

**A. Title of Proposed Project**

Long-term Bird Monitoring in the Caribbean – Why, What, Where and How?

**B. Cover letter signed by the authorized representative of the firm.**

Please see attached letter.

**C. Contact Information of the Firm**

- Name of Firm: Society for the Conservation and Study of Caribbean Birds
- Name of Contact Person(s): Ann Sutton
- Address: Marshall's Pen, PO Box 58, Mandeville
- Country: Jamaica
- Telephone: Home Office: 876 904 5454 Mobile: 876 877 7335
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- Email: [asutton@cwjamaica.com](mailto:asutton@cwjamaica.com)
- Website: [scscb.org](http://scscb.org)

PAGE 2:

**E. Project Summary: An abstract of the proposal (200 words or less) both in English and Spanish.**

The SCSCB is proposing the project “Long-term Bird Monitoring in the Caribbean – Why, What, Where and How?” to take place in the insular Caribbean plus Trinidad and Tobago. SCSCB’s Working Groups (including Monitoring, Waterbirds and Seabirds) have been working since 2003 to identify gaps in regional monitoring strategies for birds. These include weaknesses in every step of the monitoring process, from the availability of trained field biologists to the use of the results of monitoring in regional and national policy and conservation and protected area management. The goal of this project is to establish a Caribbean partnership to promote migratory bird monitoring as a means to improve conservation and management of birds in the region. This will be done by collaboratively developing a strategy for building capacity and starting to implement it at a regional workshop. Target audiences will include senior decision-makers and protected area managers, project managers, field biologists, volunteers, funding agencies and international organizations. Products will include a Caribbean Strategy for Capacity Building for Bird Monitoring, training manuals for developing monitoring programmes and for monitoring major groups of birds and supporting activities (such as fund raising and the use of volunteers). Efforts will be made to promote distance learning techniques and on-line access to materials.

## PAGES 3-18:

### **F. Project description (Maximum sixteen pages) - A description of the proposed outcome (product) of the project.**

#### **Rationale:**

The Caribbean region, formed by an archipelago of more than 7,000 islands and islets, occupies the fifth position in the list of the world's 25 biodiversity hotspots (Myers et al. 2000). This region is only surpassed in number of species and endemism by the tropical regions of the Andes, Sundaland, Madagascar and Brazil's Atlantic Forest. Three percent of endemic vertebrates world-wide are of Caribbean origin, given that 51% of the region's 1,518 vertebrate species are endemic. Birds, with 668 reported species, form the largest group of vertebrates. Of these, 148 species (22%) are endemic to the region, with 105 species being restricted to single islands.

The diverse Caribbean avifauna includes more than 120 migratory species that breed in North America, but use insular habitats as wintering or stopover sites. Species showing population declines in North America like the Cape May Warbler (*Dendroica tigrina*), Northern Parula (*Parula americana*), Black-throated Blue Warbler (*Dendroica caerulescens*), Palm Warbler (*Dendroica palmarum*) and Prairie Warbler (*Dendroica discolor*) are common migrants in the Caribbean. In addition, the region provides the only known wintering grounds for the globally endangered Kirtland's Warbler (*Dendroica kirtlandii*) and Bicknell's Thrush (*Catharus bicknelli*), as well as to the possibly extinct Bachman's Warbler (*Vermivora bachmanii*). Like landbirds, a high number of aquatic bird species, seabirds and shorebirds are found in Caribbean wetlands and coastal habitats during their non-breeding seasons. Some of these species spend as much as eight months of the year in the region.

In spite of the critical importance of Caribbean ecosystems for resident and migratory bird species, only 11.3% of the region's primary vegetation remains (29,840 km<sup>2</sup> of 263,500 km<sup>2</sup>). This dramatic habitat loss has been mainly related to activities of a highly dense human population, estimated in 37.5 million, with an annual growth rate of approximately 2.5%. Natural forests are expected to continue shrinking as more land is used for agriculture, cattle raising, and urban development. In addition to these threats, Caribbean avifauna is affected by competition with invasive species, illegal hunting and trade, as well as the regular passage of hurricanes and tropical storms that destroy prey resources, and nesting, roosting and foraging sites. The unsustainable use of Caribbean natural resources and climate effects, which have already threatened with extinction 56 resident species, also represent a challenge for the conservation of Neotropical migrants on their wintering grounds.

Management programmes for the protection and restoration of habitats in the Caribbean are of utmost importance given the diminishing availability of primary habitat. While monitoring the number of species and individuals using resources can be used to assess the outcomes of these programmes, it can also provide an opportunity to implement adaptive

management practices. Being highly diverse, easy to detect and better known than other vertebrate groups, bird species are the best available indicators of overall habitat quality.

Estimating population sizes is a basic step toward the development of management and conservation strategies, but despite the region's critical importance for avian biodiversity, there are currently no regionwide monitoring programmes that can provide data on the status of migratory species or the extent to which conservation efforts in the region meet their needs. Instead very little data exist on species presence or number of individuals, mainly coming from scattered short-term projects. Nevertheless, a regionwide programme is needed to assess the gaps in protection, evaluate strategies for addressing threats, improving implementation of protected areas, and understanding migration patterns and population trends related to ongoing and expected impacts of climate change. Developing such a regional programme would require a coordinated effort to design a common protocol for monitoring landbirds, waterfowl, shorebirds and seabirds throughout the region, train personnel in field monitoring techniques, and provide funding to implement the programme in the long term.

The Society for the Conservation and Study of Caribbean Birds (SCSCB) is the leading non-governmental organization dedicated to the protection of the region's bird species and their habitats through research, education, conservation action and capacity building (Sorenson 2008). SCSCB has c.300 conservationists and researchers among its membership, including representatives of 23 of the region's territories and states, and of all NGOs and government agencies working with avian conservation in the islands. The broad expertise of its members has provided SCSCB the opportunity to examine the major challenges for the protection of Caribbean bird species, particularly through the efforts of the Monitoring and Seabirds, Waterbirds and Wetlands Education working groups. As a result, reports prepared by these working groups have identified the need to develop the capacity in the region for monitoring the status of birds and their habitats (see [scscb.org](http://scscb.org)). In doing so the following main two issues have been identified:

- The need for monitoring is not widely recognized among government agencies, protected area managers and project managers, and
- When agencies recognize the need for monitoring, there are many problems that inhibit the development of effective monitoring programmes, including:
  - Lack of skills and confidence to conceive monitoring programmes that address the information gaps in a cost effective way. Very often this means that monitoring is not implemented because it is expected to be too difficult to develop and too costly and time-consuming to implement.
  - Monitoring programmes are sometimes developed that do not provide answers to the questions that face natural resource managers.
  - Monitoring programmes are not always statistically robust.
  - The results of monitoring programmes are often not presented to decision-makers in a format that they can use.
  - There is a shortage of people with the relevant skills to develop and implement bird monitoring programmes

- There is a shortage of funds to implement monitoring, particularly for long-term programmes.
- There is no regional repository for monitoring data, and thus the cumulative usefulness of individual monitoring programmes is missed.
- There are several local regional and international monitoring programmes in the region but there is little coordination and so opportunities for synergies are being lost.

### **Project Goals and Objectives:**

#### *Goal:*

The proposed project intends to build capacity in the Caribbean region to monitor migratory bird populations and thus collect data that can be used to direct adaptive management programmes. This goal will be implemented through a partnership with international and local agencies and non-governmental organizations to ensure that conservation and management of migratory birds in the Caribbean region meet their needs and is based on the best available scientific information. The partnership will be developed with The Nature Conservancy (TNC), the National Aviary (NA), BirdLife International (BLI) and the USDA International Institute of Tropical Forestry (ITF) which have ongoing or proposed monitoring programmes or related activities in various islands. We also expect to engage many other local organizations that are actually or potentially involved in monitoring. SCSCB along with these organizations will design and initiate a coordinated regional programme intended to promote monitoring as a means to provide relevant information to decision-makers and protected area managers.

#### *Objectives:*

- Develop a capacity-building strategy for the provision and use of monitoring data on migratory birds and their habitats in natural resource management.
- Design a common protocol that can be used to monitor migratory landbirds, waterfowl, seabirds and shorebirds in the Caribbean region.
- Host regional workshops to implement the capacity building strategy.

### **Project Activities and Methodologies:**

Project implementation will consist of the following:

- Establish a regional conservation coalition to promote and coordinate monitoring.
- Develop a regional strategy to build capacity for bird monitoring and the application of its results to natural resource management by holding an experts meeting. This will develop the draft strategy and design in detail

how the regional workshop can begin to implement it. It will also identify and develop training materials on-line delivery methods and, monitoring protocols and other materials for the training workshops. These will initially be developed in English but will be translated into Spanish.

- Begin to implement the capacity building strategy by holding a regional bird monitoring training workshop.
- Provide more in depth training for selected persons through follow up activities that will include provision of in depth training for at least 3 persons from participating countries which have the best prospects of establishing monitoring programmes, as well as the development of at least one project proposal to fund the implementation of monitoring.

### **Training workshop:**

The training workshop will be designed to build local capacity to address all the issues that we have identified as limiting factors to designing, implementing and using the results of monitoring. They will be targeted at all the groups of people who are involved in monitoring at all phases of the cycle, including decision-makers and natural resource managers in government agencies, protected area managers, scientists employed to government agencies, protected areas and NGOs, volunteers and funding agencies.

The outline of the workshop will be as follows:

Day 1: Adaptive management and the importance of monitoring, how to design monitoring programmes, other administrative and capacity issues related to capacity development

Day 2: Funding, use of volunteers, networking.

Day 3: a.m. Landbird and habitat monitoring – Point count in the morning, data analysis and interpretation in the afternoon. Night birds at dusk.

Day 4: a.m. Banding in the morning. Afternoon - data analysis and interpretation

Day 5: Seabird monitoring, data analysis and interpretation

Day 6: Waterfowl monitoring, data analysis and interpretation

N.b. Participants whose role in monitoring is administrative and managerial only would attend only Days 1-2.

The experts will be convened on line to design the capacity building strategy and training workshops. This will involve technical experts (including Caribbean and international experts as necessary) and some representatives of prospective client organizations (Caribbean governments and NGOs). The technical experts will also design the materials to be delivered at the training workshops which will be reviewed by the clients.

The outputs of the workshop are expected to include:

- at least 10 trained persons capable of training and mentoring others in their own and in neighboring countries in a wide variety of skills related to all stages of bird monitoring
- a format and location for a central database of projects and information

- at least three manuals promoting simple but statistically robust methods for designing and implementing monitoring and presenting the results through visualization and other techniques in a format appropriate for decision-makers and managers and guidelines for application of monitoring results to natural resource management possibly including where applicable the use of scenarios and models (including DVDs with statistical software and templates for reports designed for appropriate audiences),
- strategy to develop on-line training materials that can be made available via WHMSI's web portal/gateway with links to partner websites and to ensure all materials are available in English and Spanish,
- partnerships with at least 3 local and international training organizations to support monitoring
- a strategy (including identification of a source of funding) to enable SCSCB to support the above activities in the long-term.

#### 4. Time frame / work plan:

ACTIVITY HEADING	OUTPUST	INDICATORS OF SUCCESS	RESPONSIBLE PERSON	COMPLETION DATE
Development of Capacity Building Strategy	Virtual conservation coalition established to work on monitoring issues, including TNC, ITF, BLI, NA and SCSCB and many other organizations			
	Capacity Building Strategy development	Strategy developed and circulated for review	Ann Sutton	
Development of materials	Protocols agreed and manuals adapted for landbirds, seabirds and waterfowl	3 manuals and DVDs produced	Adrienne Tossas/Steve Latta/Ann Sutton with assistance from BLI, USFWS, TNC etc.	October 2008
	Guidelines for designing monitoring programmes, involving volunteers, funding developed		Ann Sutton leads	October 2008
Workshop	Workshop held	-Total no of participants -Representation of special interest groups (decision-makers, protected area	Ann Sutton leads, partners assist	October 2008

		managers, scientists, volunteers) -Variety of modules - Evaluation sheets		
		Workshop report produced	Ann Sutton	October 2008
In depth training for selected participants	Identify internships for persons with interest, talent and opportunity e.g. with US banding stations on-going regional projects	On-going	Steve Latta	March 2009
Project development for funding	Develop project for funding e.g. Neotropical Migratory Bird Act	December 2008	SCSCB and team	December 2008

List of documents to be developed:

- Strategy to build Caribbean capacity for bird monitoring
- Draft Caribbean Monitoring Training Manual, including powerpoints and data analysis
- 3 Workshop reports
- Final report on project.

All products will be freely available through the WHMSI website and SCSCB's website. As far as possible within the budget, or with the assistance of volunteers, materials will be translated into Spanish.

- 5. Team Composition and Task Assignment:** Indicate the structure and composition of your team. List the name of staff, firm, area of expertise, position assigned, and task assigned.

Position: Team Lead:

Name: Ann Sutton

Organisation: Secretary SCSCB, Co-chair Monitoring Working Group and Seabirds Working Group

Area of expertise: Bird monitoring, conservation education, protected area management

Task assigned: Leads project implementation, strategy development, assists with general and specific aspects of training

**Position: Assistant Team Leader**

Name: Adrienne Tossas

Organisation: SCSCB

Area of expertise: Bird conservation and research, monitoring, education





1	Finalize workplan	X												
2	Develop Terms of Reference for consultants	X												
3	Engage consultants	X												
4	Hold online consultations with experts	X	X											
5	Produce manuals		X	X										
6	Produce and circulate capacity building strategy			X										
B	TRAINING WORKSHOP													
1	Invite participants		X	X										
2	Plan venue, accommodation, transportation		X	X										
3	Hold workshop			X										
4	Prepare workshop report				X									
D	INTERNSHIPS AND ADDITIONAL TRAINING					X								
E	DEVELOP FUNDING PROPOSALS				X	X								
F	SUBMIT FINAL REPORT								X					
F	ESTABLISHMENT OF MONITORING NETWORK/PARTNERSHIP, WEBSITE AND DATABASE	X	X	X	X	X	X	X	X					

### 9. Relevant literature cited as footnotes

Bradley, P. 2008. Seabirds of the West Indies – Island Accounts. In press.

Myers, N., Mittermeier, R. A., C. G. Mittermeier, G. A. B. da Fonseca, and J. Kent. 2000.

Biodiversity hotspots for conservation priorities. Nature 403:853-858.

Sorenson, L. 2008. SCSCB Strategic plan 2008-2012. SCSCB, Washington.



## G. Summary of Costs

HEADING	ACTIVITY	ITEM	DESCRIPTION	UNIT COST	# UNITS	TOTAL COST WHSM I	TOTAL COST COUNT ERPART
1. PREPARATION OF CAPACITY DEVELOPMENT PLAN AND TRAINING MATERIALS							
	Preparation and review of draft capacity development plan	Professional fees	Consultative development of draft plan	400	5	2000	2000
			Wetlands	400	4	800	1000
			Seabirds	400	4	800	1000
			Hérons and Egrets	0	1	0	1000
			Landbirds	0	1	0	1000
			Landbirds	0	1	0	1000
			Ebird	0	0	0	1000
			Shorebirds	400	5	1000	1000
			On-line training methods and materials	0	1	0	1000
			Various capacity building courses	0	1	0	4000
3. Workshop							
		Professional fees	Workshop organization	400	5	1000	1000
			Background to monitoring	400	2	400	400
			Funding	400	1	400	600
			landbirds	400	2	400	400
			Waterbirds	400	1	400	400
			Using Volunteers	0	1	0	1200
			GIS	0	1	0	1200
			Applications of monitoring data to DSS systems			400	400
			Sharing data on Ebird		1	0	1200
			Banding		1	0	1200

		Airfares					
			Participants	450	20	9000	0
			Presenters	450	4	1800	2500
		Accommodation and meals	24 persons	150	24	21600	7000
		Transportation for field trips		0	0	850	0
		Photocopying and production		0	0	500	1000
		Miscellaneous		0	0	1150	8000
		Administrative overheads		2250	0	2500	2000
	Internships			0	0	0	2500
		TOTAL				45000	45000

## XV. PROCEDURE TO EVALUATE PROPOSALS

WHMSI funds will be awarded to institutions submitting outstanding proposals to increase capacity to address the interest of WHMSI community on migratory species, biodiversity conservation, and sustainable development. The following criteria will be used to evaluate the proposals. Institutions with the highest scores will qualify to receive financial resources to develop from 1 to 3 of the certified capacity building courses. The objective will be to complete a first phase capacity building project for strengthening human, technical and institutional capacities through 3 formal GS/OAS certified migratory species courses and training materials, and the distribution of learning products and services throughout the region on a wide range of topics related to habitat management for migratory species and sustainable development.

Name of Institution: \_\_\_\_\_

Country: \_\_\_\_\_

Objective of Proposal:

\_\_\_\_\_

\_\_\_\_\_

Criteria	Scale	Score	Remarks
<b>Administrative Aspects</b>	<b>30%</b>		
The organization's experience and capabilities relevant to the proposed tasks.	1-20		
Relevant technical experience of the proposed institution's staff in relation to the proposed tasks.	1-20		
General academic qualifications of institution or organization's staff	1-20		
Knowledge and capacity to develop tools in WHMSI's official languages.	1-20		
Proven capacity to collaborate with similar organizations based on the potential to complement each other and leverage additional resources.	1-20		
<b>Subtotal/100 points</b>			
<b>Subtotal/30%</b>			
<b>Technical Aspects</b>	<b>70%</b>		
Migratory species training will address at least one of the priorities laid out in Section IV: "Priority Areas To Be Addressed By The Proposals" above.	1- 40		
Integration of migratory species data in resolving key questions and addressing pertinent issues in the Americas.	1 -20		
Innovative training tools proposed such as train-the-trainer	1 - 20		
Tools allow users to visualize data and information in an interactive, as well as non-interactive manner	1 - 15		
Utilization of migratory species data with models to develop scenarios (options and consequences) for decision makers	1 - 15		
Mechanisms proposed to provide users with capacity building through the WHMSI Web Portal / Gateway	1 - 10		
Capacity Building Tools are built with the capacity to be used throughout WHMSI regions	1 - 15		
Tools are multilingual, or in WHMSI official languages (at least English and Spanish, with Portuguese as a plus).	1 - 15		
<b>Subtotal/150 points</b>			
<b>Subtotal/70%</b>			
<b>TOTAL SCORE/100%</b>			

Date of Evaluation: \_\_\_\_\_

Appendix 1: CV's of lead persons

**Adrienne G. Tossas**

Villas del Río, 1100 Bambú, Mayagüez, Puerto Rico 00680-7166

**Phone/Fax: (787)834-0934**

E-mail: agtossas@gmail.com

**EDUCATION:**

- 5/02 Ph.D. in Biology- University of Puerto Rico (UPR), Río Piedras
- 9/95 M.Sc. in Biology- UPR, Mayagüez
- 6/93 B.Sc. in Biology- UPR, Mayagüez (Magna Cum Laude)

**PROFESSIONAL EXPERIENCE:**

- 6/07-pres. Independent Researcher.
- 3/06-05/07 Adjunct Professor, UPR, Mayagüez.
- 8/04-05/06 Research Advisor and Consultant, Environmental Research and GIS laboratory, Dept. of Biology, Chemistry and Environmental Sciences, Inter American University, San Germán.
- 1/04-6/05 Adjunct Professor, Dept. of Biology, Chemistry and Environmental Sciences, Inter American University, San Germán.
- 1/02-6/04 Coordinator, Important Bird Areas Program in Puerto Rico, in partnership between BirdLife International and Puerto Rican Ornithological Society.

**RESEARCH EXPERIENCE:**

- 2/98-5/02 Ph.D. dissertation: "Puerto Rican Vireo demography in a montane habitat, with metapopulation implications" (Drs. Robert B. Waide and Joseph M. Wunderle, Jr., co-advisors).
- 6/99 Project: "Pollination-mediated selection in the bromeliad *Pitcairnia angustifolia* in three populations in Puerto Rico", with Dr. Elvia Meléndez-Ackerman and José Fumero, UPR., RP.
- 5/96 Participant in long term project "Monitoring population trends and habitat use by birds after Hurricane Hugo in the Luquillo Experimental Forest".
- 8/93-6/95 M.Sc. thesis: "Nesting site habitat description of the Puerto Rican Broad-winged Hawk" (Dr. Carlos A. Delannoy, advisor).

**PROFESSIONAL TRAINING:**

- 2006-07 Participation in workshops at UPR- Mayagüez: mentoring students, active learning, webpage design, career development, creating online courses using WebCT, and ethics across the curriculum. Also participated in specialized ecological workshops on Distance Sampling and Mark-Recapture methods.
- 31/03-1/04/06 Proposal development workshop- National Science Foundation's Directorate for Biological Sciences, organized by Quality Education for Minorities Network, Albuquerque, NM.

- 14-16/7/05 Horizons Workshop for Women Faculty, University of Maryland, Baltimore County, sponsored by National Science Foundation's Advance Program.
- 9/9-21/01 Environmental Leadership Course, offered by the Smithsonian Institution, Front Royal, VA.
- 9/1-30/00 Advanced training on banding techniques in the Long Point Bird Observatory, sponsored by the Latin American Program of Bird Studies Canada.
- 11/99 Banding and monitoring methods for shorebird population studies offered by the French National Hunting Bureau in French Guyana.
- 7/1-30/97 Censusing techniques for avian populations offered by the University of Guadalajara, Mexico, and San Francisco State University in the Sierra de Manantlán Biosphere Reserve, Jalisco, Mexico.
- 1/97-3/97 Field course Tropical Biology: An ecological approach, offered by the Organization of Tropical Studies in Costa Rica.

### **ORGANIZATIONS AND PROFESSIONAL MEMBERSHIPS:**

- 1994-pres. Member, Society for the Conservation and Study of Caribbean Birds; Board of Directors from 2003 to 2006
- 1994-pres. Member, American Ornithologists' Union
- 1994-pres. Member, Cooper Ornithological Society
- 1995-pres. Founding Member, Puerto Rican Ornithological Society
- 2002-pres. Member, Wilson Ornithological Society

### **FELLOWSHIPS AND AWARDS:**

- 2/2008 Nomination to 2009 Marquis' biographical list of Who's Who in America.
- 5/2005 Recognition for service to community, research, and creative work by Inter American University, San Germán campus.
- 12/04 United Nations published web article "Adrienne saves endangered birds" in recognition of volunteer environmental education to citizens of 13 Caribbean countries through the development of the Caribbean Endemic Bird Festival.
- 2002 New Century of Service Annual Award by US Forest Service, for conservation publication *Puerto Rican Karst- A vital resource*.
- 8/99-12/01 National Science Foundation- Alliance for Graduate Education and the Professoriate.
- 8/99 Marcia Brady Tucker Student Award, American Ornithologists' Union meeting in Cornell University, NY.
- 1999 Dra. María Machín Award from the Female Students Alumni Association of UPR, Río Piedras.
- 8/95-5/99 National Science Foundation- Center of Research Excellence in Science and Technology.
- 3/97 Organization of Tropical Studies- Tropical Biology Post-course Grant for project "Flocking behavior of tanagers in a Neotropical lowland forest".

### **RESEARCH PUBLICATIONS:**



- Tossas, A. G.** 2008. Population trends of montane birds in southwestern Puerto Rico eight years after the passage of Hurricane Georges. Proceedings of Symposium Climate Change and Biodiversity in the Americas. Smithsonian Institution, Panama. *In review*.
- Tossas, A. G.** 2008. Reproductive success of the Puerto Rican Vireo in a montane habitat. *Accepted for publication, Wilson J. of Ornithol. Vol. 120.*
- Dalsgaard, B., A. M. Martín-González, J. M. Olesen, J. Ollerton, A. Timmermann, L. H. Andersen, and **A. G. Tossas**. Plant-hummingbird interactions in the West Indies: floral specialization gradients associated with environment and hummingbird size. *In review by Oecologia.*
- Tossas, A. G.** and J. R. Thomlinson. 2007. Landscape characteristics of Puerto Rican Vireo (*Vireo latimeri*) nesting habitat, with source-sink implications. *Ornitologia Neotropical* 18:233-242.
- Lewis, A. R., **A. G. Tossas**, J. A. Colón, and B. Hernández. 2006. Endangered Piping Plovers overwintering in Puerto Rico. *J. Caribb. Ornithol.* 19:27-30.
- Tossas, A. G.** 2006. Effects of Hurricane Georges on the resident avifauna of Maricao State Forest, southwestern Puerto Rico. *Caribb. J. Sci.* 42:81-87.
- Colón López, J. A. and **A. G. Tossas**. 2006. First breeding by Willet *Catoptrophorus semipalmatus* in Puerto Rico. *Cotinga* 25:80-82.
- Tossas, A. G.** 2004. Ornithological research and conservation efforts in Puerto Rico. *J. Caribb. Ornithol.* 17: 67-71.
- Delannoy, C. A. and **A. G. Tossas**. 2002. Breeding biology and nest site characteristics of Puerto Rican Broad-winged Hawks at the Río Abajo Forest. *Caribb. J. Sci.* 38:20-26.
- Delannoy, C. A. and **A. G. Tossas**. 2000. Nesting territories of the Puerto Rican Broad-winged Hawk in the Río Abajo Forest. *Caribb. J. of Sci.* 36:112-116.
- Tossas, A. G.** 2001. Two new avian host records for *Ornithoctona erythrocephala* (Diptera: Hippoboscidae) in Puerto Rico. *Caribb. J. Sci.* 37:115-116.
- Tossas, A. G.** and C. A. Delannoy. 2001. Status, abundance, and distribution of birds of Maricao State Forest, Puerto Rico. *El Pitirre* 14:47-53.

#### **CONSERVATION PUBLICATIONS:**

- Aukema, J. E., T. A. Carlo, **A. G. Tossas**, and V. Anadón-Irizarry. 2006. A call to protect Sierra Bermeja for future generations. Special publication from the Puerto Rican Ornithological Society, San Juan, P.R. 24pp.
- Lugo, A. E., L. Miranda Castro, A. Vale, T. del M. López, E. Hernández Prieto, A. García Martínó, A. R. Puente Rolón, **A. G. Tossas**, D. A. McFarlane, T. Miller, A. Rodríguez, J. Lundberg, J. Thomlinson, J. Colón, J. H. Schellekens, O. Ramos, and E. Helmer. 2001. Puerto Rican Karst- A vital resource. USDS Forest Service, Gen. Tech. Report WO-65. 100 pp.

## Steven C. Latta

National Aviary  
Allegheny Commons West; 700 Arch St.  
Pittsburgh, PA 15212  
Tel. 412-323-7235 ext 288; Fax 412-321-4364  
steven.latta@aviary.org

## Education

PhD University of Missouri, Columbia, MO, 2000 (Avian Ecology)  
MS University of Michigan, Ann Arbor, MI, 1988 (Natural Resources)  
BA Kalamazoo College, Kalamazoo, MI, 1981 (Biology)

## Recent Positions Held

Assistant Director, Department of Conservation and Field Research, National Aviary, Pittsburgh, PA, 2006-present.  
Director, Latin America Program, PRBO Conservation Science, Stinson Beach, CA, 2002-2006.  
Postdoctoral Research Associate, University of Missouri-St. Louis, MO, 2001-2002  
Doctoral Student, University of Missouri, Columbia, MO, 1995-2000.  
Research Wildlife Biologist, International Institute of Tropical Forestry, USDA Forest Service, Rio Piedras, Puerto Rico, 1992-1995.

## Awards and Honors (selected)

Nominee, 2001 Council of Graduate Schools/University Microfilms International Distinguished Dissertation Award in Biology and Life Sciences

Distinguished Dissertation Award, University of Missouri Graduate School, 2001.  
Superior Graduate Achievement Award, Division of Biological Sciences, University of Missouri, 2000.  
Science to Achieve Results (STAR) Graduate Fellowship, US Environmental Protection Agency

## Selected Journal Publications

Latta, S. C. and J. Faaborg. *In press*. Migrants in the Caribbean: Benefits of studies of overwintering birds for understanding resident bird ecology and promoting critical development of local infrastructure. *Conservation Biology*.

Mulvihill, R. S., F. L. Newell, and S. C. Latta. *In press*. Effects of acidification on the breeding ecology of a stream-dependent songbird, the Louisiana Waterthrush (*Seiurus motacilla*). *J. Freshwater Biology*.

Tinoco, B. A., P. X. Astudillo, C. H. Graham, and S. C. Latta. *In press*. Distribution, ecology, and conservation of an endangered Andean hummingbird: the Violet-throated Metaltail (*Metallura baroni*). Bird Conservation International.

Townsend, A. K., C. C. Rimmer, S. C. Latta, and I. J. Lovette. 2007. Phylogeographic concordance of nuclear and mitochondrial gene genealogies in the single-island avian

- radiation of Hispaniolan Chat-tanagers (Aves: *Calyptophilus*). *Molecular Ecology* 16:3634-3642.
- Ricklefs, R. E., B. Swanson, S. M. Fallon, A. Martinez, A. Scheuerlein, J. Gray, and S. C. Latta. 2005. Community relationships of avian malaria parasites in southern Missouri. *Ecological Monographs* 75:543-559.
- Latta, S. C., C. J. Ralph, and G. Geupel. 2005. Strategies for the conservation monitoring of permanent resident landbirds and wintering Neotropical migrants in the Americas. *Ornitología Neotropical* 16:163-174.
- Latta, S. C. 2005. Complementary areas for conserving avian diversity on Hispaniola. *Animal Conservation* 8:69-81.
- Ricklefs, R. E., S. M. Fallon, S. C. Latta, B. L. Swanson, and E. Bermingham. 2005. Migrants and their parasites: A bridge between two worlds. Pp. 210-221 in R. Greenberg and P. Marra (eds.), *Birds of two worlds. The ecology and evolution of migratory birds*. Johns Hopkins University Press, Baltimore and London.
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- Latta, S. C., and R. Lorenzo (editors). 2000. Results of the national planning workshop for avian conservation in the Dominican Republic. Dirección Nacional de Parques, Santo Domingo, Dominican Republic. 137 pp.
- Latta, S. C., M. L. Sondreal, and C. R. Brown. 2000. A hierarchical analysis of nesting and foraging habitat for the conservation of the Hispaniolan White-winged Crossbill (*Loxia leucoptera megaplaga*). *Biological Conservation* 96:139-150.
- Wunderle, J. M., Jr., and S. C. Latta. 2000. Winter site fidelity of Nearctic migrant birds in isolated shade coffee plantations of different sizes in the Dominican Republic. *Auk* 117: 596-614.
- Latta, S. C. 2000. Making the leap from researcher to planner: lessons from avian conservation planning in the Dominican Republic. *Conservation Biology* 14:132-139.
- Latta, S. C., and J. M. Wunderle, Jr. 1998. The assemblage of birds foraging in native West Indian pine (*Pinus occidentalis*) forests of the Dominican Republic during the nonbreeding season. *Biotropica* 30:645-656.

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Latta, S. C., C. C. Rimmer, A. R. Keith, J. W. Wiley, H. A. Raffaele, K. P. McFarland, and E. M. Fernandez. 2006. *Birds of the Dominican Republic and Haiti*. Princeton University Press, Princeton, N.J.

Keith, A., J. Wiley, S. Latta, and J. Ottenwalder. 2003. *The birds of Hispaniola: Haiti and the Dominican Republic*. British Ornithologists' Union, Tring, UK.

Latta, S. C. 2002. *Aves comunes de la República Dominicana / Common birds of the Dominican Republic*. Sociedad Ornitológica de la Hispaniola.

## CURRICULUM VITAE

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### EDUCATION

1983 - 1995 **Ph.D. in Zoology (Wildlife Management)** at University of the West Indies, Mona, Kingston, Jamaica.  
Title "**On the nesting ecology of seabirds at the Morant Cays (Jamaica), with special reference to nest site selection, conservation and management**".

### PROFESSIONAL EXPERIENCE : EMPLOYMENT

2003 – March 2007: **Director of Conservation. The Nature Conservancy in Jamaica.** (Half time position).  
Developed and supervised TNC's conservation programmes in Jamaica, including Cockpit Country Parks in Peril programme and Eco-regional Planning.

1987 - present: **Independent environmental consultant** with special interest in conservation and ecology of wildlife and wetlands; protected area design and management; ecotourism (including leading, organising and providing accommodation for ornithological tours); and environmental education.

Assignments have included:

- 2007-8: Portland Bight Sustainable Wetland Project: Phase 1, for Caribbean Coastal Area Management Foundation
- Negril 2006: Planning for development of a Watchable Wildlife Pond for the Royal Palm Reserve, Negril for Environmental Protection Trust
- 2003 Surveys of ducks in Jamaica for Ducks Unlimited and National Environment and Planning Agency
- 2002-2005 Caribbean See Seabirds Project (including regional planning for waterbirds, seabirds surveys and training, seabirds environmental education) for the Society for the Conservation and Study of Caribbean Birds
- 2003-2005 Lead consultant for Development of Biophysical Indicators for Monitoring the Portland Bight Protected Area for Inter-American Development Bank/Global Environment Facility
- 2001-2002 Environmental Consultant for South Coast Sustainable Development Project, focused on protected areas planning and environmental impact assessments (Scott Wilson Assoc.)
- 2001 Assessment of community involvement in local sustainable development and local governance (for Canadian International Development Agency).
- 2001 Environmental inventory for North Coast Highway Project Phase III (for European Union)
- 2001 Aerial surveys of migratory ducks – January to April 2001 (for the Natural Resources Conservation Authority/National Environment and Planning Agency and Ducks Unlimited)
- 2000 Senior author of a teachers' workbook on West Indian Wetlands (for West Indian Whistling Duck Working Group)
- 1999-2000 West Indian Whistling Duck survey - Antigua and Barbuda (Environmental Awareness Group, Antigua and Barbuda)
- 1999 Member of Biodiversity Assessment Team for Cockpit Country Conservation Project (World Bank)
- 1999-2001 Lead consultant for Portland Bight Wetland Bird Conservation Project (Caribbean Coastal Areas Management Foundation, funded by National Fish and Wildlife Foundation)
- 1999 Environmental Consultant for review of North Coast Highway Project: Segment 3 (Ocho Rios to Port Antonio and Fair Prospect) (Wallace Evans Jamaica Ltd.)
- 1999 Dissemination of results of coastal water quality improvement project, Negril for Coastal Water Quality Improvement Project, implemented by Associates in Rural Development for US AID/NRCA..
- 1999 National Consultant on Terrestrial and Freshwater Flora for National Biodiversity Strategy and Action Plan (for NRCA).

- 1999 Terrestrial Ecology Consultant with DHV International for EIA for proposed RIU hotel, Bloody Bay, Negril.
- 1998 (November 1999 -March 1999) Co-consultant on Management Plan for Black River protected area for Technical Support Services (Technical Support Services for US AID's DEMO project).
- 1998 (May-July) Surveys of West Indian Whistling Ducks in Black River Upper Morass, for West Indian Whistling Duck Working Group of the Society for Caribbean Ornithology.
- 1998 (May-July) Co-author of Environmental Policy Framework for St Elizabeth for Technical Support Services (US AID's DEMO project)
- 1998 (Jan-Feb) Surveys for Bicknell's Thrush in the Blue Mountain/John Crow Mountain National Park for Vermont Institute of Natural Science
- 1997 (Oct) Survey of West Indian Whistling Ducks for Discovery Initiatives
- 1996-1999 Resource assessment of Portland Bight (Jamaica) wetlands, for South Coast Conservation Foundation/Caribbean Coastal Areas Management Foundation (on going).
- 1995 Prepared management plan for Sooty Terns and Brown Noddies in Jamaica, for Natural Resources Conservation Authority.
- 1995 Edited Jamaican Sea Turtle Recovery Action Plan for Jamaica Sea Turtle Recovery Network
- 1993 May - Environmental Impact Assessment for Arawak Village, Negril. Report prepared for developers.
- 1992 May - Study of bird hazards at Sangster International Airport (for Airports Authority of Jamaica)
- 1991 April - Feb 1992 Ecology team leader for national parks and protected areas system plan project (for Jamaica Conservation and Development Trust / USAID)

1981 - 1987 **Acting Chief, Ecology Branch, Natural Resources Conservation Division.**

#### SELECTION OF PAPERS AND REPORTS

- Sutton, A. & Dorfman, D. in prep. **Jamaica - Terrestrial Eco-regional Assessment.** Report prepared for The Nature Conservancy.
- Haynes-Sutton, A. & Hay, B. 2003. **A scientific approach to decision-making concerning the sustainable management of resident and migratory ducks in Jamaica.** Paper presented to Jamaica Institute of Environmental Professionals Conference, April 2003.
- Haynes-Sutton, A. & Hay, B. 2003.** Development of biophysical indicators for the Portland Bight Protected Area final report. **Report prepared for Caribbean Coastal Area Management Foundation/ Global Environment Facility/Inter-American Development Bank.**
- Haynes-Sutton, A. & Hay, B. 2003.** Wetlands Resource Assessment for Portland Bight. **Report prepared for Caribbean Coastal Area Management Foundation/ Global Environment Facility/Inter-American Development Bank.**
- Haynes-Sutton, A. & Hay, B. 2003.** Jamaican Duck surveys 2001-2003. **Report prepared for Ducks Unlimited workshop on survey techniques, Nicaragua.**

#### BOOKS

- Haynes-Sutton, A., Sorenson, L. & Keeley, M. 2001. **Wondrous West Indian Wetlands - A resource book on Caribbean wetlands for teachers and other educators.** West Indian Whistling Duck Working Group of the Society of Caribbean Ornithology.
- Downer, A., Sutton, A & Sutton R. **Birds of Jamaica - a photographic guide.** In preparation.