factors that could contribute to *T. cyaneoviridis* population declines. The information that I was able to gather during my first field season was key to developing this project. With this strong foundation, research assistants, and more equipment (e.g. a camera that can be used to examine the contents of nesting cavities), I anticipate that I will be able to accomplish even more in the future.

6. How do you plan to share the results of your work with others?

As previously mentioned, I will share all relevant information from this project with appropriate organisations in the Bahamas to develop effective management and conservation strategies. I will also share the results of my work in the form of a doctoral dissertation, peer-reviewed publications, and presentations at scientific meetings.

7. Timescale: Over what period was The Rufford Foundation grant used? How does this compare to the anticipated or actual length of the project?

The grant was used to cover expenses for the two-month field season, 12th May to 7th July 2014, the same amount of time as anticipated at the time that the project was funded.

8. Budget: Please provide a breakdown of budgeted versus actual expenditure and the reasons for any differences. All figures should be in £ sterling, indicating the local exchange rate used.

Item	Budgeted Amount	Actual Amount	Difference	Comments
Lodging on Great Abaco	1220	1324	-104	My lodging changed midway through the field seasons to a more appropriate location
Food	488	453	35	
Vehicle rental	1769	1159	610	I was able to rent a truck from another researcher for the second part of the field season, which allowed me to access more locations on Great Abaco Island.
Fuel	488	452	36	
RT flight from U.S. to the Bahamas	365	420	-55	
RT flights from Great Abaco to Andros	550	323	227	
Lodging on Andros	610	610	0	
Project Costs	275	970	-695	Originally not included in the Rufford Foundation budget, but I was unable to receive funding from additional sources as anticipated. Purchases in this category include all field equipment and supplies to collect and record data, including the materials to build the mist net setup.
Total	5765	**5711**	54	

Note: All costs are based on an exchange rate of 1 USD= 0.61 £ sterling

9. Looking ahead, what do you feel are the important next steps?

I will use the momentum created by the first field season to continue this important work, starting by collected as much data as possible during the second field season.

10. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did the RSGF receive any publicity during the course of your work?

The Rufford Foundation logo is featured as the funding source for my first field season on my project website (https://bahamaswallow.wordpress.com/funding-and-collaborations/), which is under development. I also used the logo in various oral and poster presentations to the Department of Biological Sciences at Virginia Tech. In the future, the logo will be included in any presentations of this research, and The Rufford Foundation will be acknowledged in any report or published manuscript.

11. Any other comments?

This project would not have come as far as it has without the funds provided by The Rufford Foundation.