Progress Report I
June 2011

THE CONSERVATION OF THE FERNS OF ANTIGUA AND BARBUDA AND THEIR FOREST HABITATS

To

Rufford Small Grants for Conservation
Environmental Awareness Group (EA)

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Cover photograph, Thelypteris cf. hispidula var. inconstans, Christian Valley, Antigua. Photo courtesy Kevel C. Lindsay, July 2011.

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ACKNOWLEDGMENTS

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BACKGROUND

This project update report is part of the *The Conservation of The Ferns of Antigua and Barbuda and their Forest Habitats* project funded by the Rufford Small Grants for Conservation, UK. The project seeks to:

- *To survey and determine the status of the ferns of the country and highlight species of critical concern;*
- *To increase the awareness of the value of native ferns and conserve and protect their habitats; and*
- *To produce a National Red List of ferns*

PROJECT UPDATE 2

This report provides a detailed account of the June 23 to July 11 field survey and assessment activities and an overview of upcoming activities and outputs.

The major activity and output for this period was the visit to Antigua and Barbuda during the weeks of June 23 to July 11. The field survey targeted specific sites and areas of Antigua and Barbuda, and focused on the rare species of ferns, species not observed in Antigua for the last 20 to 30 years or more, on the specific relationships of ferns and certain habitat types and plant community associations, human activities and threats to the species and on conservation issues and challenges.

A detailed report of the visit is provided below.

BRIEF OVERVIEW

The objectives of the field survey and assessment were to:

1. Survey and assess of fern species;
2. Survey and assess fern habitats and issues; and
3. Consult with local agencies and individuals on issues related to fern conservation.

A total of 18 days were spent in the field, with one day in Barbuda, visiting over 30 sites were visited and 55 fern species observed. I made a presentation on the project to the Environmental Awareness Group monthly members meeting on June 28, 2011. A copy of the presentation text is provided in Appendix II, and photos in Appendix I.

SITES VISITED

I visited about 32 sites and locations, on some days with the assistance of volunteers, including Christ Pratt of the Environmental Awareness Group, and Adriel Thibou of the Forestry Division and John Knowles of The Nature Conservancy, who worked with me to map vegetation communities of Antigua and Barbuda during part of my visit.

Table 1.0 below provides a list of the sites visited, which included:

SITE	ISLAND	GEOLOGIC AREA
All Saints	Antigua	Central Plain
Body Ponds	Antigua	Volcanic
Boggy Peak West Side	Antigua	Volcanic
Christian Valley Landslip	Antigua	Volcanic
Christian Valley Main Ghaut	Antigua	Volcanic
Christian Valley Waterfall	Antigua	Volcanic
Crabbs Peninsula	Antigua	Limestone
Dark Valley	Antigua	Volcanic
Darkwood Ridge	Antigua	Volcanic
Doiggs	Antigua	Volcanic
Fig Tree Drive	Antigua	Volcanic
Fig Tree Ghaut	Antigua	Volcanic

SITE	ISLAND	GEOLOGIC AREA
Fitches Creek	Antigua	Limestone
Great Bird Island	Antigua	Limestone
Green Island	Antigua	Limestone
Hawksbill	Antigua	Volcanic
McNish	Antigua	Volcanic
Midway Ridge	Antigua	Volcanic
Midway Ridge to Upper Christian Valley	Antigua	Volcanic
Northsound	Antigua	Limestone
Palmetto Point	Barbuda	Limestone
Rock Peak 1	Antigua	Volcanic
Rooms	Antigua	Limestone
Saddle Hill	Antigua	Volcanic
Sawcolts	Antigua	Volcanic
Sherwood Forest	Antigua	Central Plain
Shirley Heights	Antigua	Limestone
Sugar Loaf	Antigua	Volcanic
Tremontania Ghaut	Antigua	Volcanic
Upper Dunnings	Antigua	Volcanic
Wallings	Antigua	Volcanic
York Island	Antigua	Limestone

SPECIES ENCOUNTERED

Of the 55 species of ferns were encountered, two were species that had not been seen in the last 15 to 100 years, and at least two were new records for the island: *Thelypteris* cf. *hispidula* var. *inconstans* (see cover photo), and *Ophioglossum* cf. *harrisii* (photo 7.0).

The team also rediscovered *Heliconia caribaea* (see photo 10.0), a species that has been not been observed in the wild in Antigua since the mid-1990s, and not officially recorded since 1964 when David Harris wrote his account "*Plants, Animals and Man in the Outer Leeward Islands: An Ecological Study of Antigua, Barbuda and Anguilla*." Unfortunately, the plants encountered were very few and were young plants perched precariously on the crumbling sides of a dry stream bed. Searches in the surrounding forest did not turn up any additional plants.

The team also found an unidentified *Catesbaea* species at Mill Reef on the easternmost side of Antigua (see photo 11). This plant, a thorny member of the Rubiaceae needs further study and collection to determine its relationship to the two known species of *Catesbaea* (*C*. *melanocarpa* and *C. parviflorum*) already known from Antigua and Barbuda. Although this may turn out to be an unusual form of the small shrub *C. parviflorum*, there are many characteristics of the plant that demonstrate that it may be a different species.

Also discovered were possibly a new orchid species, *Bletia patula* (see photo 9.0) and a new *Ruellia* species (see photo 8.0). These new discoveries and rediscoveries provide clear evidence that studies such as this fern project are vital for our understanding of islands' biodiversity and ecology, and that there is still a great deal of work needed to further our knowledge and conservation of these species and their habitats.

The photo section in Appendix I below provides a visual display of some of the sites, species and issues encountered during this visit.

Of the 55 species observed, about 23 are very rare, meaning that they were encountered in less than 10 sites and/or the population was less than 20 individual plants or colonies, or uncommon to rare (found at 20 sites or less, and/or fewer than 10 individual plants/colonies of plants found at any location) . These fern species of concern include:

SPECIES	CONSERVATION STATUS	NOTES
Adiantopsis radiata	Rare	
Adiantum fragile	Rare	
Anemia adiantifolia	Rare	
Asplenium serratum	Rare	
Campyloneurum repens	Rare	
Cheilanthes microphylla	Rare	
Ophioglossum cf. *harrisii*	Rare	See photo 7.0
Ophioglossum cf. *reticulatum*	Rare	See photo 6.0
Phlebodium cf. *decumanum*	Rare	
Phlebodium cf. *pseudoaureum*	Rare	
Pityrogramma chrysophylla var. *gabrielae*	Rare	The Antigua population only. The Redonda population seems stable.
Psilotum nudum	Rare	
Pteris longifolia	Rare	
Thelypteris cf. *nephrodioides*	Rare	
Thelypteris hispidula var. *hispidula*	Rare	See photo 4.0
Thelypteris hispidula var. *inconstans*	Rare	See cover photo
Thelypteris patens	Rare	See photo 5.0
Thelypteris pennata	Rare	
Thelypteris poiteana	Rare	
Trichomanes cf. *angustifrons*	Rare	
Trichomanes cf. *kapplerianum*	Rare	
Trichomanes cf. *ovale*	Rare	
Vittaria cf. *gramminifolia*	Rare	

NEXT STEPS

Follow-up activities over the next four months include:

- Analyzing and assessing field data, including photos;
- Preparing the draft Red List of ferns;
- Preparing a short note on the project for the EAG website (for August 2011);
- Preparing a resubmission of the fern proposal for the Mohamed Bin Zayed Species Conservation Fund (a proposal was submitted in October 2010, and though we did not secure funding, I have been asked to consider resubmitting a proposal for round one of this year's request; deadline July 31. I will be resubmitting a proposal to continue work on the ferns).
- Prepare for a possible follow-up field survey trip in October 2011; and
- Prepare an article on the project for the EAG quarterly newsletter.

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Appendix I

PHOTO ESSAY: SITES, SPECIES AND ISSUES

All photos courtesy of Kevel C. Lindsay.

Photo 1.0. Kevel Lindsay making a presentation on the fern project to the EAG members

Photo 2.0. Adriel Thibou, Director of Forestry guiding Kevel up Christian Valley, Antigua.

Photo 3.0. Fern and moss festooned rocks at upper Dunnings Valley, Antigua.

Photo 4.0. *Thelypteris hispidula* var. *hispidula*, first record in the country since the mid-1990s.

Photo 5.0. *Thelypteris patens*, the first record for Antigua since possibly the early 1960s.

Photo 6.0. *Ophioglossum reticulatum*, a new species record for Antigua.

Photo 7.0. *Ophioglossum* cf. *harrisii*, a new Antigua fern record and a West Indian endemic.

Photo 8.0. Ruellia sp., a new record for Antigua and currently still to be completely identified.

Photo 9.0. An orchid, likely *Bletia patula*, a new Antigua record. Plants are threatened by annual wildfires.

Photo 10. *Heliconia* cf. *caribbaea*, a species not seen in the wild since the early 1990s discovered in Christian Valley by Kevel Lindsay and Adriel Thibou this past July.

Photo 11.0. An unidentified *Catesbaea* sp. discovered this past July at Mill Reef, on the dry eastern limestone area of Antigua.

Appendix II

PRESENTATION TO EAG MEMBERS MEETING, JUNE 28, 2011

On the Hunt for Ferns in Antigua, Barbuda and Redonda

Kevel C. Lindsay
June 28, 2011

EAG Members Meeting

I have long been fascinated with native ferns. I recall that during my childhood, back on my grandfather's farm at Jonas Road, when we were out with the cattle and the sheep, I would wander off for hours, exploring the hills at Morris Looby or the strange riparian woodlands near Potworks—where I saw my first Protonotary Warbler—and I would be captivated by the strange ferns, at the time, I didn't know what their scientific names were. I was about 14 at the time, and in those days, I didn't have the Internet, or Howard's Flora of the Lesser Antilles, or could not rely on colleagues such as Chris Pratt.

Having graduated college and then working at the Ministry of Agriculture, I began to slowly understand the native vegetation of Antigua. Ferns loomed large in my interest. That young explorer in me still had that urge to go out and seek, find and learn. I began to collect native ferns and grow them in a "greenhouse" to learn more about them. I poured over books, spoke to people and developed my own ideas.

After leaving Antigua in 1999, much of that early knowledge about ferns became fractured, and some of it had faded. I got back into exploring the islands' native ferns

when I began work on the Antigua-Barbuda Plant Project. I became convinced that Antigua and Barbuda had far more species than had been previously listed, and I began to record as of the details as I could. It was over the last four years that I decided not only to document our native ferns, but also to increase the awareness about them.

Today, with some support from the Rufford Small Grants for Conservation, UK, I am working on "*The Conservation of the Ferns of Antigua and Barbuda and their Forest Habitats*" to:

- ✓ Survey and determine the status of the ferns of the country, and highlight species of critical concern;
- ✓ Increase the awareness of the value of native ferns and conserve and protect their habitats; and
- ✓ Produce a National Red List of ferns.

To do this, I am:

(1). Conducting field surveys and recording of all native ferns of the three islands;
(2). Collection specimens for the confirmation of the species identifications by trained experts;
(3). Researching the causes and effects of fern decline; and
(4). GPSing and mapping key species and habitats;

In doing fieldwork, I am focusing on:

- marshes and other wetlands for rare and threatened aquatic ferns and to document the threats and conditions of these areas;
- Upland moist and seasonal forests in the southern hills of Antigua;

- Riparian forests in southern parts of Antigua;
- Limestone forests in the central and eastern parts of the island
- Limestone caves and blue holes in Barbuda; and
- Seasonal upland forests on the western and northwestern end of Antigua.

So, what is it that we will produce at the end of this effort in April 2012?

We will produce:

(1). A conservation Perspective report; and
(2). A local Red List of ferns.