

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	Population biology, life history and ecology of the Bahama Swallow (<i>Tachycineta cyaneoviridis</i>): informing conservation of an endangered bird in The Bahamas
RSG reference	21763-B
Reporting period	March 2017-March 2018
Amount of grant	£ 9702
Your email address	mayaw@vt.edu
Date of this report	5 March 2018

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
Estimate population density across pine islands				Data from transect (2015-17) and point surveys (2017) are currently being analysed.
Estimate genetic differentiation of populations				Genetic samples are currently undergoing analysis at Virginia Tech.
Determine structures used for nesting				Nest records (2014-17) provide evidence that swallow primarily use four different cavity types.
Estimate phenology and reproductive success				Nest monitoring data (2015-17) show that swallows breed April-July. Reproductive success is high across all nest stages in pine tree snags, one of the most used nesting structures. Nests in other cavity types appear to vary more.
Determine which other species are utilizing the same nesting structures				We were able to document nests of two cavity-excavating species and four other secondary nesting species (2014-17).
Determine how use of nesting cavities varies by habitat type				Different cavity types show a pattern in habitat distribution. Ongoing analysis of habitat survey data and geospatial analysis with GIS technology will provide additional information.

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

One goal during the most recent field season was to determine reproductive success on nests that were inaccessible to our camera by conducting behavioural observations. However, we ended with a smaller sample size than desired because it was difficult to locate nests that could be revisited regularly. When we did find them, they would often become inactive by the next visit. This is likely a reflection of the variable nest success in these cavity types, but it did present an unexpected obstacle.

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

This project was designed to produce information that will be useful to organisations in The Bahamas who are responsible for the conservation and management of natural resources. We are aiming to provide information on: (1) the status of swallow populations, (2) when, where, and how successfully they breed, and (3) how swallows interact with other cavity-nesting bird species.

The last official population surveys for swallows were conducted in 1995, so one of our goals is to provide density estimates of populations across the pine islands. Surveys conducted over three field seasons (2015-17) will allow us to estimate how populations vary by island and habitat type. Collaboration with the Bahama Oriole Project was essential for the design of surveys and estimates on Andros Island.

Locating and monitoring Bahama swallow nests has provided important information about which cavity types the species uses. Reproductive success is high in pine tree snags, which is one of the primary cavity types. This indicates that low reproduction is not a likely cause of population declines.

Nest records of the other cavity-nesting species indicate that cavity use varies by habitat type. Only one other secondary cavity nester uses pine tree snags, which are excavated by one of the woodpecker species. In combination with knowledge that swallows nest successfully in this cavity type suggests that managing the native pine forest is essential for the conservation of the Bahama swallow.

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

The Bahamas National Trust (BNT), the organisation that is responsible for managing all protected areas in The Bahamas, has supported this project since its initiation in 2014. Collaboration with BNT has provided several opportunities to engage the public in aspects of this project. During the most recent field season, we presented information about the swallow and other birds to primary school students in several schools on Great Abaco Island.

In an effort to continue providing information to the public, I plan to provide educational pamphlets and posters to BNT and other educational organisations.

5. Are there any plans to continue this work?

This project is the focus of my graduate research at Virginia Tech. Although field work for this project is complete, I hope to continue working in The Bahamas and the Caribbean in the future. Additional research on this and other Bahamian birds is certainly needed, and I hope that I will be able to contribute.

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

The results have been and will continue to be presented at scientific conferences, including the upcoming Bahamas Natural History Conference (Nassau, March 2018). I will submit several articles for peer-reviewed publication in scientific journals based on this work. I will also distribute a final project report to BNT and the Government of the Bahamas.

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 funds from the Rufford Foundation were used over the duration of the 2017 field season, 9 April – 12 July 2017, as anticipated.

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
Meals and water	1188	1985	797	Grocery prices in The Bahamas are very high!
Lodging	3677	6948	3271	The house I had arranged to rent for a lower rate became unavailable.
Flights	831	0	-831	Paid by other funding sources.
Vehicle expenses	2608	672	-1936	Only includes car rentals on Andros and Grand Bahama. Field truck rental on Abaco paid by other funding sources.
Gasoline	1666	0	-1666	Paid by other funding sources.
Hardware supplies for nest boxes	0	89	89	Originally budgeted for other funding sources.

*0.79£ sterling = 1 USD at time of budget for 9970£ sterling

**0.82£ sterling = 1 USD at time of transfer for 9702£ sterling

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

This project has provided a base of information on the Bahama swallow and other cavity nesting species. There is still plenty of research that could be conducted in this system, particularly to explore the use of different habitats and resources by these species. The important next step is to understand in finer detail why cavity-nesting

resources are distributed in the way that they are so that we can help inform the management of natural resources in The Bahamas.

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 has been used for several poster and oral presentations at scientific conferences. Most recently, it was used at the International Congress for Conservation Biology (Cartagena, Colombia) and the BirdsCaribbean Conference (Topes de Collantes, Cuba)

11. Please provide a full list of all the members of your team and briefly what was their role in the project.

Alexandra Rubio Rincón and Ann-Marie Carroll - Field technicians:

Every field season, this work would be impossible without the help of field technicians. Alix and Ann-Marie assisted in the collection of all data, including conducting hundreds of population surveys, and locating and monitoring many nests.

Jeff Walters

Dr Walters is my academic advisor at Virginia Tech, who provides constant feedback on the development of the questions and methods for this project.

Bahamas National Trust, Abaco office

Although **Kadie Mills** and **David Knowles** were not directly involved in data collection, the assistance with field vehicle rentals and other logistics is invaluable.

Marcus Davis was an essential resource for knowledge about the local birds and their habitats.

12. Any other comments?

This work would not have been possible without the funds from the Rufford Foundation. Thank you for your support!