



The Birds Without Borders - *Aves Sin Fronteras*<sup>®</sup>  
Recommendations for Landowners:

# HOW TO MANAGE YOUR LAND TO HELP BIRDS



*(Belize and Mesoamerica edition)*

By Victoria D. Piaskowski, Mario Teul,  
Reynold N. Cal, Kari M. Williams  
and David Tzul

Dr. Gil Boese, President,  
Foundation for Wildlife Conservation, Inc.  
President emeritus, Zoological Society of Milwaukee  
Milwaukee, Wisconsin, U.S.A.



FOUNDATION FOR  
WILDLIFE CONSERVATION

ZOOLOGICAL SOCIETY OF MILWAUKEE



## About the Authors

**Gil Boese, Ph.D.**, was president of the Zoological Society of Milwaukee for 16 years. He has been president of the Foundation for Wildlife Conservation, Inc., since its inception in 1993. Dr. Boese initiated the Birds Without Borders - *Aves Sin Fronteras*® (BWB-ASF) project in 1996 and continues to oversee the project. He has supervised the management of Runaway Creek Nature Preserve since its purchase in 1998. Dr. Boese has a Ph.D in pathobiology from Johns Hopkins University and has done extensive field work in zoology.

**Victoria Piaskowski** has been the international coordinator of BWB-ASF since it began in 1996. Throughout the project, she has managed the research and field work and conducted staff training. Piaskowski has a master of science degree in biological sciences from the University of Wisconsin-Milwaukee.

**Mario Teul** has been the Belize national coordinator since 2003 and has been with the project since it started in Belize in 1997. Teul has an associate's degree in English with a minor in biology from the University College of Belize and a teaching certificate from the Belize Ministry of Education.

**Reynold Cal** has been the manager of the Runaway Creek Nature Preserve since 2004 and has been with the BWB-ASF project since 2001. Cal is a High School graduate with a teaching certificate from the Belize Ministry of Education.

**Kari Williams** is the Wisconsin-based BWB-ASF project assistant and has been with the project since 2000. She has a bachelor of science degree in zoology from the University of Wisconsin-Madison. She supports both the Belize and Wisconsin staff.

**David Tzul** is the administrative assistant of BWB-ASF Belize and has been with the project since 2003. Tzul has a post-secondary diploma in animal health and veterinary public health from the Regional Education Program for Animal Health Assistants in Guyana, South America. In addition, Tzul has certificates in protected areas management, conservation techniques, tour guiding and avitourism. He also received training in ornithology and neotropical biology at Cornell University in New York.

## BIRDS WITHOUT BORDERS - AVES SIN FRONTERAS® CONTACT INFORMATION

### BELIZE:

Birds Without Borders - *Aves Sin Fronteras*®  
Forest Drive  
Help for Progress Building  
P.O. Box 97  
Belmopan City, Cayo District  
Belize, Central America  
Phone: 501-822-0236  
Fax: 501-822-0241  
E-mail: [bwbASF@btl.net](mailto:bwbASF@btl.net)

### WISCONSIN:

Birds Without Borders - *Aves Sin Fronteras*®  
Foundation for Wildlife Conservation, Inc.  
Zoological Society of Milwaukee  
1421 N. Water St.  
Milwaukee, WI 53202  
USA  
Phone: 414-276-0339  
Fax: 414-276-0886  
E-mail: [vickip@zoosociety.org](mailto:vickip@zoosociety.org)

### FOUNDATION FOR WILDLIFE CONSERVATION, INC.

10005 W. Blue Mound Rd.  
Milwaukee, WI 53226  
USA  
Phone: 414-258-2333, extension 214  
Fax: 414-258-4004  
E-mail: [boese@zoosociety.org](mailto:boese@zoosociety.org)

### BIRDS WITHOUT BORDERS - AVES SIN FRONTERAS®

#### WEB SITE:

<http://www.zoosociety.org/Conservation/BWB-ASF/>

#### RUNAWAY CREEK NATURE PRESERVE WEB SITE:

<http://www.zoosociety.org/runawaycreek>

### A Note about Bird Names

A single bird is often known by more than one name. All birds have a scientific name (Latin name), consisting of a genus and a species, that is usually printed in italics. All scientists worldwide use the scientific name to refer to each bird species. There are also English and Spanish common names for many bird species. In Belize, birds also can have a Creole name, a local Spanish name, a K'ekchi or Mopan Mayan name or an archaic or colloquial name. Tables listing these names can be found in Appendix 1 on pages 73-97.

**In this manual, each time a bird is mentioned, we list its English common name, scientific name and Creole name.**

---

## TABLE OF CONTENTS

---

About the authors .....	Inside Cover
Introduction .....	2
Why are birds important? .....	4
A summary: What you can do to help birds .....	5
Introducción en español .....	7
¿Por qué las aves son importantes? .....	8
Lo que puede hacer para ayudar a las aves: un resumen .....	9
Plants that provide food for birds .....	12
Places in Belize that sell plants used as food by birds and other Belize native/agricultural plants .....	27
Preventing birds from damaging crops .....	29
Birds and aquaculture .....	32
Pine savannas are important to birds .....	33
Forests found along Belize's rivers are important to many birds .....	36
Birds found at the Birds Without Borders - <i>Aves Sin Fronteras</i> ® Belize study sites .....	43
Belize habitats that are preferred by resident and migratory birds .....	60
Neotropical migrants fly more than 1,500 miles to return to Belize each year .....	61
Other Belize habitats that are important to birds .....	62
Helping Jabirus .....	63
Helping birds that nest in holes or cavities .....	64
Naturally occurring water can benefit birds .....	67
Collisions with glass windows can cause bird deaths .....	68
Your outdoor cat kills many birds .....	69
Other things that you can do to protect birds and enhance bird populations .....	70
Another link between Belize and Wisconsin .....	71
<i>Appendix 1</i> . Lists of bird names .....	73
<i>Appendix 1A</i> . Creole names in alphabetical order (also English and scientific names) .....	73
<i>Appendix 1B</i> . English and scientific names (in evolutionary order) .....	75
<i>Appendix 1C</i> . Spanish common names in alphabetical order (also English and scientific names) .....	82
<i>Appendix 1D</i> . Local Spanish names in alphabetical order (also English and scientific names) .....	89
<i>Appendix 1E</i> . K'ekchi Mayan names in alphabetical order (also English and scientific names) .....	89
<i>Appendix 1F</i> . Mopan Mayan names in alphabetical order (also English and scientific names) .....	92
<i>Appendix 1G</i> . Archaic and colloquial names in alphabetical order (also English and scientific names) .....	94
<i>Appendix 1H</i> . Alternative and combined form names in alphabetical order (also English and scientific names) .....	96
<i>Appendix 2</i> . Birds Without Borders - <i>Aves Sin Fronteras</i> ® Belize partners and collaborators .....	98
<i>Appendix 3</i> . Special acknowledgments .....	99
<i>Appendix 4</i> . Research techniques used to study birds and their habitats .....	100
<i>Appendix 5</i> . Birds Without Borders - <i>Aves Sin Fronteras</i> ® staff presentations and publications .....	102
Literature cited .....	103

---

## INTRODUCTION

---

The numbers of many birds have been decreasing (Robbins et al. 1989, Miller and Miller 1997, Jones and Valley 2001). These include some of Belize's resident birds and also Neotropical migratory birds (see definitions below). The main reason for this decline is loss of habitat (a place where a bird naturally and normally lives). Landowners can have a major role in saving birds by managing their land to provide good habitat, including plants that provide food for birds.

This manual is the result of more than seven years of field research in Belize by Birds Without Borders – *Aves Sin Fronteras*<sup>®</sup>. It provides information on the habitats and plants that we have found to be important to birds. It also includes other information on how to help birds. There are many pictures of birds and plants, so that the reader can easily identify them. (See the tables of bird names on pages 73-97. For the birds pictured in this manual, the page number of the photograph is included in the table.)

### — WHAT IS BIRDS WITHOUT BORDERS – AVES SIN FRONTERAS<sup>®</sup> (BWB-ASF)? —

BWB-ASF is a research, education and conservation project sponsored by the Foundation for Wildlife Conservation, Inc. (FWC) and the Zoological Society of Milwaukee (ZSM), in cooperation with private landowners. The FWC and ZSM are both based in Milwaukee, Wisconsin, U.S.A., and have conservation of wildlife and endangered species as their primary mission. Dr. Gil Boese, then president of the FWC and ZSM, founded BWB-ASF in 1996 to address the declines reported in some bird populations.

BWB-ASF began in Belize in 1997 with four goals:

- to do research on both migratory and resident bird species;
- to apply research results to conservation by making recommendations for landowners on how land can be managed to benefit birds;
- to educate children and adults about birds; and
- to train Belizeans so that they could design and conduct further research independently.

BWB-ASF conducted the research on privately owned lands in Belize and Wisconsin, U.S.A. The link between Belize and Wisconsin is our birds. More than 114 species of migratory birds spend part of their lives in both Belize and Wisconsin! In Belize, more than 10 private landowners allowed BWB-ASF to use their lands as study sites. (Please see Appendix 4 for information on the research techniques used to study birds and their habitats in Belize.)

BWB-ASF hired only Belizeans to work on the project, and, since 1997, has trained 21 Belizeans. Since 2003, a year-round, full-time staff of three Belizeans manage the project and do research in Belize. BWB-ASF has worked closely with government agencies and has had the full support of the Government of Belize. BWB-ASF was always granted the necessary

permits from the Conservation Division of the Ministry of Natural Resources, the Environment and Industry and from the Belize Agricultural Health Authority of the Ministry of Agriculture. BWB-ASF also has established many partnerships. (Please see Appendix 2 for a list of BWB-ASF partners and collaborators.)

In 1998, the FWC purchased 6,009 acres (2,432 hectares) of land critical to conservation in central Belize to protect it from development and now manages this land as Runaway Creek Nature Preserve (RCNP). The RCNP is an important part of the Mesoamerican Biological Corridor and provides large expanses of undisturbed habitats for many animals as well as rare plants. BWB-ASF staff continues to conduct research on the preserve. (Please see pages 45-46 for more details on the habitats and pages 48-59 for a list of the birds found at RCNP.)

#### CLASSIFYING BELIZE'S BIRDS

Birds can be classified by the amount of time they spend in Belize during their lifespan. This is also termed Belize seasonality. Birds in Belize belong to several groups, and sometimes combinations of those groups. Here are explanations of the different Belize seasonality classifications (Speicher and Greenberg 1991, Howell and Webb 1995, Jones and Valley 2001, Jones 2003) and the abbreviations used in this booklet:

(R): **Resident** birds are present in Belize year-round.

(N): **Neotropical migrants** breed in North America but spend up to six months in Belize. During North American winters, these bird species also are found in southern Mexico, other parts of Central America, South America and Caribbean Sea islands (Greater Antilles).



### **CLASSIFYING BELIZE'S BIRDS (CONTINUED)**

(M): **Migrants** spend the non-breeding season ("winter") in Belize and do not breed in Belize. Also included in this category are Neotropical migrants that spend North American winters both north and south of Belize, from North America to southern Mexico, other parts of Central America, South America and Caribbean Sea islands (Greater Antilles).

(R/M): **Resident/Migrant** birds have some individuals that are resident in Belize year-round and others that are migrants.

(T): **Transients** are present only during migration and do not breed in Belize.

(S): **Seasonal residents** migrate to Belize to breed (also called breeding migrants).

(X): **Status unsure**, known from only 1-2 records.

## WHY ARE BIRDS IMPORTANT?

Many people do not realize the important role that birds play in our lives and our environment. The following is a list of some of the reasons that birds are important.

### Control insect population

Many birds are insectivores. They eat insects that may be harmful to crops and forests.

### Control pests

Hawks and owls feed on rodents (mice and rats).

### Disperse seeds

Seed eaters disperse seeds through incomplete digestion.

### Pollinate plants

Nectar-drinking birds (e.g., hummingbirds) pollinate plants as they move from flower to flower seeking nectar.

### Belong to the food chain

Birds and eggs provide food for predators, including other birds, mammals, and humans.

### Clean up dead things

Vultures and some hawks eat roadkill and dead livestock.

### Offer enjoyment

Many people enjoy bird-watching and bird songs.

© JAMES BEVERIDGE



The Ruby-throated Hummingbird (*Amazilia tzacatl*) pollinates plants.

RICHARD BRODZELLER



The Tennessee Warbler (*Vermivora peregrina*) feeds on insects and helps to control insects.

### Make avi-tourism possible – birds bring tourism dollars to Belize

Belize has approximately 574 species of birds. These beautiful birds that call Belize their home attract many tourists to Belize. Of the tourists that visit Belize, 29% come to see Belize's wildlife and 27% come to see the rain forest (Christ et al. 2001). Bird-watching is very popular with tourists and is included in both wildlife watching and the rain forest visits. So birds make an important contribution to Belize's economy by attracting tourists.

### Have cultural significance

Birds play an important role in many cultures. Feathers may be used in some Maya, Incan, Aztec and North American Indian ceremonies. Historically, people observed bird migration to help determine appropriate times to plant and harvest crops.

### Help monitor the environment

Birds are sensitive to disturbances in the environment. Therefore, by observing bird behavior and comparing numbers of each bird species from year to year, humans can monitor the health of the environment. [The decline of the Peregrine Falcon (*Falco peregrinus*) in the U.S.A. led to the discovery of dangerous levels of the insecticide DDT (dichlorodiphenyl-trichloroethane) in their food source. DDT, once thought of as beneficial for its ability to control mosquito populations and the spread of malaria, is now recognized as a bio-accumulative toxic chemical in the environment. It is banned in the U.S.A. and in Belize.]

© JACK BARTHOLMAI



Turkey Vultures (*Cathartes aura*, Doctor John Crow) clean up dead things by eating them.

VICKI PIASKOWSKI



Roadside Hawks (*Buteo magnirostris*, Chicken Hawk) feed on rodents.

© JACK BARTHOLMAI



Black Vultures (*Coragyps atratus*, John Crow) clean up dead things by eating them.

GENE ALBANESE



The Red-throated Ant-Tanager (*Habia fuscicauda*) feeds on seeds and disperses the seeds in its droppings.

## A SUMMARY: WHAT YOU CAN DO TO HELP BIRDS

Like humans and other animals, birds need food, water and shelter to survive. This booklet provides detailed information on how you can provide these resources for Belize's birds. It also has information on other ways that you can help birds, including the following tips:

### Preserve and protect native plants that are growing on your land.

Or, if you are planning to plant some flowers or trees, choose plants that are native to Belize. Native plants provide fruits, insects and nectar that many birds feed on. Native plants also provide shelter and places for birds to build nests. If you do need to clear part of your land, leave as many native trees and plants as possible. (See pages 12-28 for more information.)



CAROL FARNETH-FOSTER  
This Rufous-tailed Hummingbird (*Amazilia tzacatl*) and other hummingbirds feed on the flowers of the *Costus* (Family Costaceae) plant.

**Try to preserve the natural habitats that are present on your land.** The most important habitats are those that are not changed by people. If you need to clear an area of land (e.g., for farming), leave as much natural vegetation as possible. Remember that birds use many types of habitats. See the table on pages 48-59 to learn more about the habitats that birds prefer.

**Protect Belize's pine savannas and "broken ridge" habitats.** These habitats are very important to Belize's resident birds throughout the year, but especially during the breeding season, when birds nest and raise young. Neotropical migrants use pine savannas during the non-breeding season (North American winter) and during migration. See pages 33-35 for more information.

**Preserve the forests found along Belize's rivers.** Many species of birds, including those that need special protection, use these forests. See pages 36-38 for more information.

**Don't plant non-native bamboo, especially along rivers.** Non-native bamboo (*Bambusa vulgaris*) is very invasive and crowds out



NICK STEPHENS



VICKI PIASKOWSKI

This pond at the Tropical Education Center of the Belize Zoo provides birds with food and water.

the native plants that are important to birds and other wildlife.

**DO help preserve Spiny bamboo (*Guadua longifolia*),** which is native and grows naturally along the rivers.

**Protect mangroves.** Mangroves provide important shelter and food for birds, insects, fish, and invertebrates. They are a very important Belize habitat. (See page 62 for more information.)

**Protect littoral forests, the forests that replace mangroves above the tide line.** Littoral forests are important habitats on many of Belize's cayes. (See page 62 for more information.)

**Do not rake and clear beaches.** Beaches provide feeding areas for many wading birds, including shorebirds. Birds find food in the seaweeds that wash up on the shore. Instead of raking and removing seaweeds, leave the seaweeds there for the birds. (See page 62 for more information.)

**If you have naturally occurring water on your land, preserve it for birds.** Water that occurs naturally, such as flowing streams, small ponds or flooded areas in savannas, can attract birds and provide them with much-needed water, especially during the dry season. See page 67 for more information.

(Stagnant ponds or bird baths provide breeding areas for mosquitoes and therefore should not be used unless they are emptied, rinsed and filled with fresh water daily.) Naturally-occurring water is important to kingfishers, wading birds and the Jabiru, a large member of the stork family that is threatened with extinction in Belize. The

Keel-billed Toucans (*Ramphastos sulfuratus*, Belizean Bill Bird, Big-Bill Ptilis) use the forests found along Belize's rivers



Jabiru (*Jabiru mycteria*, Fillymingo, Turk) is also at risk in neighboring countries. See page 63 to learn more about the Jabiru.

**Use safe ways to protect fruit trees from bird damage.** If you grow fruit trees, use the harvesting practices and other suggestions found on pages 29-31 to prevent/minimize bird damage to fruit crops.

**Use safe and effective methods to control birds at fish farms.** If you own or work at a fish farm, use the suggestions found on page 32 to control birds that feed at aquaculture facilities.

**Help preserve dead trees and stumps where birds nest.** Many birds nest in holes (cavities). In Belize, these cavities can be found in living and dead standing trees and stumps, old termite or wasp nests, on cliffs and in the walls of archeological temples. Among the ways you can help cavity-nesting birds are:

- Save dead trees instead of cutting them down.
- Leave termite nests in trees.

See pages 64-66 for more information on cavity-nesting birds.

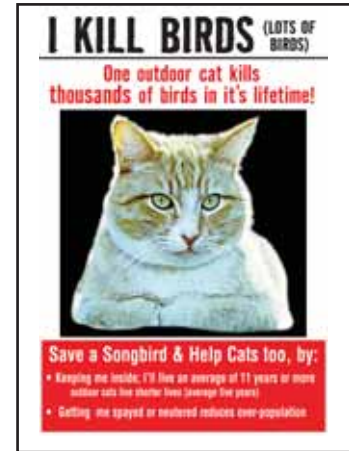
**Avoid using pesticides whenever possible.** Birds can be sensitive to what we use to control pests in our gardens, fields, orchards and plantations.

**Support or volunteer for local, national and international conservation and conservation-education organizations.** Some of these organizations that work in Belize can be found on our list of collaborators and partners on page 98. Many are happy to have volunteers work with them.

**Help to get young people excited about birds.** Many conservation and conservation-education organizations have programs in which young people can learn about birds and other animals.

**Learn how to prevent injury to birds from hitting glass windows.** See page 68 for more information.

**Keep your pet cat indoors; the cat will live longer; so will the birds.** Cats that roam free don't just kill rodents. They also kill many wild birds and other wildlife. Even cats that are well-fed by their owners still have a natural instinct to hunt. What is best for your cat (staying indoors) also will help birds. See page 69 for more information.



**Don't kill or harm birds with slingshots or pellet guns for sport.** Instead, use non-living objects like an old can, a dead tree, plastic bottles or drawings of birds/animals for target practice. See page 70 for more information.

**Do not trap or cage wild birds for pets.** Keeping wild birds as pets is illegal in Belize. Report people who have wild birds as pets. See page 70 for more information.

VICKI PIASKOWSKI



Dead trees like these provide places for cavity-nesting birds to make nests.



REYNOLD CAL

***Landowners working together can conserve and protect larger areas of habitat than individuals. Talk with your neighbors to see if they are interested in joining with you to help save bird habitat.***



# RESUMEN EN ESPAÑOL DE THE BIRDS WITHOUT BORDERS - AVES SIN FRONTERAS®

## RECOMENDACIONES PARA PROPIETARIOS DE TERRENOS: CÓMO ADMINISTRAR SU TERRENO PARA AYUDAR A LAS AVES (EDICIÓN PARA BELICE Y MESOAMÉRICA)

### INTRODUCCIÓN

El número de muchas especies de aves ha disminuido (Robbins et al. 1989, Miller y Miller 1997, Jones y Vallely 2001). Entre estas especies se encuentran algunas de las especies de aves residentes de Belice y también las aves migratorias Neotropicales (ver las definiciones incluidas abajo). La razón principal de esta disminución es la pérdida de hábitats (lugar donde un ave vive por naturaleza). Los propietarios de terrenos pueden jugar un papel muy importante en la conservación de las aves administrando sus terrenos de forma que les provean un buen hábitat, incluyendo plantas que les proveen alimento.

Este manual es el resultado de la investigación de campo que Birds Without Borders – *Aves Sin Fronteras*® llevó a cabo por más de siete años en Belice. Provee información sobre el hábitat y las plantas que son importantes para las aves según nuestros hallazgos. También incluye información adicional sobre cómo ayudar a las aves. Existen muchas fotos de aves y plantas para que el lector pueda identificarlas. (Ver las tablas de los nombres de aves en las páginas 73-97. Para las aves ilustradas en este manual, el número de la página donde se halla la foto está incluido en la tabla.)

### — ¿QUÉ ES BIRDS WITHOUT BORDERS – AVES SIN FRONTERAS® (BWB-ASF)? —

BWB-ASF es un proyecto de investigación, educación y conservación auspiciado por la Sociedad Zoológica de Milwaukee (ZSM por sus siglas en inglés) y por la Fundación para la Conservación de la Vida Silvestre (FWC por sus siglas en inglés), con la colaboración de propietarios de terrenos en su carácter individual o privado. Ambas, la ZSM y la FWC, están localizadas en Milwaukee, Wisconsin, EE.UU., y tienen como misión principal conservar la vida silvestre y las especies en peligro de extinción. El Dr. Gil Boese, quien fue presidente de la ZSM y de la FWC entonces, fundó la BWB-ASF en el 1996 para trabajar con la disminución poblacional que se ha hecho evidente en algunas especies aviarias.

La BWB-ASF nació en Belice en el 1997 con cuatro propósitos/metás:

- llevar a cabo investigaciones sobre las especies de aves residentes tanto como especies de aves migratorias;
- aplicar los resultados de las investigaciones a la conservación haciendo recomendaciones a los propietarios de terrenos sobre cómo los terrenos pueden ser administrados en beneficio de aves;
- educar a niños y adultos sobre las aves; y
- adiestrar a los beliceños para que ellos puedan diseñar y llevar a cabo la investigación de manera independiente.

La BWB-ASF llevó a cabo la investigación en terrenos privados en Belice y Wisconsin, EE.UU. El enlace

entre Belice y Wisconsin son nuestras aves. ¡Más de 114 especies de aves migratorias pasan parte de sus vidas en ambos lugares Belice y Wisconsin! En Belice, más de 10 propietarios privados de terrenos le permitieron a BWB-ASF usar sus terrenos como centros de investigación. (Para obtener información sobre las técnicas de investigación usadas en Belice para el estudio de las aves y de sus hábitat, favor de ver el Apéndice 4) La BWB-ASF sólo empleó a beliceños para trabajar en el proyecto y desde 1997 ha adiestrado a 21 beliceños. Actualmente, en el año 2003, 3 beliceños trabajan a tiempo completo en el proyecto y llevan acabo la investigación en Belice durante todo el año. La BWB-ASF ha trabajado estrechamente con agencias gubernamentales y ha contado con todo el apoyo del Gobierno de Belice. La División de Conservación del Ministerio de Recursos Naturales y Medio Ambiente, el Ministerio de Comercio e Industria y la Autoridad de Salud Agrícola del Ministerio de Agricultura de Belice, siempre le ha concedido a la BWB-ASF los permisos necesarios. La BWB-ASF también ha establecido muchas sociedades. (Para una lista de socios y colaboradores de la BWB-ASF, favor de ver el Apéndice 2.)

En el 1998, la FWC compró 6,009 acres (2,433 hectáreas) de terreno vital para la conservación en el centro de Belice con la intención de protegerlo del desarrollo urbano, y ahora administra este terreno como la Reserva Natural de Runaway Creek (RCNP por sus siglas en inglés). La RCNP es parte importante del

Corredor Biológico Mesoamericano y le provee vastas extensiones de hábitat en su estado natural a muchos animales tanto como plantas escasas. Los personales de BWB-ASF continúan llevando a cabo investigaciones en la reserva. (Para más información sobre las aves y hábitat encontrados en la RCNP, favor de ver las páginas 45-46 y 48-49)

### LA CLASIFICACIÓN DE LAS AVES DE BELICE

Las aves pueden ser clasificadas por la cantidad de tiempo que permanecen en Belice durante su época de vida. Esto también se denomina como la estacionalidad de Belice. Las aves en Belice pertenecen a varios grupos y algunas veces la combinación de aquellos grupos. He aquí algunas explicaciones sobre las diferentes clasificaciones de estacionalidad en Belice (Speicher y Greenberg 1991, Howell y Webb 1995, Jones y Vallely 2001, Jones 2003) y sobre las abreviaturas usadas en este folleto:

(R): Aves **residentes** están presentes en Belice durante todo el año.

(N): Aves **migratorias neotropicales** se aparean en Norte América pero pueden pasar hasta un máximo de seis meses en Belice. Durante los inviernos norteamericanos, estas especies de aves también se pueden encontrar en el sur de México, en otras partes de Centro América, en Sur América y en las islas del Mar Caribe (Antillas Mayores).

(M): Aves **migratorias** pasan la temporada en la que no se aparean ("invierno") en Belice y no se aparean en Belice. Incluidas en esta categoría son las aves migratorias neotropicales que pasan los inviernos

norteamericanos tanto al norte como al sur de Belice, desde Norte América hasta el sur de México, en otras partes de Centroamérica, en Sur América y en las islas del Mar Caribe (Antillas Mayores).

(R/M): La categoría de aves **residentes/migratorias** incluye a algunas aves que son residentes en Belice durante todo el año y a otras que son migratorias.

(T): Las aves **transeúntes** sólo son pasajeros o transitorios en Belice y no se aparean allí.

(S): Las aves **residentes estacionales** migran a Belice para aparearse (también se les llama aves migratorias reproductoras).

(X): Las aves de **estado incierto** son las que sólo han sido registradas 1 ó 2 veces.

### APUNTES SOBRE LOS NOMBRES DE LAS AVES

Un ave es a menudo conocida con más de un nombre. Todas las aves tienen un nombre científico (un nombre latino) que consiste de un género y de una especie, usualmente impresa en itálicas. Todos los científicos a nivel mundial usan el mismo nombre científico para referirse a cada especie de ave. También existen nombres comunes en español y en inglés para muchas especies de aves. En Belice, las aves también pueden tener un nombre en criollo, un nombre local en español, un nombre en Kekchi o en Mopan Maya o un nombre arcaico o coloquial. En el Apéndice 1, de las páginas 73 a 97, se puede encontrar tablas que contienen estos nombres. **En este manual, cada vez que se menciona un ave, nosotros incluimos su nombre común en inglés, su nombre científico y su nombre en criollo.**

## ¿POR QUÉ LAS AVES SON IMPORTANTES?

Muchas personas no se dan cuenta del papel importante que juegan las aves en nuestras vidas y en nuestro medio ambiente. La siguiente es una lista de algunas de las razones por las que son importantes las aves.

### Controlan la población de los insectos

Muchas aves son insectívoras. Ellas comen insectos que pueden ser perjudiciales para los cultivos y para los bosques.

### Controlan las plagas

Los halcones y los búhos (tecolote, lechuza) se alimentan de roedores (ratas y ratones).

### Dispersan las semillas

Las aves que comen semillas dispersan las semillas a través de digestión incompleta o parcial.

### Polinizan plantas

Las aves que beben el néctar de las flores (ej., los colibríes) polinizan las plantas cuando se mueven de flor en flor buscando néctar.

### Son parte de la cadena alimenticia

Las aves y los huevos les sirven de alimento a los depredadores, incluyendo a otras aves, mamíferos y a humanos.

### Limpian el medio ambiente

Los buitres (zopes, chombo) y algunos halcones se alimentan de carroña de animales muertos en la carretera y de ganado muerto.



©JAMES BEVERIDGE  
La *Archilochus colubris* poliniza las plantas.

NICK STEPHENS



La especie *Coragyps atratus* se deshace de la materia muerta comiéndosela.

### Son fuente de entretenimiento

Muchas personas disfrutan observando a las aves y escuchando su canto.

### Posibilitan el aviturismo – las aves benefician la economía turística de Belice

Belice cuenta con aproximadamente 574 especies de aves. Estas bellas aves que tienen a Belice como hogar son una gran atracción turística a Belice. El 29% de los turistas que visitan Belice vienen a disfrutar de la vida silvestre y el 27% vienen a disfrutar del bosque lluvioso (Christ et al. 2001). La observación de aves es muy popular entre los turistas y está incluida tanto en las visitas de observación de la vida silvestre como en las visitas al bosque lluvioso. Es así que las aves contribuyen grandemente a la economía de Belice, atrayendo a los turistas.

VICKI PIASKOWSKI



La *Buteo magnirostris* se alimenta de roedores.

### Tienen valor cultural

Las aves juegan un papel muy importante en muchas culturas. Las plumas de las aves han sido utilizadas en ceremonias indígenas mayas, incas, aztecas y de indios norteamericanos. Históricamente, la observación de la migración de aves ayudaba a la gente a determinar el momento apropiado para sembrar y cosechar los cultivos.

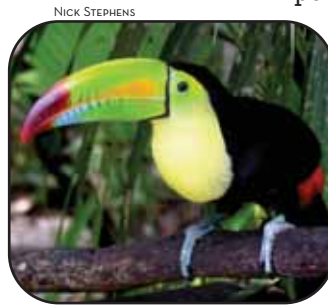
### Nos ayudan a seguir el estado de salud del medio ambiente

Las aves son sensibles a los trastornos ambientales. Es por eso que observando el comportamiento de las aves y comparando la cantidad de aves especie por especie y año tras año, los humanos pueden monitorear el estado de salud del medio ambiente. [La disminución poblacional del falcón peregrino (*Falco peregrinus*) en los EE.UU. llevó al descubrimiento de altos niveles del insecticida DDT en su fuente de alimento. El DDT (dichlorodiphenyltrichloroethane), antes visto como benéfico por su habilidad para controlar la población de mosquitos y la propagación de la malaria, es ahora reconocido como un químico tóxico bioacumulativo que afecta al medio ambiente. Esta prohibido en los EE.UU. y en Belice].

## LO QUE PUEDE HACER PARA AYUDAR A LAS AVES: UN RESUMEN

Igual que los humanos y otros animales, las aves necesitan de alimento, agua y abrigo para sobrevivir. Este manual contiene información detallada sobre como usted puede proveerle estos recursos a las aves de Belice. También contiene información sobre otras maneras en las que usted puede ayudar a las aves, incluyendo los siguientes consejos:

- **Proteja y conserve las plantas nativas que crecen en su terreno.** O si usted piensa sembrar algunas flores o árboles, escoja plantas que sean nativas de Belice. Las plantas nativas proveen frutas, insectos y néctar de los que muchas aves se alimentan. Las plantas nativas también les proveen refugio y lugares donde construir sus nidos. Si usted necesita despejar parte de su terreno, deje todos los árboles y plantas nativas que le sea posible. (Para más información ver páginas 12-28)



Los *Ramphastos sulfuratus* hacen uso de los bosques que se encuentran a la orilla de los ríos de Belice.

- **Trate de conservar los hábitat naturales que se encuentran en su terreno.** Los hábitat más importantes son aquellos que no han sido alterados

por los humanos. Si usted necesita despejar un area de su terreno (ej., para sembrar) deje tanta vegetación como le sea posible. Recuerde que las aves usan muchas clases de habitat. Para aprender más sobre el habitat que las aves prefieren ver la tabla en las páginas 48-59.

- **Proteja el hábitat de savanas de pino y de “acantilados.”** Estos hábitat son de mucha importancia para las aves residentes de Belice durante todo el año, pero en especial durante la temporada de apareamiento, cuando las aves anidan y crían a sus polluelos. Las aves migratorias neotropicales usan las savanas de pino durante la temporada en la que no se aparean (el invierno norteamericano) y durante la migración. Para más información ver las páginas 33-35.

- **Conserve los bosques que rodean a los ríos de Belice.** Muchas especies de aves usan estos bosques, incluyendo aquellas que necesitan protección especial. Para más información ver las páginas 36-38.



- **No siembre bambú no nativo, especialmente alrededor de los ríos.** El bambú no nativo (*Bambusa vulgaris*) es sumamente invasivo y desplaza a las plantas nativas que son importantes para aves y otros miembros de la vida silvestre.

- **Ayude a conservar el bambú espinoso (*Guadua longifolia*),** que es nativo y crece naturalmente alrededor de los ríos.

VICKI PIASKOWSKI



Árboles muertos como estos les proveen lugares a las aves que anidan en cavidades.

- **Proteja a los bosques de mangle.** Los bosques de mangle

le proveen abrigo y comida a aves, insectos, peces e invertebrados. Estos son hábitats muy importantes para Belice. (Para más información ver página 62.)

- **Proteja los bosques costeros, los bosques que sustituyen a los mangles más allá de la línea de la marea.** Los bosques costeros son hábitat importantes que se encuentran en muchos de los cayos de Belice. (Para más información ver página 62.)

Los bosques costeros son hábitat importantes que se encuentran en muchos de los cayos de Belice. (Para más información ver página 62.)

- **No rastrille ni remueva las algas marinas de las playas.** Las playas le proveen áreas de alimentación a muchas aves zancudas, incluyendo a las aves costeras. Las aves encuentran alimento en las algas marinas que las olas arrastran hacia la costa. En vez de rastrillar o remover las algas marinas, déjelas allí para las aves. (Para más información ver página 62.)

Las aves encuentran alimento en las algas marinas que las olas arrastran hacia la costa. En vez de rastrillar o remover las algas marinas, déjelas allí para las aves. (Para más información ver página 62.)

- **Si usted tiene alguna fuente de agua natural en su terreno presérvela para las aves.** Las fuentes de agua naturales, tales como ríos o riachuelos, estanques pequeños o áreas empananadas que se encuentran en savanas, pueden atraer a las aves y proveerles grandes cantidades de agua necesaria para ellas, especialmente durante la temporada seca. Para más información ver página 67. (Los charcas con agua estancada o los bebederos para aves pueden ser criaderos de mosquitos y por consiguiente no deben ser usados a menos que sean vaciados, enjuagados y llenados con agua fresca diariamente).

Las fuentes de agua naturales, tales como ríos o riachuelos, estanques pequeños o áreas empananadas que se encuentran en savanas, pueden atraer a las aves y proveerles grandes cantidades de agua necesaria para ellas, especialmente durante la temporada seca. Para más información ver página 67. (Los charcas con agua estancada o los bebederos para aves pueden ser criaderos de mosquitos y por consiguiente no deben ser usados a menos que sean vaciados, enjuagados y llenados con agua fresca diariamente).

- Las fuentes de agua de procedencia natural son importantes para los martin pescadores,

las aves zancudas y para el jabirú, un ave de gran tamaño que es miembro de la familia de las cigüeñas que está en peligro de extinción en Belice. El jabirú (*Jabiru mycteria*) está también en peligro en países vecinos. Para más información ver página 63 para aprender más sobre el jabirú.

- **Use métodos seguros para proteger a los árboles frutales del daño que las aves puedan causarles.** Si cultiva árboles frutales ponga en práctica los métodos de cosecha y otras sugerencias que se encuentran en las páginas 29-31 para prevenir/minimizar el daño que las aves le puedan causar a las cosechas de frutas.

Si cultiva árboles frutales ponga en práctica los métodos de cosecha y otras sugerencias que se encuentran en las páginas 29-31 para prevenir/minimizar el daño que las aves le puedan causar a las cosechas de frutas.

- **Use métodos seguros y efectivos para controlar a las aves en criaderos de peces.** Si usted tiene o trabaja en un criadero de peces siga las sugerencias en la página 32 para controlar a las aves que buscan alimento en lugares donde se crían peces.

Si usted tiene o trabaja en un criadero de peces siga las sugerencias en la página 32 para controlar a las aves que buscan alimento en lugares donde se crían peces.

- **Ayude a conservar los árboles muertos y los tocones donde las aves hacen sus nidos.** Muchas aves hacen sus nidos en agujeros (cavidades). En Belice, estas cavidades se pueden encontrar en árboles vivos y muertos, en tocones, en nidos de termitas (comején) o de avispas, en acantilados y en los muros de templos arqueológicos. Algunas de las maneras en las que puede ayudar a las aves que anidan en cavidades son:

Muchas aves hacen sus nidos en agujeros (cavidades). En Belice, estas cavidades se pueden encontrar en árboles vivos y muertos, en tocones, en nidos de termitas (comején) o de avispas, en acantilados y en los muros de templos arqueológicos. Algunas de las maneras en las que puede ayudar a las aves que anidan en cavidades son:

- Conservando a los árboles muertos en vez de cortarlos.
- Dejando a los nidos de termitas (comején) en los árboles.

Para más información sobre las aves que anidan en cavidades ver páginas 64-66.

CAROL FARNETH-FOSTER



El *Amazilia tzacatl* y otros colibríes se alimentan de las flores de las plantas del género *Costus* (Familia *Costaceae*).

- **Evite el uso de pesticidas cuando sea posible.** Las aves pueden ser sensibles a lo que usamos para controlar las plagas en nuestros jardines, campos, huertos y plantaciones.

Las aves pueden ser sensibles a lo que usamos para controlar las plagas en nuestros jardines, campos, huertos y plantaciones.

- **Apoye a o sea voluntario de organizaciones conservacionistas y de organizaciones que ofrecen educación sobre la conservación a nivel local, nacional e internacional.** Algunas de estas organizaciones que trabajan en Belice

Algunas de estas organizaciones que trabajan en Belice

se pueden encontrar en nuestra lista de colaboradores y asociados que se encuentra en la página 98. Muchas de ellas reciben a los voluntarios con los brazos abiertos.

- **Ayude a entusiasmar a los jóvenes con las aves.** Muchas organizaciones conservacionistas y que educan sobre la conservación tienen programas en los que los jóvenes pueden aprender sobre aves y sobre otros animales.
- **Aprenda como prevenir que las aves se lesionen al golperse con ventanas de vidrio o cristal.** Para más información ver página 68.
- **Mantenga a sus gatos dentro de la casa; el gato vivirá más y las aves también.** Los gatos que vagan libremente no sólo matan roedores, también matan aves silvestres y a otros miembros de la vida silvestre. Aún los gatos que son bien alimentados por sus dueños tienen un instinto natural de caza. Lo que es mejor para su gato (quedarse adentro) también ayudará las aves. Para más información ver página 69.

- **No mate o dañe las aves con hondas o escopetas de perdigones para uso deportivo.** Use objetos inertes como una lata vieja, un árbol muerto, botellas plásticas o dibujos de aves/animales para practicar el tiro. Para más información ver página 70.
- **No atrape o enjaule aves silvestres como mascotas.** Tener a aves silvestres como mascotas es ilegal en Belice. Denuncie a las personas que tienen aves silvestres como mascotas. Para más información ver página 70.

*Los propietarios de terrenos que trabajan en conjunto pueden conservar y proteger áreas más grandes de hábitat que las personas que trabajan en su carácter individual. Hable con sus vecinos para ver si están interesados en unirse a usted para ayudar a salvar el hábitat de las aves.*

RICHARD BRODZELLER



El ave *Vermivora peregrina* se alimenta de insectos y ayuda a controlarlos.

VICKI PIASKOWSKI



La sabana de Belice y hábitat de transición (broken ridge) son de suma importancia para las aves residentes y migratorias de Belice.

JOHN MCQUILLAN



El ave *Tyrannus savana* se anida en las sabanas de Belice.

VICKI PIASKOWSKI



Fuentes de agua natural es importante para muchas aves. Esta aguada en el Centro Tropical de Educación suministra las aves con alimento y agua.

GIL BOESE, PH.D



El bosque riverina provee hábitat para muchas especies de aves, incluyendo aquellos que necesitan protección especial.

©JAMES BEVERIDGE



Mangles como estas en Caye Caulker, son muy importantes para las aves, peces, insectos y otros invertebrados.

BWB-ASF STAFF



Nidos viejos de termitas son usados por las aves para anidarse y criar polluelos, por ejemplo, *Trogon melanocephalus*.

VICKI PIASKOWSKI



Este nido de termitas tiene una cavidad de nido.

## PLANTS THAT PROVIDE FOOD FOR BIRDS

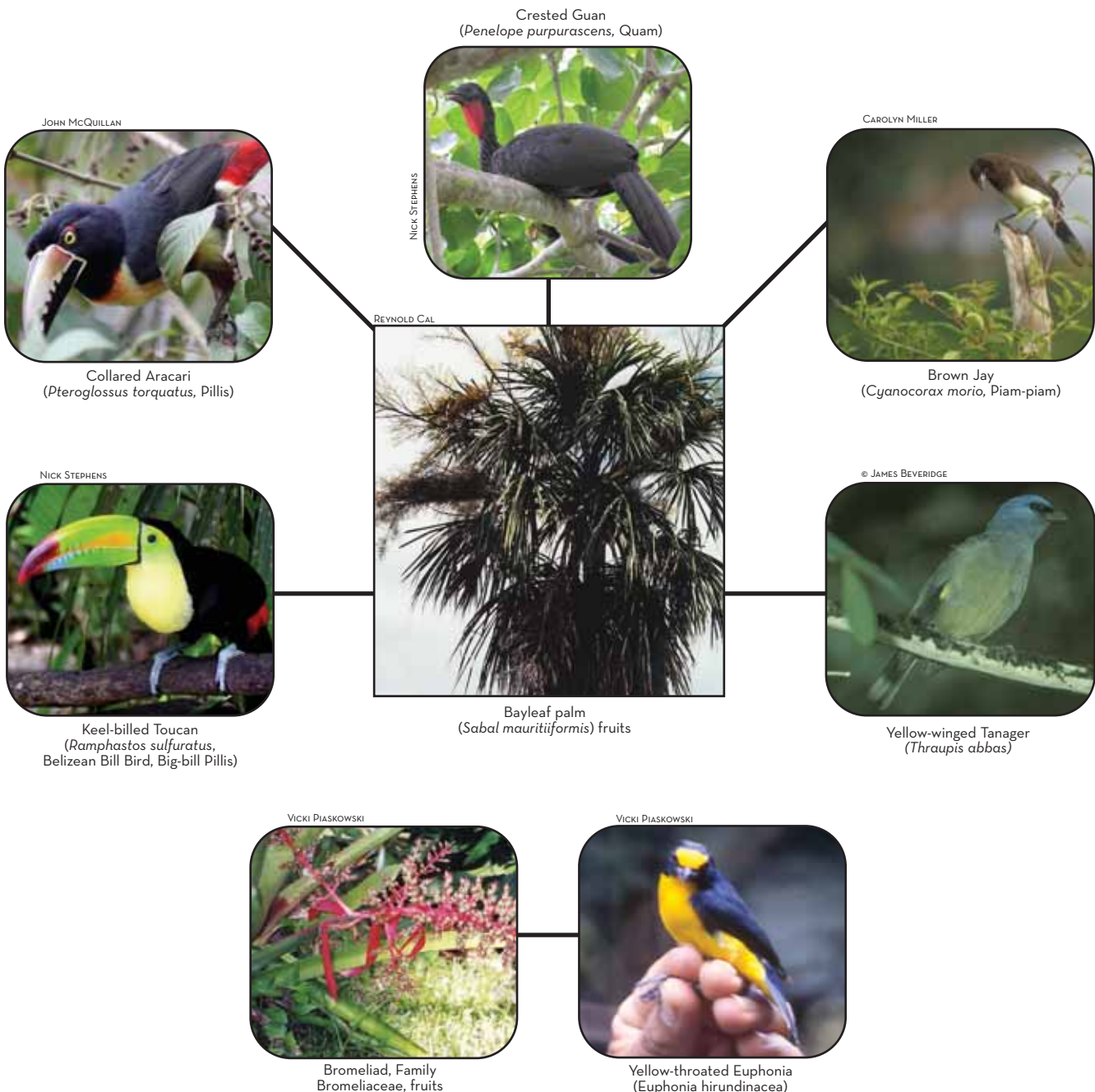
While they conducted the research, Birds Without Borders – *Aves Sin Fronteras*® staff made observations of the plants that were used by birds for food. Many migrant and resident birds are attracted to the fruits that grow on native plants. Birds also feed on insects and caterpillars (“worms”) that can be found on native plants. Other birds, such as hummingbirds, feed on flowers and nectar, but also eat insects.

Following are pictures of plants and some of the birds that feed on them. A complete list can be found on pages 23-26. As a landowner, you can help birds by protecting these plants if they are growing on your land. Or, if you are planning to plant some flowers

or trees, you can choose some of the plants on this list. If you need to clear an area of your land, leave as many of these plants as possible.

Most of the plants on this list are native to Belize, which means that they grow here naturally. We have included many photographs of both the plants and birds so that they can be easily identified. We also contacted nurseries country-wide to determine if they sell these plants. (Please see pages 27-28 for a list of places where some of these plants can be purchased.)

Watch for the many beautiful birds that will come to feed on these plants on your land.





Capulin (*Trema micrantha*) fruits



©JAMES BEVERIDGE

Tropical Mockingbird  
(*Mimus gilvus*, Nightingale)



VICKI PIASKOWSKI



VICKI PIASKOWSKI

Yellow-breasted Chat  
(*Icteria virens*)



BWB-ASF STAFF

Gray Catbird  
(*Dumetella carolinensis*)

Black-cowled Oriole  
(*Icterus prothemelas*, Banana Bird)



©JAMES BEVERIDGE

Red-legged Honeycreeper  
(*Cyanerpes cyaneus*)



RICHARD BRODZELLER

REYNOLD CAL

Red-legged Honeycreeper  
(*Cyanerpes cyaneus*)



GENE ALBANESE

JAN MEERMAN

Red-lore Parrot  
(*Amazona autumnalis*, Mangro Parrot)



VICKI PIASKOWSKI

JAN MEERMAN



Ceiba (*Ceiba pentandra*) tree



Ceiba flowers



Close-up of Ceiba flowers



©JAMES BEVERIDGE

Blue-gray Tanager  
(*Thraupis episcopus*, Bluebird)



NICK STEPHENS

Montezuma Oropendola  
(*Psarocolius montezuma*, Yellow-tail)



©JAMES BEVERIDGE

Yellow-winged Tanager  
(*Thraupis abbas*)



RICHARD BRODZELLER

Baltimore Oriole  
(*Icterus galbula*, Banana Bird)

Ceiba (*Ceiba pentandra*) fruits



NICK STEPHENS

CAROLYN MILLER



Brown Jay  
(*Cyanocorax morio*, Piam-piam)

CAROL FARNETI-FOSTER



Costus (Family Costaceae) flowers and  
Rufous-tailed Hummingbird (*Amazilia tzacatl*)

Costus (Family Costaceae) seeds



REYNOLD CAL

LARRY HOPWOOD



Blue-black Grosbeak  
(*Cyanocopsa cyanooides*)

GENE ALBANESE



Red-legged Honeycreeper  
(*Cyanerpes cyaneus*)

GORDON MACDONALD



Pale-vented Pigeon  
(*Patagioenas cayennensis*,  
Blue Pigeon, Red Mangrove Pigeon)

Cocoplum (*Chrysobalanus icaco*) fruits



VICKI PIASKOWSKI

VICKI PIASKOWSKI



Clay-colored Robin  
(*Turdus grayi*, Brown Cusco)

RICHARD BRODZELLER



Red-legged Honeycreeper  
(*Cyanerpes cyaneus*)

CAROLYN MILLER



Brown Jay  
(*Cyanocorax morio*, Piam-piam)



Craboo (*Byrsonima crassifolia*) fruits



Black-cowled Oriole  
(*Icterus prosthemelas*, Banana Bird)

©JAMES BEVERIDGE



VICKI PIASKOWSKI



Tropical Mockingbird  
(*Mimus gilvus*, Nightingale)

©JAMES BEVERIDGE

Red-capped Manakin female



GENE ALBANESE



Brown Jay  
(*Cyanocorax morio*, Piam-piam)

CAROLYN MILLER

Black-headed Trogon  
(*Trogon melanocephalus*, Ramatatu)



GENE ALBANESE



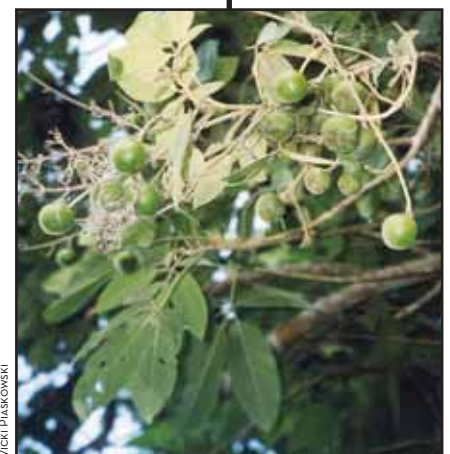
REYNOLD CAL

Ficus  
(*Ficus sp.*) fruits



Red-capped Manakin  
(*Pipra mentalis*) male

LARRY HOPWOOD



VICKI PIASKOWSKI

Fiddlewood  
(*Vitex gaueri*) fruits



Yellow-throated Euphonia  
(*Euphonia hirundinacea*)

VICKI PIASKOWSKI



Collared Aracari  
(*Pteroglossus torquatus*, Pillis)

JOHN MCCOULLAN



Give-and-Take Palm (*Cryosophila stauracantha*) fruits with Collared Aracari (*Pteroglossus torquatus*, Parris)



NICK STEPHENS

Hibiscus (*Hibiscus* sp.) flowers



VICKI PIASKOWSKI

Stripe-throated Hermit (*Phaethornis striigularis*)



© JAMES BEVERIDGE

REYNOLD CAL



NICK STEPHENS

Keel-billed Toucan (*Ramphastos sulfuratus*, Belizean Bill Bird, Big-bill Parris)



NICK STEPHENS

Rufous-tailed Hummingbird (*Amazilia tzacatl*)



Wild hibiscus (*Hibiscus* sp.) flowers

Indian redhead (*Aphelandra scabra*) flowers



REYNOLD CAL

© JAMES BEVERIDGE



Long-billed Hermit (*Phaethornis longirostris*)



© JAMES BEVERIDGE

White-bellied Emerald (*Amazilia candida*)



© JAMES BEVERIDGE

Stripe-throated Hermit (*Phaethornis striigularis*)



GORDON MACDONALD

Ochre-bellied Flycatcher (*Mionectes oleagineus*)

VICKI PIASKOWSKI



Sandpaper vine (Family Dilleniaceae) fruits

Madre de cacao (*Gliricidia sepium*) flowers



REYNOLD CAL



©JAMES BEVERIDGE

Black-cowled Oriole  
(*Icterus prosthemelas*, Banana Bird)



©B. SCHORRE/VIREO

Orchard Oriole  
(*Icterus spurius*, Banana Bird)



GENE ALBANESE

Plain Chachalaca  
(*Ortalis vetula*, Cocrico)



RICHARD BRODZELLER

Red-legged Honeycreeper  
(*Cyanerpes cyaneus*)



GENE ALBANESE

Red-legged Honeycreeper  
(*Cyanerpes cyaneus*)

The bird feeding on Maiden hairbrush (*Combretum fruticosum*) flowers is a Yellow-billed Cacique (*Amblycercus holosericeus*)



REYNOLD CAL

Mexican flamebush (*Calliandra* sp.) flowers



VICKI PIASKOWSKI



©JAMES BEVERIDGE

White-bellied Emerald  
(*Amazilia candida*)



VICKI PIASKOWSKI

Yellow-throated Euphonia  
(*Euphonia hirundinacea*)



VICKI PIASKOWSKI

close-up of Yellow-billed Cacique



RICHARD BRODZELLER

Tennessee Warbler  
(*Vermivora peregrina*)



VICKI PIASKOWSKI

Magnolia Warbler  
(*Dendroica magnolia*)





Magnolia Warbler  
(*Dendroica magnolia*)

BWB-ASF STAFF



Gray Catbird  
(*Dumetella carolinensis*)

VICKI PIASKOWSKI



Common Yellowthroat  
(*Geothlypis trichas*)

LYNN MILLER



American Redstart  
(*Setophaga ruticilla*)

NICK STEPHENS



Rufous-tailed Hummingbird  
(*Amazilia tzacatl*)

VICKI PIASKOWSKI



Maiden hairbrush  
(*Combretum fruticosum*) flowers

NICK STEPHENS



Rufous-tailed Hummingbird  
(*Amazilia tzacatl*)

GENE ALBANESE



Red-legged Honeycreeper  
(*Cyanerpes cyaneus*)

RICHARD BRODZELLER



Red-legged Honeycreeper  
(*Cyanerpes cyaneus*)

REYNOLD CAL



Passion fruit (*Passiflora* sp.) (flowers)

© JAMES BEVERIDGE



Black-cowled Oriole  
(*Icterus prothemelas*, Banana Bird)

CAROLYN MILLER



Brown Jay  
(*Cyanocorax morio*, Piam-piam)

KELLEY HOPWOOD



Golden-fronted Woodpecker  
(*Melanerpes aurifrons*, Carpenter)

CAROLYN MILLER



Brown Jay  
(*Cyanocorax morio*, Piam-piam)

© B. SCHORRE/VIDEO



Orchard Oriole  
(*Icterus spurius*, Banana Bird)



Mistletoe grows in Caribbean pine trees

Close-up of Mistletoe flowers



VICKI PIASKOWSKI



VICKI PIASKOWSKI

© JAMES BEVERIDGE



Black-cowled Oriole  
(*Icterus prothemelas*, Banana Bird)

© JAMES BEVERIDGE



White-bellied Emerald  
(*Amazilia candida*)

Polewood tree (*Xylopia frutescens*)

Polewood fruits



VICKI PIASKOWSKI



VICKI PIASKOWSKI

BWB-ASF staff



Gray Catbird  
(*Dumetella carolinensis*)

REYNOLD CAL



NICK STEPHENS

Rufous-tailed Hummingbird  
(*Amazilia tzacatl*)



Polly red head (*Hamelia rovirosae/patens*) flowers

©JAMES BEVERIDGE



White-bellied Emerald  
(*Amazilia candida*)

Quamwood (*Schizolobium parahybum*) trees in bloom



GENE ALBANESE



©JAMES BEVERIDGE

Ruby-throated Hummingbird  
(*Archilochus colubris*)



GENE ALBANESE

Plain Chachalaca  
(*Ortalis vetula*, Cocrico)



©B. SCHORR/VIREO

Orchard Oriole  
(*Icterus spurius*, Banana Bird)



REYNOLD CAL

Close-up of Quamwood flowers



GENE ALBANESE

Red-legged Honeycreeper  
(*Cyanerpes cyaneus*)



©JAMES BEVERIDGE

Yellow-winged Tanager  
(*Thraupis abbas*)



NICK STEPHENS

Rufous-tailed Hummingbird  
(*Amazilia tzacatl*)



RICHARD BRODZELLER

Red-legged Honeycreeper  
(*Cyanerpes cyaneus*)





VICKI PIASKOWSKI

White-eyed Vireo  
(*Vireo griseus*)



GENE ALBANESE

Black-headed Trogon  
(*Trogon melanocephalus*, Ramatatu)

Red gumbolimbo (*Bursera simaruba*) fruits



VICKI PIASKOWSKI



GENE ALBANESE

Indigo Bunting  
(*Passerina cyanea*)



KELLEY HOPWOOD

Golden-fronted Woodpecker  
(*Melanerpes aurifrons*, Carpenter)



GENE ALBANESE

Bright-rumped Attila  
(*Attila spadiceus*)



©JAMES BEVERIDGE

Masked Tityra  
(*Tityra semifasciata*, White Woodpecker)

VICKI PIASKOWSKI



GENE ALBANESE

Plain Chachalaca  
(*Ortalis vetula*, Cocrico)



Royal palm (*Roystonea regia*) fruits



JOHN MCQUILLAN

Collared Aracari  
(*Pteroglossus torquatus*, Pillis)





Blue-gray Tanager  
(*Thraupis episcopus*, Bluebird)



Trumpet tree (*Cecropia peltata*) fruits  
(Other species of *Cecropia* trees can have longer fruits)



Crimson-collared Tanager  
(*Ramphocelus sanguinolentus*)



Baltimore Oriole  
(*Icterus galbula*, Banana Bird)



Blue-gray Tanager  
(*Thraupis episcopus*, Bluebird)



White maya (*Miconia argentea*) fruits



Yellow-throated Euphonia  
(*Euphonia hirundinacea*)



Clay-colored Robin  
(*Turdus grayi*, Brown Cusco)

<b>PLANT SPECIES</b> (part of plant that bird feeds on) <i>Scientific name in italics</i>	<b>RESIDENT BIRDS SEEN FEEDING ON PLANT</b>	<b>MIGRANT BIRDS SEEN FEEDING ON PLANT</b>
Acacia sp. (seeds)	Olive-throated Parakeet ( <i>Aratinga nana</i> , Wood-lice Kiti)	
Bayleaf palm (fruit) <i>Sabal mauritiiiformis</i>	Brown Jay ( <i>Cyanocorax morio</i> , Piam-piam) Collared Aracari ( <i>Pteroglossus torquatus</i> , Pillis) Crested Guan ( <i>Penelope purpurascens</i> , Quam) Keel-billed Toucan ( <i>Ramphastos sulfuratus</i> , Belizean Bill Bird, Big-bill Pillis) Yellow-winged Tanager ( <i>Thraupis abbas</i> )	
Boyjob (fruit) <i>Matayba apetala/oppositifolia</i>	Collared Aracari ( <i>Pteroglossus torquatus</i> , Pillis)	
Breadnut (fruit) <i>Trophis racemosa</i>		Gray Catbird ( <i>Dumetella carolinensis</i> ) Rose-breasted Grosbeak ( <i>Pheucticus ludovicianus</i> ) Wood Thrush ( <i>Hylocichla mustelina</i> )
Bri-bri (fruit) <i>Inga sp.</i>	Brown Jay ( <i>Cyanocorax morio</i> , Piam-piam) Buff-throated Saltator ( <i>Saltator maximus</i> ) Yellow-tailed Oriole ( <i>Icterus mesomelas</i> , Banana Bird)	
Bromeliad (fruit) Family Bromeliaceae	Yellow-throated Euphonia ( <i>Euphonia hirundinacea</i> )	
Capulin (fruit) <i>Trema micrantha</i>	Tropical Mockingbird ( <i>Mimus gilvus</i> , Nightingale)	Gray Catbird ( <i>Dumetella carolinensis</i> ) Least Flycatcher ( <i>Empidonax minimus</i> ) Yellow-breasted Chat ( <i>Icteria virens</i> )
Carbon del rio (fruit) <i>Trichilia pallida</i>	Clay-colored Robin ( <i>Turdus grayi</i> , Brown Cusco) Gray-headed Tanager ( <i>Eucometis penicillata</i> ) Montezuma Oropendola ( <i>Psarocolius montezuma</i> , Yellow-tail) Yellow-bellied Tyrannulet ( <i>Ornithion semiflavum</i> ) Yellow-throated Euphonia ( <i>Euphonia hirundinacea</i> )	
<i>Trichilia sp.</i> (fruit)	Boat-billed Flycatcher ( <i>Megarynchus pitangua</i> , Kiskadee) Crested Guan ( <i>Penelope purpurascens</i> , Quam) Greenish Elaenia ( <i>Myiopagis viridicata</i> ) Ochre-bellied Flycatcher ( <i>Mionectes oleagineus</i> ) Red-capped Manakin ( <i>Pipra mentalis</i> )	Gray Catbird ( <i>Dumetella carolinensis</i> ) Wood Thrush ( <i>Hylocichla mustelina</i> )
Ceiba (flowers, nectar and fruit) <i>Ceiba pentandra</i>	Black-cowled Oriole ( <i>Icterus prothemelas</i> , Banana Bird) Blue-gray Tanager ( <i>Thraupis episcopus</i> , Bluebird) Canivet's Emerald ( <i>Chlorostilbon canivetii</i> ) Montezuma Oropendola ( <i>Psarocolius montezuma</i> , Yellow-tail) Red-legged Honeycreeper ( <i>Cyanerpes cyaneus</i> ) Red-lore Parrot ( <i>Amazona autumnalis</i> , Mangro Parrot) Rufous-tailed Hummingbird ( <i>Amazilia tzacatl</i> ) White-bellied Emerald ( <i>Amazilia candida</i> ) White-fronted Parrot ( <i>Amazona albifrons</i> , Corn-eater, Corn Kiti) Yellow-winged Tanager ( <i>Thraupis abbas</i> ) Brown Jay ( <i>Cyanocorax morio</i> , Piam-piam)	Baltimore Oriole ( <i>Icterus galbula</i> , Banana Bird) Summer Tanager ( <i>Piranga rubra</i> )
<i>Coccoloba sp.</i> (fruit and flowers)	Great Kiskadee ( <i>Pitangus sulphuratus</i> , Kiskadee) Red-capped Manakin ( <i>Pipra mentalis</i> ) Yellow-bellied Elaenia ( <i>Elaenia flavogaster</i> )	Gray Catbird ( <i>Dumetella carolinensis</i> ) Wood Thrush ( <i>Hylocichla mustelina</i> )
Cocoplum (fruit) <i>Chrysobalanus icaco</i>	Brown Jay ( <i>Cyanocorax morio</i> , Piam-piam) Clay-colored Robin ( <i>Turdus grayi</i> , Brown Cusco) Fork-tailed Flycatcher ( <i>Tyrannus savana</i> , Scissors-tail) Pale-vented Pigeon ( <i>Patagioenas cayennensis</i> , Blue Pigeon, Red Mangrove Pigeon) Red-legged Honeycreeper ( <i>Cyanerpes cyaneus</i> ) Saltator sp. (Genus <i>Saltator</i> ) Yellow-green Vireo ( <i>Vireo flavoviridis</i> ) Yellow-throated Euphonia ( <i>Euphonia hirundinacea</i> )	

\*There are both native and non-native members of these plant groups.

<b>PLANT SPECIES</b> (part of plant that bird feeds on) <i>Scientific name in italics</i>	<b>RESIDENT BIRDS SEEN FEEDING ON PLANT</b>	<b>MIGRANT BIRDS SEEN FEEDING ON PLANT</b>
Copal (fruit) <i>Protium copal</i>	Black-faced Grosbeak ( <i>Caryothraustes poliogaster</i> ) Brown Jay ( <i>Cyanocorax morio</i> , Piam-piam) Olive-throated Parakeet ( <i>Aratinga nana</i> , Wood-lice Kiti) Red-lored Parrot ( <i>Amazona autumnalis</i> , Mangro Parrot)	
Costus (flowers and seeds) Family Costaceae	Blue-black Grosbeak ( <i>Cyanocompsa cyanooides</i> ) Rufous-tailed Hummingbird ( <i>Amazilia tzacatl</i> )	
Craboo (fruit) <i>Byrsonima crassifolia</i>	Black-cowled Oriole ( <i>Icterus prosthemelas</i> , Banana Bird) Brown Jay ( <i>Cyanocorax morio</i> , Piam-piam) Tropical Mockingbird ( <i>Mimus gilvus</i> , Nightingale)	
Ficus (fruit) <i>Ficus</i> sp.	Red-capped Manakin ( <i>Pipra mentalis</i> ) Red-legged Honeycreeper ( <i>Cyanerpes cyaneus</i> ) Yellow-throated Euphonia ( <i>Euphonia hirundinacea</i> )	Prothonotary Warbler ( <i>Protonotaria citrea</i> )
Fiddlewood (fruit) <i>Vitex gaumeri</i>	Black-headed Trogon ( <i>Trogon melanocephalus</i> , Ramatatu) Collared Aracari ( <i>Pteroglossus torquatus</i> , Pillis)	
Give-and-Take Palm (fruit) <i>Cryosophila stauracantha</i>	Keel-billed Toucan ( <i>Ramphastos sulfuratus</i> , Belizean Bill Bird, Big-bill Pillis)	
Grande betty (fruit) <i>Cupania belizensis</i>	Black-faced Grosbeak ( <i>Caryothraustes poliogaster</i> ) Scrub Euphonia ( <i>Euphonia affinis</i> ) Yellow-throated Euphonia ( <i>Euphonia hirundinacea</i> )	
<i>Gaussia maya</i> (fruit)		Gray Catbird ( <i>Dumetella carolinensis</i> ) Wood Thrush ( <i>Hylocichla mustelina</i> )
Guayavillo (fruit) <i>Eugenia</i> sp.	Rose-throated Tanager ( <i>Piranga roseogularis</i> )	
Hibiscus* (flower) <i>Hibiscus</i> sp.	Rufous-tailed Hummingbird ( <i>Amazilia tzacatl</i> )	
Wild hibiscus (flower) <i>Hibiscus</i> sp.	Canivet's Emerald ( <i>Chlorostilbon canivetii</i> ) Stripe-throated Hermit ( <i>Phaethornis striigularis</i> ) White-bellied Emerald ( <i>Amazilia candida</i> )	
Indian redhead (flower) <i>Aphelandra scabra</i>	Long-billed Hermit ( <i>Phaethornis longirostris</i> ) Stripe-throated Hermit ( <i>Phaethornis striigularis</i> ) Wedge-tailed Sabrewing ( <i>Campylopterus curvipennis</i> )	
Lonchocarpus flower (flower) <i>Lonchocarpus</i> sp.	Wedge-tailed Sabrewing ( <i>Campylopterus curvipennis</i> )	
Logwood (flowers) <i>Haematoxylon campechianum</i>	White-bellied Emerald ( <i>Amazilia candida</i> )	
Madre de cacao (flower) <i>Gliricidia sepium</i>	Black-cowled Oriole ( <i>Icterus prosthemelas</i> , Banana Bird) Collared Aracari ( <i>Pteroglossus torquatus</i> , Pillis) Plain Chachalaca ( <i>Ortalis vetula</i> , Cocrico) Red-legged Honeycreeper ( <i>Cyanerpes cyaneus</i> )	Orchard Oriole ( <i>Icterus spurius</i> , Banana Bird)
Maiden hairbrush (flowers) <i>Combretum fruticosum</i>	Black-cowled Oriole ( <i>Icterus prosthemelas</i> , Banana Bird) Blue-gray Tanager ( <i>Thraupis episcopus</i> , Bluebird) Brown Jay ( <i>Cyanocorax morio</i> , Piam-piam) Golden-fronted Woodpecker ( <i>Melanerpes aurifrons</i> , Carpenter) Grayish Saltator ( <i>Saltator coerulescens</i> , John Smith Kill a Bird) Olive-backed Euphonia ( <i>Euphonia gouldi</i> ) Red-legged Honeycreeper ( <i>Cyanerpes cyaneus</i> ) Rufous-tailed Hummingbird ( <i>Amazilia tzacatl</i> ) Scrub Euphonia ( <i>Euphonia affinis</i> ) Yellow-backed Oriole ( <i>Icterus chrysater</i> , Banana Bird) Yellow-tailed Oriole ( <i>Icterus mesomelas</i> , Banana Bird) Yellow-billed cacique ( <i>Amblycercus holosericeus</i> )	American Redstart ( <i>Setophaga ruticilla</i> ) Common Yellowthroat ( <i>Geothlypis trichas</i> ) Gray Catbird ( <i>Dumetella carolinensis</i> ) Magnolia Warbler ( <i>Dendroica magnolia</i> ) Orchard Oriole ( <i>Icterus spurius</i> , Banana Bird) Yellow-breasted Chat ( <i>Icteria virens</i> ) Yellow-rumped Warbler ( <i>Dendroica coronata</i> )
Mapola (flowers) <i>Luehea seemannii</i>	Rufous-tailed Hummingbird ( <i>Amazilia tzacatl</i> ) White-bellied Emerald ( <i>Amazilia candida</i> )	

\*There are both native and non-native members of these plant groups.



<b>PLANT SPECIES</b> (part of plant that bird feeds on) <i>Scientific name in italics</i>	<b>RESIDENT BIRDS SEEN FEEDING ON PLANT</b>	<b>MIGRANT BIRDS SEEN FEEDING ON PLANT</b>
Mexican flamebush (flowers) <i>Calliandra</i> sp.	Azure-crowned Hummingbird ( <i>Amazilia cyanocephala</i> ) Plain Chachalaca ( <i>Ortalis vetula</i> , Cocrico) Scrub Euphonia ( <i>Euphonia affinis</i> ) White-bellied Emerald ( <i>Amazilia candida</i> ) Yellow-throated Euphonia ( <i>Euphonia hirundinacea</i> )	Magnolia Warbler ( <i>Dendroica magnolia</i> ) Tennessee Warbler ( <i>Vermivora peregrina</i> )
Mistletoe (flowers)	Azure-crowned Hummingbird ( <i>Amazilia cyanocephala</i> ) Black-cowled Oriole ( <i>Icterus prothemelas</i> , Banana Bird) Buff-bellied Hummingbird ( <i>Amazilia yucatanensis</i> ) Scrub Euphonia ( <i>Euphonia affinis</i> ) White-bellied Emerald ( <i>Amazilia candida</i> )	
Family Myrsinaceae (fruit)	Yellow-green Vireo ( <i>Vireo flavoviridis</i> )	
Narrow-leaf Moho (flowers) <i>Trichospermum campbellii</i>	Azure-crowned Hummingbird ( <i>Amazilia cyanocephala</i> )	
Negrilo (fruit) <i>Simarouba glauca</i>	Crested Guan ( <i>Penelope purpurascens</i> , Quam)	
Orange tree (fruit) <i>Citrus</i> sp.	Golden-fronted Woodpecker ( <i>Melanerpes aurifrons</i> , Carpenter) Montezuma Oropendola ( <i>Psarocolius montezuma</i> , Yellow-tail) Red-legged Honeycreeper ( <i>Cyanerpes cyaneus</i> ) Red-lored Parrot ( <i>Amazona autumnalis</i> , Mangro Parrot)	Orchard Oriole ( <i>Icterus spurius</i> , Banana Bird)
Palmetto (fruit) <i>Acoelorrhaphe wrightii</i>	Hepatic Tanager ( <i>Piranga flava</i> , Pepper Bird)	
Passion fruit* (flowers) <i>Passiflora</i> sp.	Brown Jay ( <i>Cyanocorax morio</i> , Piam-piam) Rufous-tailed Hummingbird ( <i>Amazilia tzacatl</i> )	
Polewood (fruit) <i>Xylopia frutescens</i>		Gray Catbird ( <i>Dumetella carolinensis</i> )
Polly red head (flowers) <i>Hamelia rovirosae/patens</i>	Rufous-tailed Hummingbird ( <i>Amazilia tzacatl</i> ) White-bellied Emerald ( <i>Amazilia candida</i> )	
Psychotria sp. (fruit) <i>Psychotria</i> sp.	Ochre-bellied Flycatcher ( <i>Mionectes oleagineus</i> )	
Quamwood (flowers) <i>Schizolobium parahybum</i>	Grayish Saltator ( <i>Saltator coerulescens</i> , John Smith Kill a Bird) Plain Chachalaca ( <i>Ortalis vetula</i> , Cocrico) Red-legged Honeycreeper ( <i>Cyanerpes cyaneus</i> ) Rufous-tailed Hummingbird ( <i>Amazilia tzacatl</i> ) White-bellied Emerald ( <i>Amazilia candida</i> ) Yellow-tailed Oriole ( <i>Icterus mesomelas</i> , Banana Bird) Yellow-winged Tanager ( <i>Thraupis abbas</i> )	Orchard Oriole ( <i>Icterus spurius</i> , Banana Bird) Ruby-throated Hummingbird ( <i>Archilochus colubris</i> )
Red gumbolimbo (fruit) <i>Bursera simaruba</i>	Black-faced Grosbeak ( <i>Caryothraustes poliogaster</i> ) Black-headed Trogon ( <i>Trogon melanocephalus</i> , Ramatatu) Bright-rumped Attila ( <i>Attila spadiceus</i> ) Golden-fronted Woodpecker ( <i>Melanerpes aurifrons</i> , Carpenter) Keel-billed Toucan ( <i>Ramphastos sulfuratus</i> , Belizean Bill Bird, Big-bill Pillis) Masked Tityra ( <i>Tityra semifasciata</i> , White Woodpecker) Rose-throated Becard ( <i>Pachyramphus aglaiae</i> ) Slaty-tailed Trogon ( <i>Trogon massena</i> , Ramatatu)	Indigo Bunting ( <i>Passerina cyanea</i> ) White-eyed Vireo ( <i>Vireo griseus</i> )
Royal palm (fruit) <i>Roystonea regia</i>	Collared Aracari ( <i>Pteroglossus torquatus</i> , Pillis) Plain Chachalaca ( <i>Ortalis vetula</i> , Cocrico)	
Sandpaper vine (fruit) Family Dilleniaceae	Ochre-bellied Flycatcher ( <i>Mionectes oleagineus</i> )	
Family Sapindaceae (fruit)	Black-headed Trogon ( <i>Trogon melanocephalus</i> , Ramatatu)	

\*There are both native and non-native members of these plant groups.

<b>PLANT SPECIES</b> (part of plant that bird feeds on) <i>Scientific name in italics</i>	<b>RESIDENT BIRDS SEEN FEEDING ON PLANT</b>	<b>MIGRANT BIRDS SEEN FEEDING ON PLANT</b>
Trumpet tree (fruit) <i>Cecropia peltata</i>	Blue-gray Tanager ( <i>Thraupis episcopus</i> , Bluebird) Collared Aracari ( <i>Pteroglossus torquatus</i> , Pillis) Crimson-collared Tanager ( <i>Ramphocelus sanguinolentus</i> ) Keel-billed Toucan ( <i>Ramphastos sulfuratus</i> , Belizean Bill Bird, Big-bill Pillis) Scrub Euphonia ( <i>Euphonia affinis</i> )	Baltimore Oriole ( <i>Icterus galbula</i> , Banana Bird)
White maya (fruit) <i>Miconia argentea</i>	Blue-gray Tanager ( <i>Thraupis episcopus</i> , Bluebird) Clay-colored Robin ( <i>Turdus grayi</i> , Brown Cusco) White-fronted Parrot ( <i>Amazona albifrons</i> , Corn-eater, Corn Kiti) Yellow-throated Euphonia ( <i>Euphonia hirundinacea</i> ) Yellow-winged Tanager ( <i>Thraupis abbas</i> )	
Wild caimito (fruit) <i>Chrysophyllum</i> sp.	Black-headed Trogon ( <i>Trogon melanocephalus</i> , Ramatatu)	

\*There are both native and non-native members of these plant groups.

## PLACES IN BELIZE THAT SELL PLANTS USED AS FOOD BY BIRDS AND OTHER BELIZE NATIVE/AGRICULTURAL PLANTS

(Please note: Birds Without Borders – *Aves Sin Fronteras*® does not endorse any one nursery. We are providing this information so that landowners will have information about where to buy plants that are used as food by birds.)

NURSERY	PLANTS SOLD THAT ARE USED AS FOOD BY BIRDS (SEE TABLE ON PG. 23-26)	OTHER NATIVE PLANTS SOLD
Mario Fernandez Pasco Enterprise 123 Western Highway Cayo. Nursery at Benque Viejo Road/ Western Hwy	Bayleaf palm ( <i>Sabal mauritiiformis</i> )	Zericote ( <i>Cordia</i> sp.) Sour sop ( <i>Annona muricata</i> )
Variety Nursery Upper Barton Creek P.O. Box 34, San Ignacio Guacamallo/Mountain Pine Ridge Road	Craboo ( <i>Byrsonima crassifolia</i> ) Passion fruit ( <i>Passiflora</i> sp.)	17 varieties of Mangoes ( <i>Mangifera</i> sp.) 21 varieties of Citrus ( <i>Citrus</i> sp.) 9 varieties of Avocado ( <i>Persea</i> sp.) 5 varieties of Sapodilla ( <i>Manilkara zapota</i> ) Tamarind ( <i>Tamarindus</i> sp.) Custard apple ( <i>Annona reticulata</i> ) Jack fruit ( <i>Artocarpus heterophyllus</i> ) Sour sop ( <i>Annona muricata</i> ) Monkey/Baboon cap ( <i>Couepia polyandra</i> ) Monkey/Baboon cap ( <i>Couepia polyandra</i> ) Wild cherry ( <i>Pseudolmedia spuria</i> )
5 G's Nursery St. Margaret's Village Contact: Lennox Gladden		Cashew ( <i>Anacardium occidentale</i> ) Mango ( <i>Mangifera</i> sp.) Golden plum ( <i>Spondias</i> sp.) Custard apple ( <i>Annona reticulata</i> ) Mamee apple ( <i>Pouteria sapota/mamosa</i> ) Tuki/Cow sop ( <i>Annona</i> sp.) Sweet sop ( <i>Annona squamosa</i> ) Monkey/Baboon cap ( <i>Couepia polyandra</i> ) Banana ( <i>Musa</i> sp.) Plantain ( <i>Musa</i> sp.) Citrus ( <i>Citrus</i> sp.) Avocado ( <i>Persea</i> sp.) Spices
Melvin's Nursery Mile 59-60 Western Hwy Blackman Eddy Village	Royal palm ( <i>Roystonea regia</i> ) Caimito ( <i>Chrysophyllum</i> sp.) Hibiscus ( <i>Hibiscus</i> sp.) <i>Heliconia</i> sp.	Star apple ( <i>Chrysophyllum</i> sp.) Sour sop ( <i>Annona muricata</i> ) Custard apple ( <i>Annona reticulata</i> ) Mango ( <i>Mangifera</i> sp.) Malay apple ( <i>Syzygium malaccense</i> ) Cashew ( <i>Anacardium occidentale</i> ) Citrus ( <i>Citrus</i> sp.) Avocado ( <i>Persea</i> sp.) Sea grape ( <i>Coccoloba uvifera</i> ) <i>Chamaedorea</i> sp.
Riverwalk Nursery Mile 60 Western Highway P.O. Box 103, Belmopan Phone/Fax: 824-2495	Royal palm ( <i>Roystonea regia</i> ) Passion fruit ( <i>Passiflora</i> sp.) Hibiscus ( <i>Hibiscus</i> sp.) <i>Heliconia</i> sp.	Citrus ( <i>Citrus</i> sp.) Avocado ( <i>Persea</i> sp.) Malay apple ( <i>Syzygium malaccense</i> ) Kinep ( <i>Talisia oliviformis</i> ) Guava ( <i>Psidium guajava</i> ) Sour sop ( <i>Annona muricata</i> ) Lemonaria ( <i>Psychotria fruticetorum</i> ) Cashew ( <i>Anacardium occidentale</i> ) Banana ( <i>Musa</i> sp.) <i>Lantana camara</i>



NURSERY	PLANTS SOLD THAT ARE USED AS FOOD BY BIRDS (SEE TABLE ON PG. 23-26)	OTHER NATIVE PLANTS SOLD
Redmond's Garden Nursery Mile 61 Western Highway	Royal palm ( <i>Roystonea regia</i> ) Hibiscus ( <i>Hibiscus</i> sp.)	Mangos ( <i>Mangifera</i> sp.) Citrus ( <i>Citrus</i> sp.) Sapodilla ( <i>Manilkara zapota</i> ) Avocado ( <i>Persea</i> sp.) Lemonaria ( <i>Psychotria fruticetorum</i> )
Belize Botanic Gardens Curator: Heather Duplooy P.O. Box 180 San Ignacio, Cayo, Belize Tel: 824-3101 Fax: 824-3301	Palmetto ( <i>Acoelorrhaphe wrightii</i> ) Craboo ( <i>Byrsonima crassifolia</i> ) Passion fruit/vine ( <i>Passiflora</i> sp.) 3 types of Mexican flamebush ( <i>Calliandra</i> sp.) (white, red, pink) Acanthaceae Black cabbage bark ( <i>Lonchocarpus castilloi</i> ) Caimito ( <i>Chrysophyllum</i> sp.) <i>Heliconia</i> sp.	Breadnut ( <i>Brosimum</i> sp.) Star apple ( <i>Chrysophyllum</i> sp.) Obel ( <i>Piper auritum</i> ) Snake plant ( <i>Sansevieria trifasciata</i> ) Tamarind ( <i>Tamarindus</i> sp.) Ironwood ( <i>Dialium guianense</i> ) Custard apple ( <i>Annona reticulata</i> ) Monkey/Baboon cap ( <i>Couepia polyandra</i> ) Sour sop ( <i>Annona muricata</i> ) Mamsee apple ( <i>Pouteria sapota/mammosa</i> )
Toledo District Agriculture Station 5 miles - Punta Gorda/ San Antonio Road. Tel: 722-2689		Golden plum ( <i>Spondias</i> sp.) Grapefruit ( <i>Citrus</i> sp.) Malay apple ( <i>Syzygium malaccense</i> ) Custard apple ( <i>Annona reticulata</i> ) Cashew ( <i>Anacardium occidentale</i> ) Spices Sour sop ( <i>Annona muricata</i> ) Star apple ( <i>Chrysophyllum</i> sp.) Monkey/Baboon cap ( <i>Couepia polyandra</i> )
Stann Creek Agriculture Station 9 Miles Stann Creek Valley Road Tel: 522-2514	Craboo ( <i>Byrsonima crassifolia</i> )	Star apple ( <i>Chrysophyllum</i> sp.) Mango ( <i>Mangifera</i> sp.) Monkey/Baboon cap ( <i>Couepia polyandra</i> ) Granadilla ( <i>Passiflora</i> sp.) Kinep ( <i>Talisia oliviformis</i> ) Jack fruit ( <i>Artocarpus heterophyllus</i> ) Tamarind ( <i>Tamarindus</i> sp.) Custard apple ( <i>Annona reticulata</i> ) Mamsee apple ( <i>Pouteria sapota/mammosa</i> ) Nutmeg ( <i>Myristica</i> sp.) Breadnut ( <i>Brosimum</i> sp.)

## PREVENTING BIRDS FROM DAMAGING CROPS

In addition to their natural foods, some bird species also feed on agricultural crops and on fish at fish farms. For this reason, birds may be viewed as pests

by farmers and citrus growers. Here we provide information on how to prevent bird damage to citrus and aquaculture.

### BIRDS AND CITRUS GROVES

*Which of the birds pictured here do you think are responsible for major damage to citrus crops?*



Roadside Hawk  
(*Buteo magnirostris*, Chicken Hawk)

VICKI PIASKOWSKI

Keel-billed Toucan (*Ramphastos sulfuratus*,  
Belizean Bill Bird, Big-Bill Piliis)



NICK STEPHENS



Brown Jay  
(*Cyanocorax morio*, Piam-piam)

CAROLYN MILLER



Golden-fronted Woodpecker  
(*Melanerpes aurifrons*, Carpenter)

KELLEY HOPWOOD



Orange Tree Fruits

VICKI PIASKOWSKI



Red-legged Honeycreeper  
(*Cyanerpes cyaneus*)

GENE ALBANESE



Montezuma Oropendola  
(*Psarocolius montezuma*, Yellow-tail)

NICK STEPHENS



Red-lored Parrot  
(*Amazona autumnalis*, Mangro Parrot)

VICKI PIASKOWSKI



Red-legged Honeycreeper  
(*Cyanerpes cyaneus*)

RICHARD BRODZELLER

*(Please see pages 30-31 for the birds that do and don't cause damage to citrus crops.)*

The Citrus Research and Education Institute (CREI) and Natural Resource Management and Protection Project (NARMAP) conducted a study in orange groves in the Stann Creek Valley in Belize from 1992 through 1994 to determine the amount of damage that birds do to citrus crops (CREI and NARMAP 1996).

**The CREI-NARMAP study found that crop damage by birds was only about 4%, with only 3 of 50 groves losing more than 10% of their fruits (see table below).** This study found that bird damage was much less than the farmers perceived. [Please contact the BWB-ASF office (822-0236 or bwbasf@btl.net) for a free copy of the CREI-NARMAP report entitled "Bird Damage to Citrus, Identification and Monitoring."]

AVERAGE PERCEIVED DAMAGE	NUMBER OF GROVES	AVERAGE ACTUAL DAMAGE
20%-30% of crop	5	3.8%
30%-40% of crop	2	7.0%
40%-50% of crop	6	4.5%

Table from CREI and NARMAP (1996).

**CREI/NARMAP studied the birds that damaged crops and found that three bird species were responsible for the most damage to oranges:**



Brown Jay  
(*Cyanocorax morio*, Piam-piam)  
caused about 23% of all bird damage,  
or 0.9% yield loss



Golden-fronted Woodpecker  
(*Melanerpes aurifrons*, Carpenter)  
caused about 20% of all bird damage,  
or 0.8% yield loss



Red-legged Honeycreeper (*Cyanerpes cyaneus*)  
caused about 23% of all bird damage, or 0.9% yield loss



**The birds pictured below, along with other species of orioles and tanagers, caused some damage. Combining all of these species, the damage they caused amounted to less than 0.05% yield loss.**



Red-lored Parrot  
(*Amazona autumnalis*, Mangro Parrot)



Montezuma Oropendola  
(*Psarocolius montezuma*, Yellow-tail)



Orchard Oriole  
(*Icterus spurius*, Banana Bird)



Great-tailed Grackle  
(*Quiscalus mexicanus*, Blackbird)



**Other birds seen in orchards that do NOT damage the fruit are:**

CAROL FARNETH-FOSTER



Keel-billed Toucan (*Ramphastos sulfuratus*, Belizean Bill Bird, Big-Bill Piliis) does not have the bill shape needed to pierce or tear away the orange peel.

VICKI PIASKOWSKI



Roadside Hawk (*Buteo magnirostris*, Chicken Hawk) is a bird of prey that feeds on birds, mammals, reptiles and insects, not fruit. They use the open areas in orchards to hunt for rats, lizards, and even snakes.

JOHN MCQUILLAN



Collared Aracari (*Pteroglossus torquatus*, Piliis) does not have the bill shape needed to pierce or tear away the orange peel.

© JAMES BEVERIDGE



NICK STEPHENS



Vermilion Flycatchers [(*Pyrocephalus rubinus*, Robin Redbreast) male left, female right] feed on insects that are attracted to the damaged fruit but do not eat the fruit.

**WHAT WORKS TO PREVENT BIRD DAMAGE TO FRUIT CROPS**

Studies have shown that the tactics listed below can prevent bird damage to citrus and other fruit crops (Avery et al. 1988, Tipton et al. 1989, CREI and NARMAP 1996, personal communication with Cayo District Agriculture Coordinator, and BWB-ASF field observations):

- Use harvesting practices to prevent/minimize bird damage.
  - Harvest papayas when mature but not yet ripe.* This prevents birds from attacking the fruit.
  - Harvest mature citrus fruit as soon as possible.* Leaving ripe fruit on trees provides more time for birds to learn that there is ripe fruit and feed on it.
- Encourage birds of prey [like the Roadside Hawk (*Buteo magnirostris*, Chicken Hawk) pictured above] by providing perches throughout the orchard. Birds of prey scare other birds away. Perches provide a place for birds of prey to sit and look for the food (rodents, lizards and snakes) that they hunt.

- Consider using fluorescent monofilament line and eyespot balls. These devices have been tried in the U.S.A. with some success. Fluorescent yellow monofilament line [20 lb (9 kg) test] was strung in a grid over the groves about one meter (3 ft.) above the trees. Eyespot balls were made using beach balls and drawing three large eyes on them with black and red permanent markers (Tipton et al. 1989).
- Use control measures including sporadic firecrackers.
- Preserve native plants that grow on the edges of the groves to provide alternative natural foods for the birds (See the table on pages 23-26).
- Do not destroy forested areas that are unsuitable for citrus. This helps to keep birds in the forests and away from plantations.

**WHAT DOESN'T WORK TO PREVENT BIRD DAMAGE:**

Shooting birds is not effective. These birds are soon replaced by others from nearby habitats. Shotgun shells are also expensive.

## BIRDS AND AQUACULTURE

Birds can cause losses at aquaculture facilities. To determine what the birds fed on and what the losses were, scientific studies were done at catfish farms in the southern U.S.A. The findings were:

- Great Egrets (*Ardea alba*, White Gullin) preferred to eat small fingerlings (7.5-10 cm or 3-4 inches) rather than larger catfish. (Werner et al. 2001).
- Great Blue Herons (*Ardea herodias*, Blue Gullin, Toby Full Pot) also preferred fingerlings to larger fish (Glahn et al. 2002).
- In ponds where fish disease was present, most (85%) of the fish eaten by Great Blue Herons were diseased and most (76%) of these fish were terminally ill.
- Great Blue Herons were most likely to catch fish during times when the fish were fed because fish feeding brings the fish to the surface.
- The number of healthy fish caught by Great Blue Herons was small. The removal of dead and dying fish by the birds may help to prevent the spread of disease.

### WHAT WORKS TO CONTROL BIRDS FEEDING AT AQUACULTURE FACILITIES:

The keys to success are **timing, persistence, organization and diversity** (Booth 1994). The goal is to convince the birds that the area is unsafe. Combining techniques (visual and auditory) works better than just using one technique.

Tests have shown that the following work best to prevent bird damage at aquaculture facilities (Littauer 1990, Booth 1994):

- Frightening devices such as pyrotechnics (rope firecrackers, exploders or shooting shotguns and rifles **into the air**), scarecrows and human presence can be extremely effective.
- Shotguns and rifles fired **into the air** are less effective than firecrackers and other sound frightening devices.
- Begin frightening programs **before** the birds have established regular feeding patterns. If they get used to feeding at a pond, they will be more difficult to scare away.
- Noises in the air are more effective than noises on the ground.
- Try to frighten the birds **before** they land. If they are scared off early in the morning, they will move to other feeding areas.
- Use a **variety** of techniques.
- Frequently **change** the locations of scarecrows and exploders because birds can get used to them.
- Be **aggressive** with the frightening program.



Great Blue Heron (*Ardea herodias*, Blue Gullin, Toby Full Pot)



Great Egret (*Ardea alba*, White Gullin)

### TECHNICAL METHODS TO DECREASE BIRD PREDATION AT AQUACULTURE FACILITIES:

(Gorenzel et al. 1994, Tobin 1998, Werner et al. 2001, Glahn et al. 2002, Dorr and Taylor 2003, Taylor and Dorr 2003)

- Maintain water depth at greater than one meter (3 ft.)
- Aquaculture pond banks should be steep. Do not provide a sloping bank where birds can wade in and feed.
- Pond banks should not have vegetation that could provide cover and a place for birds to hide.
- There should be no telephone or light poles or trees that provide perches or places for the birds to roost (sleep).
- Birds are more likely to feed on ponds heavily stocked with fish. Reducing stocking may make the ponds less attractive to birds.
- Use pyrotechnics (firecrackers or other loud noises) to disperse birds from ponds that have small fingerlings (less than 18 cm or 7 in.), their preferred size foods.
- Focus on scaring birds away from the ponds with loud noises during the time that the fish are being fed, because this is when fish come to the surface and are most easily caught by birds.
- Do not locate aquaculture facilities near rivers, marshes or wetlands, which are the natural feeding areas for aquatic birds.
- **Be aware that injured birds act as live decoys and lure other birds to the facility.**
- Exclusion with netting, fencing or wires is the most effective way of keeping birds out of aquaculture ponds.
- Killed birds are quickly replaced by others from nearby areas.

For free copies of the complete studies from the references listed above and on page 31, please contact the Birds Without Borders – *Aves Sin Fronteras*® office at 822-0236 or [bwbasf@btl.net](mailto:bwbasf@btl.net).



## PINE SAVANNAS ARE IMPORTANT TO BIRDS

Approximately 8.8% of the land in Belize is pine savanna (Vreugdenhil et al. 2002). Many people view pine savannas as wastelands, although they have more plant species than rain forests (Kricher 1997).

Belize's lowland pine savannas and "broken ridge" (also known as scrub-shrub or savanna-scrub) are very important to Belize's resident birds during the breeding season, when they nest and raise young. Savannas are also important to Belize's resident birds during the rest of the year. Neotropical migrants use pine savannas during the non-breeding season (North American winter) and during migration.

Many animals also use savannas because the open habitat allows for easy movement, creating an ideal wildlife corridor.

VICKI PIASKOWSKI



Pine savanna at the Runaway Creek Nature Preserve

VICKI PIASKOWSKI



Pine-oak forest at the Tropical Education Center of the Belize Zoo

Savannas are very prone to fires caused by lightning strikes during the dry season (Kricher 1997). Caribbean pines (*Pinus caribaea*) have bark that can tolerate mild fires. The graminoids (grasses, sedges and rushes) that grow in savannas regenerate quickly after fires. It is believed that if savannas were not subjected to occasional fires, the plant species present would gradually change.

### THE COMMON PLANTS THAT BIRDS USED FOR NEST BUILDING WERE:

VICKI PIASKOWSKI



Caribbean pine (*Pinus caribaea*)

VICKI PIASKOWSKI



Calabash (*Crescentia cujete*)

VICKI PIASKOWSKI



Live oak (*Quercus oleoides*)

VICKI PIASKOWSKI



Yaha (*Curatella americana*)

VICKI PIASKOWSKI



VICKI PIASKOWSKI



Craboo (*Byrsonima crassifolia*)

VICKI PIASKOWSKI



VICKI PIASKOWSKI



VICKI PIASKOWSKI



VICKI PIASKOWSKI



VICKI PIASKOWSKI





## BIRDS THAT NEST IN PINE SAVANNAS:

JOHN MCQUILLAN



Fork-tailed Flycatchers (*Tyrannus savana*, Scissors-tail) nested mainly in Caribbean pine, Calabash and Craboo.

VICKI PIASKOWSKI



Fork-tailed Flycatcher (*Tyrannus savana*, Scissors-tail) nest in Yaha.

GENE ALBANESE



White-collared Seedeaters (*Sporophila torqueola*, Ricey, Grassy Bird) nested mainly in palmetto.

VICKI PIASKOWSKI



White-collared Seedeater (*Sporophila torqueola*, Ricey, Grassy Bird) nest in Palmetto.

BWB-ASF STAFF



Green-backed Sparrows (*Arremonops chloronotus*) built a nest on the ground.

VICKI PIASKOWSKI



Green-backed Sparrow (*Arremonops chloronotus*) nest on the ground.

©JAMES BEVERIDGE



Ruddy Ground-Dove (*Columbina talpacoti*, Turtle Dove) built nests on the ground.

VICKI PIASKOWSKI



Ruddy Ground-Dove (*Columbina talpacoti*, Turtle Dove) nest, with two eggs, on the ground.

©J. DUNNING/VIREO



Mangrove Vireo (*Vireo pallens semiflavus*) BWB-ASF staff was the first to describe the nest of this species (Figueroa and Albanese 2003)

VICKI PIASKOWSKI



Mangrove Vireo in nest.

©JAMES BEVERIDGE



Tropical Kingbirds (*Tyrannus melancholicus*) nested in Caribbean pine and Calabash.

VICKI PIASKOWSKI



Tropical Kingbird (*Tyrannus melancholicus*) nest in Calabash.

**THESE SPECIES ARE ALSO COMMON IN PINE SAVANNAS:**

©JAMES BEVERIDGE



Vermilion Flycatcher  
(*Pyrocephalus rubinus*, Robin Redbreast)  
male

NICK STEPHENS



Vermilion Flycatcher female

KEVIN SCHAFER



Yellow-headed Parrot  
(*Amazona oratrix*, Yellow-head)

©JAMES BEVERIDGE



Blue-gray Gnatcatcher  
(*Poliopitila caerulea*)

©JACK BARTHOLMAI



Dickcissel (*Spiza americana*). These birds breed in North American grasslands and fields. They spend the non-breeding season in South America and are found in Belize's savannas during migration.

©JACK BARTHOLMAI



Tree Swallow (*Tachycineta bicolor*, Christmas Bird). These birds breed in tree cavities or nest boxes near water in North America and spend the non-breeding season from the southern U.S.A. south to Central America and the Greater Antilles. Tree Swallows are found in Belize's savannas during migration.

NICK STEPHENS



Montezuma Oropendolas  
(*Psarocolius montezuma*, Yellow-tail)  
roost (sleep) in savannas in Caribbean pines (*Pinus caribaea*)

NICK STEPHENS



Black Vultures (*Coragyps atratus*, John Crow)  
roost (sleep) in savannas in Caribbean pines (*Pinus caribaea*).

©JACK BARTHOLMAI



©JACK BARTHOLMAI



Turkey Vultures (*Cathartes aura*, Doctor John Crow)  
roost (sleep) in savannas in Caribbean pines (*Pinus caribaea*).



## FORESTS FOUND ALONG BELIZE'S RIVERS ARE IMPORTANT TO MANY BIRDS

Birds Without Borders – *Aves Sin Fronteras*® studied the birds found in riverine forest along the Sibun River in central Belize. In a very small area (49.4 acres or 20 ha) we found 196 different species of birds. Most of the birds (151, or 77.0%) were Belize residents; 28, or 14.3%, were Neotropical migrants. The others were migrants (6, or 3.1%), transients (4, or 2.0%) and seasonal residents (4, or 2.0%), and resident/Neotropical migrants (3, or 1.5%). (Please see the table on pages 39-42 and the pictures on pages 37-38.)

BWB-ASF found 19 species of conservation concern (bird species that need special protection) and 31 regional endemic species (birds found only in a certain area) in the Sibun riverine forest. Because these birds in need of special protection live in Belize's riverine forests, these forests are important to birds on local, regional and international conservation scales.

Spiny bamboo (*Guadua longifolia*) grows near riverbanks. In these areas, a dense concentration of thorny vines and lianas such as Haul-me-back (*Mimosa* sp.) and Tear coat (*Byttneria aculeata*) were also present.



REYNOLD CAL



GENE ALBANESE

Blue Seedeater (*Amaurospiza concolor*) is found in habitats with Spiny bamboo.

GIL BOESE PH.D.



Riverine forest along the Sibun River.

GIL BOESE PH.D.



VICKI PIASKOWSKI



Area of riverine forest along the Sibun River showing a large tree with vines that many birds fed on.

VICKI PIASKOWSKI



Area of riverine forest along the Sibun River with Cohune (*Attalea cohune*) trees.

REYNOLD CAL



Non-native bamboo (*Bambusa vulgaris*) also can be found along the Sibun River, but is very invasive and crowds out the native plants that are important to birds and other wildlife.



**PRESERVING THE FORESTS FOUND ALONG BELIZE’S RIVERS WILL HELP MANY SPECIES OF BIRDS, INCLUDING THOSE THAT NEED SPECIAL PROTECTION.**

The habitat studied had an area dominated by Spiny bamboo (*Guadua longifolia*) near the river edge that transitioned into forest with Cohune (*Attalea cohune*) and Coccoloba (*Coccoloba schiedeana*), with scattered large, emergent Quamwood (*Schizolobium parahybum*) trees. A few large fig (*Ficus* sp.) trees were also present along the riverbank. Ferns, *Dieffenbachia* sp., *Heliconia* sp., vines, lianas and graminoids were common near the ground.

Two types of bamboo can be found along Belize’s riverbanks. One, Spiny bamboo (*Guadua longifolia*),

is native and grows there naturally. Areas of Spiny bamboo are very important because some birds such as the Blue Seedeater (*Amaurospiza concolor*, see photo below) are found only in this habitat type. Non-native bamboo (*Bambusa vulgaris*) also can be seen growing along the banks of some of Belize’s rivers. Non-native bamboo is very invasive and crowds out the native plants that are important to birds and other wildlife.

*Please don’t plant non-native bamboo, especially along the river!*

**BIRDS FOUND IN THE SIBUN RIVERINE FOREST:**

GENE ALBANESE



Blue Ground-Dove  
(*Claravis pretiosa*, Blue Dove)

VICKI PIASKOWSKI



Yellow-billed Cacique  
(*Amblycercus holosericeus*, Bamboo Cracker)

GENE ALBANESE



Rufous-breasted Spinetail  
(*Synallaxis erythrothorax*)

NICK STEPHENS



Keel-billed Toucan  
(*Ramphastos sulfuratus*,  
Belizean Bill Bird, Big-Bill Piliis)

RICHARD BRODZELLER



Northern Waterthrush  
(*Seiurus noveboracensis*)

GENE ALBANESE



Worm-eating Warbler  
(*Helmitheros vermivorum*)

LYNN MILLER



American Redstart  
(*Setophaga ruticilla*)

BWB-ASF STAFF



Gray Catbird  
(*Dumetella carolinensis*)

RICHARD BRODZELLER



Wood Thrush  
(*Hylocichla mustelina*)

VICKI PIASKOWSKI



Rufous-tailed Jacamar  
(*Galbula ruficauda*)

GENE ALBANESE



Blue Seedeater  
(*Amaurospiza concolor*)

VICKI PIASKOWSKI



Great Antshrike  
(*Taraba major*)

## BIRDS FOUND IN THE SIBUN RIVERINE FOREST (CONTINUED):

KELLEY HOPWOOD



Barred Antshrike  
(*Thamnophilus doliatus*)

GENE ALBANESE



Dusky Antbird  
(*Cercomacra tyrannina*) male

GORDON MACDONALD



Dusky Antbird female

GENE ALBANESE



Black-headed Trogon  
(*Trogon melanocephalus*, Ramatatu)

GORDON MACDONALD



Smoky-brown Woodpecker  
(*Veniliornis fumigatus*)

GORDON MACDONALD



Sepia-capped flycatcher  
(*Leptopogon amaurocephalus*)

NICK STEPHENS



Violaceous Trogon  
(*Trogon violaceus*)

GENE ALBANESE



Kentucky Warbler  
(*Oporornis formosus*)

VICKI PIASKOWSKI



Royal Flycatcher  
(*Onychorhynchus coronatus*)

## BIRD SPECIES THAT WERE DETECTED IN RIVERINE FOREST ALONG THE SIBUN RIVER.

SPECIES	BELIZE SEASONALITY	ENDEMIC STATUS <sup>1</sup>	CONSERV. CONCERN <sup>2</sup>	PHOTO PAGE #
Great Tinamou ( <i>Tinamus major</i> )	R			
Little Tinamou ( <i>Crypturellus soui</i> )	R			
Plain Chachalaca ( <i>Ortalis vetula</i> )	R			17
Least Grebe ( <i>Tachybaptus dominicus</i> )	R			
Neotropic Cormorant ( <i>Phalacrocorax brasilianus</i> )	R		X	
Anhinga ( <i>Anhinga anhinga</i> )	R		X	
Bare-throated Tiger-Heron ( <i>Tigrisoma mexicanum</i> )	R		X	
Great Blue Heron ( <i>Ardea herodias</i> )	R			32
Great Egret ( <i>Ardea alba</i> )	R			32
Snowy Egret ( <i>Egretta thula</i> )	R		X	67
Little Blue Heron ( <i>Egretta caerulea</i> )	M		X	
Green Heron ( <i>Butorides virescens</i> )	R			
Jabiru ( <i>Jabiru mycteria</i> )	R		X	63
Wood Stork ( <i>Mycteria americana</i> )	R		X	67
Black Vulture ( <i>Coragyps atratus</i> )	R			4, 35
Turkey Vulture ( <i>Cathartes aura</i> )	R/M			4
King Vulture ( <i>Sarcoramphus papa</i> )	R		X	
Swallow-tailed Kite ( <i>Elanoides forficatus</i> )	S		X	
Plumbeous Kite ( <i>Ictinia plumbea</i> )	S			
Black-collared Hawk ( <i>Busarellus nigricollis</i> )	R			
Gray Hawk [ <i>Asturina nitida (plagiata)</i> ]	R			
Common Black-Hawk ( <i>Buteogallus anthracinus</i> )	R			
Great Black-Hawk ( <i>Buteogallus urubitinga</i> )	R			
Roadside Hawk ( <i>Buteo magnirostris</i> )	R			4
Short-tailed Hawk ( <i>Buteo brachyurus</i> )	R			
Zone-tailed Hawk ( <i>Buteo albonotatus</i> )	M			
Ornate Hawk-Eagle ( <i>Spizaetus ornatus</i> )	R		X	
Collared Forest-Falcon ( <i>Micrastur semitorquatus</i> )	R			
Laughing Falcon ( <i>Herpetotheres cachinnans</i> )	R			65
Aplomado Falcon ( <i>Falco femoralis</i> )	R			
Bat Falcon ( <i>Falco rufigularis</i> )	R			
Spotted Wood-Quail ( <i>Odontophorus guttatus</i> )	R			
Ruddy Crake ( <i>Laterallus ruber</i> )	R			
Gray-necked Wood-Rail ( <i>Aramides cajanea</i> )	R			
Sungrebe ( <i>Heliornis fulica</i> )	R			
Killdeer ( <i>Charadrius vociferus</i> )	M			
Spotted Sandpiper ( <i>Actitis macularius</i> )	M			62
Pale-vented Pigeon ( <i>Patagioenas cayennensis</i> )	R			14
Scaled Pigeon ( <i>Patagioenas speciosa</i> )	R			
Red-billed Pigeon ( <i>Patagioenas flavirostris</i> )	R			
Short-billed Pigeon ( <i>Patagioenas nigrirostris</i> )	R			
Ruddy Ground-Dove ( <i>Columbina talpacoti</i> )	R			34
Blue Ground-Dove ( <i>Claravis pretiosa</i> )	R			37
White-tipped Dove ( <i>Leptotila verreauxi</i> )	R			
Gray-fronted Dove [ <i>Leptotila rufaxilla (plumbeiceps)</i> ]	R			
Gray-chested Dove ( <i>Leptotila cassini</i> )	R			46
Ruddy Quail-Dove ( <i>Geotrygon montana</i> )	R			
Olive-throated Parakeet ( <i>Aratinga nana</i> )	R			
White-crowned Parrot ( <i>Pionus senilis</i> )	R	Middle Amer. Endemic	X	
White-fronted Parrot ( <i>Amazona albifrons</i> )	R	Middle Amer. Endemic	X	

<sup>1</sup> Endemic species are found only in a certain area. Information on endemic status from Miller and Miller 1997.

<sup>2</sup> Sources used to determine if a species is of conservation concern: Miller and Miller 1997, Kushlan et al. 2002, and Rich et al. 2004.



## BIRD SPECIES THAT WERE DETECTED IN RIVERINE FOREST ALONG THE SIBUN RIVER (CONTINUED).

SPECIES	BELIZE SEASONALITY	ENDEMIC STATUS <sup>1</sup>	CONSERV. CONCERN <sup>2</sup>	PHOTO PAGE #
Red-lore Parrot ( <i>Amazona autumnalis</i> )	R		X	13
Squirrel Cuckoo ( <i>Piaya cayana</i> )	R			
Striped Cuckoo ( <i>Tapera naevia</i> )	R			
Groove-billed Ani ( <i>Crotophaga sulcirostris</i> )	R			
Vermiculated Screech-owl ( <i>Megascops guatemalae</i> )	R			
Mottled Owl ( <i>Ciccaba virgata</i> )	R			
Common Pauraque ( <i>Nyctidromus albicollis</i> )	R			
White-collared Swift ( <i>Streptoprocne zonaris</i> )	R			
Vaux's Swift ( <i>Chaetura vauxi</i> )	R			
Long-billed Hermit ( <i>Phaethornis longirostris</i> )	R			16
Stripe-throated Hermit ( <i>Phaethornis striigularis</i> )	R			16
Wedge-tailed Sabrewing ( <i>Campylopterus curvipennis</i> )	R	Middle Amer. Endemic		
White-necked Jacobin ( <i>Florisuga mellivora</i> )	R			
Green-breasted Mango ( <i>Anthracothorax prevostii</i> )	R			
White-bellied Emerald ( <i>Amazilia candida</i> )	R	Middle Amer. Endemic		16
Rufous-tailed Hummingbird ( <i>Amazilia tzacatl</i> )	R			5, 16
Buff-bellied Hummingbird ( <i>Amazilia yucatanensis</i> )	R	N. Middle Amer. Endemic		
Ruby-throated Hummingbird ( <i>Archilochus colubris</i> )	N			4
Black-headed Trogon ( <i>Trogon melanocephalus</i> )	R	Middle Amer. Endemic		15
Violaceous Trogon ( <i>Trogon violaceus</i> )	R			38
Blue-crowned Motmot ( <i>Momotus momota</i> )	R			46
Ringed Kingfisher ( <i>Ceryle torquatus</i> )	R			
Green Kingfisher ( <i>Chloroceryle americana</i> )	R			
American Pygmy Kingfisher ( <i>Chloroceryle aenea</i> )	R			67
White-necked Puffbird ( <i>Notharchus macrorhynchos</i> )	R			
Rufous-tailed Jacamar ( <i>Galbula ruficauda</i> )	R			37
Collared Aracari ( <i>Pteroglossus torquatus</i> )	R			12, 16
Keel-billed Toucan ( <i>Ramphastos sulfuratus</i> )	R			5, 31
Black-cheeked Woodpecker ( <i>Melanerpes pucherani</i> )	R			
Golden-fronted Woodpecker ( <i>Melanerpes aurifrons</i> )	R			18
Smoky-brown Woodpecker ( <i>Veniliornis fumigatus</i> )	R			38
Golden-olive Woodpecker ( <i>Piculus rubiginosus</i> )	R			
Lineated Woodpecker ( <i>Dryocopus lineatus</i> )	R			
Pale-billed Woodpecker ( <i>Campephilus guatemalensis</i> )	R	Middle Amer. Endemic		65
Rufous-breasted Spinetail ( <i>Synallaxis erythrothorax</i> )	R	Middle Amer. Endemic		37
Plain Xenops ( <i>Xenops minutus</i> )	R			
Tawny-winged Woodcreeper ( <i>Dendrocincla anabatina</i> )	R	Middle Amer. Endemic		
Ruddy Woodcreeper ( <i>Dendrocincla homochroa</i> )	R			
Olivaceous Woodcreeper ( <i>Sittasomus griseicapillus</i> )	R			
Wedge-billed Woodcreeper ( <i>Glyphorhynchus spirurus</i> )	R			47
Northern Barred-Woodcreeper ( <i>Dendrocolaptes sanctithomae</i> )	R			
Ivory-billed Woodcreeper ( <i>Xiphorhynchus flavigaster</i> )	R	Middle Amer. Endemic		46
Streak-headed Woodcreeper ( <i>Lepidocolaptes souleyetii</i> )	R			
Great Antshrike ( <i>Taraba major</i> )	R			37
Barred Antshrike ( <i>Thamnophilus doliatus</i> )	R			38
Dusky Antbird ( <i>Cercomacra tyrannina</i> )	R			38
Black-faced Antthrush [ <i>Formicarius analis (moniliger)</i> ]	R			65
Yellow-bellied Tyrannulet ( <i>Ornithion semiflavum</i> )	R	Middle Amer. Endemic		
Northern Beardless-Tyrannulet ( <i>Camptostoma imberbe</i> )	R			
Greenish Elaenia ( <i>Myiopagis viridicata</i> )	R			
Yellow-bellied Elaenia ( <i>Elaenia flavogaster</i> )	R			

<sup>1</sup> Endemic species are found only in a certain area. Information on endemic status from Miller and Miller 1997.

<sup>2</sup> Sources used to determine if a species is of conservation concern: Miller and Miller 1997, Kushlan et al. 2002, and Rich et al. 2004.

**BIRD SPECIES THAT WERE DETECTED IN RIVERINE FOREST ALONG THE SIBUN RIVER (CONTINUED).**

SPECIES	BELIZE SEASONALITY	ENDEMIC STATUS <sup>1</sup>	CONSERV. CONCERN <sup>2</sup>	PHOTO PAGE #
Ochre-bellied Flycatcher ( <i>Mionectes oleagineus</i> )	R			16
Sepia-capped Flycatcher ( <i>Leptopogon amaurocephalus</i> )	R			38
Northern Bentbill ( <i>Oncostoma cinereigulare</i> )	R			
Slate-headed Tody-Flycatcher ( <i>Poecilatriccus sylvia</i> )	R			47
Common Tody-Flycatcher ( <i>Todirostrum cinereum</i> )	R			44
Eye-ringed Flatbill ( <i>Rhynchocyclus brevirostris</i> )	R			
Yellow-olive Flycatcher ( <i>Tolmomyias sulphurescens</i> )	R			
Stub-tailed Spadebill ( <i>Platyrinchus cancrominus</i> )	R	Middle Amer. Endemic		
Royal Flycatcher ( <i>Onychorhynchus coronatus</i> )	R			38
Tropical Pewee ( <i>Contopus cinereus</i> )	R			
Yellow-bellied Flycatcher ( <i>Empidonax flaviventris</i> )	N			
White-throated Flycatcher ( <i>Empidonax albigularis</i> )	M	Middle Amer. Endemic		
Least Flycatcher ( <i>Empidonax minimus</i> )	N			
Bright-rumped Attila ( <i>Attila spadiceus</i> )	R			21
Dusky-capped Flycatcher ( <i>Myiarchus tuberculifer</i> )	R			
Brown-crested Flycatcher ( <i>Myiarchus tyrannulus</i> )	S			65
Great Kiskadee ( <i>Pitangus sulphuratus</i> )	R			44
Boat-billed Flycatcher ( <i>Megarynchus pitangua</i> )	R			
Social Flycatcher ( <i>Myiozetetes similis</i> )	R			44
Tropical Kingbird ( <i>Tyrannus melancholicus</i> )	R			34
Couch's Kingbird ( <i>Tyrannus couchii</i> )	R			
Thrush-like Schiffornis ( <i>Schiffornis turdina</i> )	R			
Rose-throated Becard ( <i>Pachyramphus aglaiae</i> )	R			
Masked Tityra ( <i>Tityra semifasciata</i> )	R			21
White-collared Manakin ( <i>Manacus candei</i> )	R	Middle Amer. Endemic		47
Red-capped Manakin ( <i>Pipra mentalis</i> )	R			15
White-eyed Vireo ( <i>Vireo griseus</i> )	N			21
Mangrove Vireo [ <i>Vireo pallens (semiflavus)</i> ]	R	Middle Amer. Endemic		34
Yellow-throated Vireo ( <i>Vireo flavifrons</i> )	N			
Yellow-green Vireo ( <i>Vireo flavoviridis</i> )	S			
Lesser Greenlet ( <i>Hylophilus decurtatus</i> )	R			
Rufous-browed Peppershrike ( <i>Cyclarhis gujanensis</i> )	R			
Brown Jay ( <i>Cyanocorax morio</i> )	R	Middle Amer. Endemic		12
Tree Swallow ( <i>Tachycineta bicolor</i> )	N			35
Northern Rough-winged Swallow ( <i>Stelgidopteryx serripennis</i> )	R/M			65
Spot-breasted Wren ( <i>Thryothorus maculipectus</i> )	R	Middle Amer. Endemic		44
White-bellied Wren ( <i>Uropsila leucogastra</i> )	R	N. Middle Amer. Endemic		
White-breasted Wood-Wren ( <i>Henicorhina leucosticta</i> )	R			
Long-billed Gnatwren ( <i>Ramphocaenus melanurus</i> )	R			
Blue-gray Gnatcatcher ( <i>Polioptila caerulea</i> )	R/M			35
Wood Thrush ( <i>Hylocichla mustelina</i> )	N		X	37
Clay-colored Robin ( <i>Turdus grayi</i> )	R			14
Gray Catbird ( <i>Dumetella carolinensis</i> )	N			13
Blue-winged Warbler ( <i>Vermivora pinus</i> )	N		X	
Tennessee Warbler ( <i>Vermivora peregrina</i> )	T			4
Orange-crowned Warbler ( <i>Vermivora celata</i> )	M			
Yellow Warbler ( <i>Dendroica petechia</i> )	N			
Chestnut-sided Warbler ( <i>Dendroica pensylvanica</i> )	N			
Magnolia Warbler ( <i>Dendroica magnolia</i> )	N			17
Black-throated Green Warbler ( <i>Dendroica virens</i> )	N			47

<sup>1</sup> Endemic species are found only in a certain area. Information on endemic status from Miller and Miller 1997.

<sup>2</sup> Sources used to determine if a species is of conservation concern: Miller and Miller 1997, Kushlan et al. 2002, and Rich et al. 2004.

## BIRD SPECIES THAT WERE DETECTED IN RIVERINE FOREST ALONG THE SIBUN RIVER (CONTINUED).

SPECIES	BELIZE SEASONALITY	ENDEMIC STATUS <sup>1</sup>	CONSERV. CONCERN <sup>2</sup>	PHOTO PAGE #
Yellow-throated Warbler ( <i>Dendroica dominica</i> )	N			
Black-and-white Warbler ( <i>Mniotilta varia</i> )	N			44
American Redstart ( <i>Setophaga ruticilla</i> )	N			18
Prothonotary Warbler ( <i>Protonotaria citrea</i> )	T		X	
Worm-eating Warbler ( <i>Helmitheros vermivorum</i> )	N		X	37
Swainson's Warbler ( <i>Limnothlypis swainsonii</i> )	N		X	
Ovenbird ( <i>Seiurus aurocapilla</i> )	N			47
Northern Waterthrush ( <i>Seiurus noveboracensis</i> )	N			37
Louisiana Waterthrush ( <i>Seiurus motacilla</i> )	T			
Kentucky Warbler ( <i>Oporornis formosus</i> )	N		X	38
Common Yellowthroat ( <i>Geothlypis trichas</i> )	N			18
Hooded Warbler ( <i>Wilsonia citrina</i> )	N			46
Yellow-breasted Chat ( <i>Icteria virens</i> )	N			13
Gray-throated Chat ( <i>Granatellus sallaei</i> )	R	Yucatan Pen. Epidemic		47
Gray-headed Tanager ( <i>Eucometis penicillata</i> )	R			44
Red-throated Ant-Tanager ( <i>Habia fuscicauda</i> )	R			4
Summer Tanager ( <i>Piranga rubra</i> )	N			
Scarlet Tanager ( <i>Piranga olivacea</i> )	T			46
Crimson-collared Tanager ( <i>Ramphocelus sanguinolentus</i> )	R	Middle Amer. Endemic		22
Passerini's Tanager ( <i>Ramphocelus passerinii</i> )	R	Middle Amer. Endemic		
Blue-gray Tanager ( <i>Thraupis episcopus</i> )	R			13
Yellow-winged Tanager ( <i>Thraupis abbas</i> )	R	Middle Amer. Endemic		12
Red-legged Honeycreeper ( <i>Cyanerpes cyaneus</i> )	R			13
Variable Seedeater ( <i>Sporophila americana</i> )	R			
White-collared Seedeater ( <i>Sporophila torqueola</i> )	R			34
Thick-billed Seed-Finch ( <i>Oryzoborus funereus</i> )	R			
Blue Seedeater ( <i>Amaurospiza concolor</i> )	R			36
Green-backed Sparrow ( <i>Arremonops chloronotus</i> )	R	N. Middle Amer. Endemic		34
Grayish Saltator ( <i>Saltator coerulescens</i> )	R			
Buff-throated Saltator ( <i>Saltator maximus</i> )	R			
Black-headed Saltator ( <i>Saltator atriceps</i> )	R	Middle Amer. Endemic		
Black-faced Grosbeak ( <i>Caryothraustes poliogaster</i> )	R	Middle Amer. Endemic		
Blue-black Grosbeak ( <i>Cyanocopsa cyanooides</i> )	R			14
Indigo Bunting ( <i>Passerina cyanea</i> )	N			21
Melodious Blackbird ( <i>Dives dives</i> )	R	Middle Amer. Endemic		
Giant Cowbird ( <i>Molothrus oryzivorus</i> )	R			
Black-cowled Oriole ( <i>Icterus prosthemelas</i> )	R	Middle Amer. Endemic		13
Orchard Oriole ( <i>Icterus spurius</i> )	N			17
Yellow-backed Oriole ( <i>Icterus chrysater</i> )	R	N. Middle Amer. Endemic		
Yellow-tailed Oriole ( <i>Icterus mesomelas</i> )	R			
Baltimore Oriole ( <i>Icterus galbula</i> )	N			13
Yellow-billed Cacique ( <i>Amblycercus holosericeus</i> )	R			17
Montezuma Oropendola ( <i>Psarocolius montezuma</i> )	R	Middle Amer. Endemic		13
Scrub Euphonia ( <i>Euphonia affinis</i> )	R	Middle Amer. Endemic		
Yellow-throated Euphonia ( <i>Euphonia hirundinacea</i> )	R	Middle Amer. Endemic		12

<sup>1</sup> Endemic species are found only in a certain area. Information on endemic status from Miller and Miller 1997.

<sup>2</sup> Sources used to determine if a species is of conservation concern: Miller and Miller 1997, Kushlan et al. 2002, and Rich et al. 2004.



## BIRDS FOUND AT THE BIRDS WITHOUT BORDERS – AVES SIN FRONTERAS® BELIZE STUDY SITES

Birds Without Borders – *Aves Sin Fronteras*® studied birds at three sites in central Belize. They were:

1. The **Runaway Creek Nature Preserve (RCNP)**, a 2,432-ha (6,009-acre) preserve owned and managed by the Foundation for Wildlife Conservation, Inc., of Milwaukee, Wisconsin. It is located in the Belize District (17°18'05.1"N, 88°27'31.8"W) at 16 m above sea level (a.s.l.)
2. The **Tropical Education Center (TEC)** site consisted of the Tropical Education Center of

the Belize Zoo and adjacent privately owned lands. It is located in the Belize District (17°21'26.9"N, 88°32'26"W) 10 km west of the RCNP site at 46 m a.s.l. and encompasses an area of approximately 438 ha (1,082 acres).

3. The 180-ha (445-acre) **Chaa Creek (CHAA)** study site consisted of the Chaa Creek Nature Reserve and adjacent privately owned lands. It is located in the Cayo District (17°06'15.9"N, 89°04'53.2"W) at 80 m a.s.l.



VICKI PIASKOWSKI



Scrub-shrub habitat.

## TROPICAL EDUCATION CENTER STUDY SITE:

Bird banding, censusing and point counts were conducted in **scrub-shrub habitat**. The common trees were Caribbean pine (*Pinus caribaea*) and Live oak (*Quercus oleoides*). The common plants found near the ground were Dodder (*Cuscuta sp.*), *Philodendron sp.*, ferns, Wild cane (*Tripsacum andersonii*) and Cutting grass (*Scleria bracteata*). Point counts were also conducted in the following habitats: **cashew plantation, scrub-swamp forest, pine savanna and a strip of broadleaf forest along the Sibun River**. In addition, bird surveys were conducted by canoe along the Sibun River.

The following birds were found at the Tropical Education Center study site:



Plain Chachalaca  
(*Ortalis vetula*, Cocrico)



Pale-vented Pigeon  
(*Patagioenas cayennensis*, Blue Pigeon)



Golden-fronted Woodpecker  
(*Melanerpes aurifrons*, Carpenter)



Great Kiskadee  
(*Pitangus sulphuratus*, Kiskadee)



Clay-colored Robin  
(*Turdus grayi*, Brown Cusco)



Gray Catbird  
(*Dumetella carolinensis*)



White-eyed Vireo  
(*Vireo griseus*)



American Redstart  
(*Setophaga ruticilla*)



Rufous-tailed Hummingbird  
(*Amazilia tzacatl*)



Common Tody-Flycatcher  
(*Todirostrum cinereum*)



White-collared Seedeater  
(*Sporophila torqueola*, Grassy Bird, Ricey)



Spot-breasted Wren  
(*Thryothorus maculipectus*, Katy-yu-baby-di-cry)



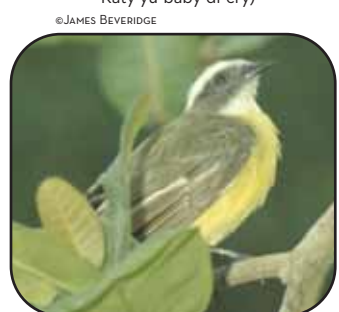
Gray-headed tanager  
(*Eucometis penicillata*)



Black-and-white Warbler  
(*Mniotilta varia*)



Barred Antshrike  
(*Thamnophilus doliatus*)



Social Flycatcher  
(*Myiozetetes similis*, Kiskadee)



# RUNAWAY CREEK NATURE PRESERVE STUDY SITE :



GENE ALBANESE

Aerial of RCNP broadleaf forested karst hills.



VICKI PIASKOWSKI

RCNP forested karst hill.



VICKI PIASKOWSKI

Close-up of karst hill broadleaf forest.



VICKI PIASKOWSKI



VICKI PIASKOWSKI

Transition zone from a karst hill broadleaf forest to an adjacent seasonal wetland habitat.



VICKI PIASKOWSKI



VICKI PIASKOWSKI

Pine savanna habitat.

Research at the RCNP study site was conducted in a number of habitats. In the **karst hill broadleaf forest**, common trees were Black poisonwood (*Metopium brownei*), Logwood (*Haematoxylon campechianum*) and Give-and-take palm (*Cryosophila stauracantha*). Vines and Cutting grass (*Scleria bracteata*) grew near the ground. In the **pine savanna**, the common trees were Live oak (*Quercus oleoides*), and Caribbean pine (*Pinus caribaea*) with a few Craboo (*Byrsonima crassifolia*), Schippea palm (*Schippia concolor*) and Yaha (*Curatella americana*). Graminoids (sedges, rushes and grasses) grew near the ground. In the **transition zone from a karst hill broadleaf forest to an adjacent seasonal wetland**, the common trees were Logwood (*Haematoxylon campechianum*) and Calabash (*Crescentia cujete*). Vines and graminoids grew near the ground. Research was also conducted in **riverine forest habitat** (pages 36-42).



The following bird species were found in the habitats present on the Runaway Creek Nature Preserve:

CAROL FARNETI-FOSTER



White Hawk  
(*Leucopternis albicollis*)

VICKI PIASKOWSKI



Ivory-billed Woodcreeper  
(*Xiphorhynchus flavigaster*)

NICK STEPHENS



Keel-billed Toucan  
(*Ramphastos sulfuratus*,  
Belizean Bill Bird, Big-bill Ptilis)

VICKI PIASKOWSKI



Blue-crowned Motmot  
(*Momotus momota*, Good Cook)

GORDON MACDONALD



Smoky-brown Woodpecker  
(*Veniliornis fumigatus*)

VICKI PIASKOWSKI



Magnolia Warbler  
(*Dendroica magnolia*)

VICKI PIASKOWSKI



Common Yellowthroat  
(*Geothlypis trichas*)

GENE ALBANESE



Worm-eating Warbler  
(*Helmitheros vermivorum*)

RICHARD BRODZELLER



Northern Cardinal  
(*Cardinalis cardinalis*)

GENE ALBANESE



Kentucky Warbler  
(*Oporornis formosus*)

©JAMES BEVERIDGE



Hooded Warbler  
(*Wilsonia citrina*)

TIMOTHY FENSKE



Scarlet Tanager (breeding plumage)  
(*Piranga olivacea*)

GORDON MACDONALD



Blue Bunting  
(*Cyanocompsa parellina*, Rice Bird)

GORDON MACDONALD



Gray-chested Dove  
(*Leptotila cassini*, Ground Pigeon)

## CHAA CREEK STUDY SITE:

In the **secondary broadleaf forest habitat** where bird banding was conducted, the majority of the trees had not been cleared for approximately 45 years. The common trees were Grande betty (*Cupania belizensis*), Red gumbolimbo (*Bursera simaruba*) and Cortes (*Tabebuia chrysantha*), with moderate Fiddlewood (*Vitex gaumeri*), Prickly yellow (*Zanthoxylum kellermanii*) and Cohune (*Attalea cohune*). Vines and a few graminoids grew near the ground.

Point counts were conducted in the following habitats: **pasture, two citrus plantations, dry upland forest, second growth upland forest along the Macal River, and along a seasonal creek bed surrounded by second growth Cohune forest.** Bird surveys were also conducted by canoe along the Macal River.

The following bird species were found at the Chaa Creek study site:

DAVID TZUL



Secondary broadleaf forest habitat.

RICHARD BRODZELLER



Wood Thrush  
(*Hylocichla mustelina*)

GORDON MACDONALD



Tody Motmot  
(*Hylomanes momotula*)

GORDON MACDONALD



Ochre-bellied Flycatcher  
(*Mionectes oleagineus*)

GORDON MACDONALD



Gray-throated Chat  
(*Granatellus sallaei*)

LYNN MILLER



Ovenbird  
(*Seiurus aurocapilla*)

LARRY HOPWOOD



White-collared Manakin  
(*Manacus candei*, Cohune Copper)

LARRY HOPWOOD



Red-throated Ant-Tanager female

GENE ALBANESE



Red-throated Ant-Tanager  
(*Habia fuscicauda*) male

VICKI PIASKOWSKI



Black-throated Green Warbler  
(*Dendroica virens*)

LARRY HOPWOOD



Blue-black Grosbeak  
(*Cyanocompsa cyanoides*)

GORDON MACDONALD



Slate-headed Tody-Flycatcher  
(*Poecilotriccus sylvia*)

VICKI PIASKOWSKI



Roadside Hawk  
(*Buteo magnirostris*, Chicken Hawk)

GENE ALBANESE



Bright-rumped Attila  
(*Attila spadiceus*)

GENE ALBANESE



Wedge-billed Woodcreeper  
(*Glyphorhynchus spirurus*)



## SPECIES OF BIRDS FOUND AT EACH STUDY SITE (AS OF 5/9/05).

Runaway Creek Nature Preserve study site: 304 species of birds.

Tropical Education Center study site: 266 species of birds.

Chaa Creek study site: 259 species of birds.

The preferred habitats in Belize listed in the table below are based on Jones 2003 and BWB-ASF field observations. (Please see Appendix 1B on pages 75-82 for the page number on which the bird's photo can be found.)

Species (Families in bold & caps)	Belize seasonality	RCNP	TEC	CHAA	Preferred Habitats in Belize
<b>TINAMOUS - TINAMIDAE</b>					
Great Tinamou ( <i>Tinamus major</i> )	R	X	X		Primary and secondary broadleaf forest, less common in pine forest (ground-dweller)
Little Tinamou ( <i>Crypturellus soui</i> )	R	X	X	X	Tall second growth scrub and secondary forest (ground-dweller)
Thicket Tinamou ( <i>Crypturellus cinnamomeus</i> )	R	X	X	X	Semi-deciduous northern broadleaf forest, second-growth scrub (ground dweller)
Slaty-breasted Tinamou ( <i>Crypturellus boucardi</i> )	R	X		X	Broadleaf forest (ground-dweller)
<b>SWANS, GEESE &amp; DUCKS - ANATIDAE</b>					
Black-bellied Whistling-Duck ( <i>Dendrocygna autumnalis</i> )	R/M	X	X	X	Rice fields, coastal lagoons, ponds and other wet areas including savannas
Muscovy Duck ( <i>Cairina moschata</i> )	R	X	X		Wooded edges of rivers, wooded lagoons and swamps, marshes
Blue-winged Teal ( <i>Anas discors</i> )	N			X	Areas with shallow water, including rice fields and freshwater marshes
<b>CURASSOWS &amp; GUANS - CRACIDAE</b>					
Plain Chachalaca ( <i>Ortalis vetula</i> )	R	X	X	X	Open woodland and scrub, forest interior and edges
Crested Guan ( <i>Penelope purpurascens</i> )	R	X		X	Forested areas (broadleaf and pine)
Great Curassow ( <i>Crax rubra</i> )	R	X		X	Primary broadleaf forest interior, sometimes in secondary and fragmented forest
<b>NEW WORLD QUAIL - ODONTOPHORIDAE</b>					
Black-throated Bobwhite ( <i>Colinus nigrogularis</i> )	R	X	X		Savannas and meadows, sometimes secondary scrub bordering agricultural fields
Spotted Wood-Quail ( <i>Odonotophorus guttatus</i> )	R	X		X	Primary broadleaf forest (ground-dweller)
Singing Quail ( <i>Dactylortyx thoracicus</i> )	R			X	Primary northern deciduous subtropical forest and second growth (ground-dweller)
<b>GREBES - PODICIPEDIDAE</b>					
Least Grebe ( <i>Tachybaptus dominicus</i> )	R	X	X	X	Rivers, streams, swamps and lagoons bordered by forests, small ponds, marshes
<b>PELICANS - PELECANIDAE</b>					
Brown Pelican ( <i>Pelecanus occidentalis</i> )	R	X	X	X	Coastlines, inshore and offshore waters, offshore islands, sometimes estuaries and shrimp farms, rarely inshore lagoons and ponds
<b>CORMORANTS - PHALACROCORACIDAE</b>					
Neotropic Cormorant ( <i>Phalacrocorax brasilianus</i> )	R	X	X	X	Lagoons, estuaries, shrimp farms, rice fields, rivers, coastline and inner cayes (especially in south)
<b>ANHINGAS - ANHINGIDAE</b>					
Anhinga ( <i>Anhinga anhinga</i> )	R	X	X	X	Lagoons, swamps and slow rivers that are tree-lined, coastal estuaries, mangrove forests and mangrove cayes
<b>FRIGATEBIRDS - FREGATIDAE</b>					
Magnificent Frigatebird ( <i>Fregata magnificens</i> )	R	X	X		Estuaries and other coastal areas, inshore and offshore waters, mangrove cayes
<b>BITTERNS &amp; HERONS - ARDEIDAE</b>					
Bare-throated Tiger-Heron ( <i>Tigrisoma mexicanum</i> )	R	X	X	X	Marshes, lagoons, streamsides, swamp forest, sometimes mangroves
Great Blue Heron ( <i>Ardea herodias</i> )	R	X	X	X	Wet areas that are not densely forested and rivers
Great Egret ( <i>Ardea alba</i> )	R	X	X	X	Wet areas without forest, pastures and river edges
Snowy Egret ( <i>Egretta thula</i> )	R	X	X	X	Wet areas without forest, pastures and river edges
Little Blue Heron ( <i>Egretta caerulea</i> )	M	X	X	X	Wet areas without forest, pastures and river edges
Cattle Egret ( <i>Bubulcus ibis</i> )	R/M	X	X	X	Pastures, wet agricultural fields and grasslands, lawns, mangroves



**SPECIES OF BIRDS FOUND AT EACH STUDY SITE (AS OF 5/9/05) CONTINUED.**

Species (Families in bold & caps)	Belize seasonality	RCNP	TEC	CHAA	Preferred Habitats in Belize
<b>BITTERNS &amp; HERONS - ARDEIDAE (CON'T)</b>					
Green Heron ( <i>Butorides virescens</i> )	R	X	X	X	Lagoons, ponds, rivers and streams that are lined with forest, littoral forest
Agami Heron ( <i>Agamia agami</i> )	R	X			Edges of swamps, rivers, lagoons that have dense foliage
Black-crowned Night Heron ( <i>Nycticorax nycticorax</i> )	M	X		X	Marshes, lagoons, estuaries, mangroves
Yellow-crowned Night Heron ( <i>Nyctanassa violacea</i> )	R	X		X	Towns, lawns, shores of rivers, estuaries, ponds, swamps, marshes, mudflats, mangroves (can be seen feeding below streetlights)
Boat-billed Heron ( <i>Cochlearius cochlearius</i> )	R	X	X	X	Shores of estuaries, ponds, rivers, lakes and swamps
<b>IBISES &amp; SPOONBILLS - THRESKIORNITHIDAE</b>					
White Ibis ( <i>Eudocimus albus</i> )	R	X			Marshes, rice fields, shrimp farms, rivers, mangroves, swamp and littoral forests
Roseate Spoonbill ( <i>Platalea ajaja</i> )	R		X		Lagoons, flooded rice fields, shrimp farms
<b>STORKS - CICONIIDAE</b>					
Jabiru ( <i>Jabiru mycteria</i> )	R	X	X		Estuaries, rice fields, shrimp farms, wet meadows, lagoons
Wood Stork ( <i>Mycteria americana</i> )	R	X	X	X	Lagoons, estuaries, marshes, shrimp farms, rice fields
<b>AMERICAN VULTURES - CATHARTIDAE</b>					
Black Vulture ( <i>Coragyps atratus</i> )	R	X	X	X	Everywhere except dense forest and open ocean. Can be seen feeding in urban areas and on beaches
Turkey Vulture ( <i>Cathartes aura</i> )	R/M	X	X	X	Everywhere over land
Lesser Yellow-headed Vulture ( <i>Cathartes burrovianus</i> )	R	X	X		Open country. Often found with Turkey vultures
King Vulture ( <i>Sarcoramphus papa</i> )	R	X	X	X	Open country, also patchy and large woodlands
<b>KITES, EAGLES, HAWKS &amp; ALLIES - ACCIPITRIDAE</b>					
Osprey ( <i>Pandion haliaetus</i> )	R	X	X		Coastal and offshore areas that have open water for feeding and trees or poles for perching
Gray-headed Kite ( <i>Leptodon cayanensis</i> )	R	X		X	River edges with forest, heavily forested areas
Hook-billed Kite ( <i>Chondrohierax uncinatus</i> )	R			X	Primary and old secondary forest, sometimes forest edge.
Swallow-tailed Kite ( <i>Elanoides forficatus</i> )	S	X		X	Open broadleaf and pine forests, most common in upland areas
White-tailed Kite ( <i>Elanus leucurus</i> )	R	X	X	X	Open areas
Snail Kite ( <i>Rostrhamus sociabilis</i> )	R	X			Lagoons and freshwater marshes, sometimes rice fields
Double-toothed Kite ( <i>Harpagus bidentatus</i> )	R	X			Primary forest, sometimes broken forest and second growth
Plumbeous Kite ( <i>Ictinia plumbea</i> )	S	X	X	X	Open forest, savanna, cleared second growth, milpas
Black-collared Hawk ( <i>Busarellus nigricollis</i> )	R	X			Forested edges of slow rivers and lagoons
White Hawk ( <i>Leucopternis albicollis</i> )	R	X			Primary and old secondary broadleaf forest and forest edge
Gray Hawk [ <i>Asturina nitida (plagiata)</i> ]	R	X	X	X	Forest edge, roadsides, open country with scattered large trees
Common Black-Hawk ( <i>Buteogallus anthracinus</i> )	R	X	X	X	Open wooded areas near water, forest edge, towns, mangrove forests
Great Black-Hawk ( <i>Buteogallus urubitinga</i> )	R	X	X		Densely wooded areas, often that are near water, rice fields and other open areas
Roadside Hawk ( <i>Buteo magnirostris</i> )	R	X	X	X	Broken woodland and forest edge, roadsides, tree-lined rivers. Sometimes in forests at army ant swarms
Short-tailed Hawk ( <i>Buteo brachyurus</i> )	R	X	X	X	Most habitats from dense woodlands to savannas
White-tailed Hawk ( <i>Buteo albicaudatus</i> )	R	X	X		Open country, mainly savannas and pastures
Zone-tailed Hawk ( <i>Buteo albonotatus</i> )	M	X			Open country including pastures, savannas, rice fields and shrimp farms
Black Hawk-Eagle ( <i>Spizaetus tyrannus</i> )	R	X		X	Open forest and pine woodland
Ornate Hawk-Eagle ( <i>Spizaetus ornatus</i> )	R	X			Primary broadleaf forest, sometimes pine forest

**SPECIES OF BIRDS FOUND AT EACH STUDY SITE (AS OF 5/9/05) CONTINUED.**

Species (Families in bold & caps)	Belize seasonality	RCNP	TEC	CHAA	Preferred Habitats in Belize
<b>CARACARAS &amp; FALCONS - FALCONIDAE</b>					
Barred Forest-Falcon ( <i>Micrastur ruficollis</i> )	R	X			Primary broadleaf forest
Collared Forest-Falcon ( <i>Micrastur semitorquatus</i> )	R	X	X	X	Primary and secondary broadleaf forest, sometimes second-growth scrub and pine forest
Laughing Falcon ( <i>Herpetotheres cachinnans</i> )	R	X	X	X	Forested and semi-forested areas including open woodland and savanna
American Kestrel ( <i>Falco sparverius</i> )	M			X	Open areas including pastures, agricultural fields, meadows and towns. Often perches on power poles and lines
Aplomado Falcon ( <i>Falco femoralis</i> )	R	X	X		Savannas, sometimes other open areas
Bat Falcon ( <i>Falco ruficularis</i> )	R	X	X	X	Most habitats, can be found on buildings and communication towers in urban areas
<b>RAILS, GALLINULES, &amp; COOTS - RALLIDAE</b>					
Ruddy Crane ( <i>Laterallus ruber</i> )	R	X	X	X	Weedy fields, grass-lined ditches, wet meadows, rice fields, sometimes by river edges
Gray-necked Wood-Rail ( <i>Aramides cajanea</i> )	R	X	X	X	Wet areas including meadows, marshes, river edges, rice fields and open woodland
Purple Gallinule ( <i>Porphyrio martinica</i> )	R			X	Freshwater marshes, rice fields
American Coot ( <i>Fulica americana</i> )	M			X	Freshwater and brackish marshes, ponds, lagoons, rice fields with open water
<b>SUNGREBES - HELIORNITHIDAE</b>					
Sungrebe ( <i>Heliornis fulica</i> )	R	X	X	X	Swamp forest and forest-lined streams
<b>LIMPKINS - ARAMIDAE</b>					
Limpkin ( <i>Aramus guarauna</i> )	R	X	X	X	Freshwater marshes, lagoons, wet savannas, sometimes wet meadows and roadside ditches
<b>PLOVERS - CHARADRIIDAE</b>					
Killdeer ( <i>Charadrius vociferus</i> )	M	X	X	X	Open short-grass habitats including lawns, agricultural fields and pasture
<b>JACANAS - JACANIDAE</b>					
Northern Jacana ( <i>Jacana spinosa</i> )	R	X		X	Freshwater marshes, rice fields, shallow ponds
<b>SANDPIPERS &amp; ALLIES - SCOLOPACIDAE</b>					
Solitary Sandpiper ( <i>Tringa solitaria</i> )	N	X	X		Freshwater marshes, rice fields, small ponds and stream edges
Spotted Sandpiper ( <i>Actitis macularius</i> )	M	X	X	X	Rice fields, farm ponds, lagoons, streamsides, shrimp farms, mudflats and sandflats, beaches
Common Snipe ( <i>Gallinago gallinago</i> )	M		X		Wet drainage ditches, muddy pastures, marshes, rice fields, in vegetation at edge of mudflats
<b>PIGEONS &amp; DOVES - COLUMBIDAE</b>					
Pale-vented Pigeon ( <i>Patagioenas cayennensis</i> )	R	X	X	X	Open and patchy broadleaf and pine forest, second growth, forest edge, mangroves, littoral forests, towns and villages
Scaled Pigeon ( <i>Patagioenas speciosa</i> )	R	X	X	X	Most broadleaf forests, sometimes in pines
Red-billed Pigeon ( <i>Patagioenas flavirostris</i> )	R	X	X	X	Semi-deciduous and deciduous broadleaf forest, submontane pine forest
Short-billed Pigeon ( <i>Patagioenas nigrirostris</i> )	R	X	X		Primary and secondary broadleaf forest, forest edge
Mourning Dove ( <i>Zenaidura macroura</i> )	T		X	X	Pasture, fallow fields, savannas, towns, villages
Plain-breasted Ground-Dove ( <i>Columbina minuta</i> )	R	X	X	X	Pine and pine-oak savannas, also fallow fields, pasture and other disturbed areas
Ruddy Ground-Dove ( <i>Columbina talpacoti</i> )	R	X	X	X	Well-drained unforested areas, roadsides, urban areas, savannas
Blue Ground-Dove ( <i>Claravis pretiosa</i> )	R	X	X	X	Broadleaf forest (mainly) and pine forest
White-tipped Dove ( <i>Leptotila verreauxi</i> )	R	X	X	X	Deciduous and semi-deciduous broadleaf forest, second-growth scrub, pine woodland, savannas
Gray-fronted Dove [ <i>Leptotila rufaxilla (plumbeiceps)</i> ]	R	X	X	X	Primary and secondary broadleaf forest, patchy forest
Gray-chested Dove ( <i>Leptotila cassini</i> )	R	X	X	X	Primary and secondary humid broadleaf forest
Ruddy Quail-Dove ( <i>Geotrygon montana</i> )	R	X	X	X	Primary and secondary broadleaf forest

**SPECIES OF BIRDS FOUND AT EACH STUDY SITE (AS OF 5/9/05) CONTINUED.**

Species (Families in bold & caps)	Belize seasonality	RCNP	TEC	CHAA	Preferred Habitats in Belize
<b>PARROTS - PSITTACIDAE</b>					
Olive-throated Parakeet ( <i>Aratinga nana</i> )	R	X	X	X	Forest edge and second-growth scrub, and pine savanna
Brown-hooded Parrot ( <i>Pionopsitta haematotis</i> )	R	X	X	X	Primary and secondary broadleaf forest and forest edge
White-crowned Parrot ( <i>Pionus senilis</i> )	R	X	X	X	Broadleaf and pine forest and forest edge
White-fronted Parrot ( <i>Amazona albifrons</i> )	R	X	X	X	Second-growth scrub, forest edge, savanna, cultivated fields
Yellow-lored Parrot ( <i>Amazona xanholora</i> )	R	X	X		Second-growth scrub, forest edge, savanna, cultivated fields
Red-lored Parrot ( <i>Amazona autumnalis</i> )	R	X	X	X	Most forested areas, including pine savanna and patchy forest
Mealy Parrot ( <i>Amazona farinosa</i> )	R	X	X	X	Primary and tall secondary forest, gallery forest, forest edge
Yellow-headed Parrot ( <i>Amazona oratrix</i> )	R	X	X		Pine savanna, occasionally other open forested habitats
<b>CUCKOOS &amp; ALLIES - CUCULIDAE</b>					
Mangrove Cuckoo ( <i>Coccyzus minor</i> )	R		X		Littoral forest, mangroves, riverine forest, forest edge, scrub
Squirrel Cuckoo ( <i>Piaya cayana</i> )	R	X	X	X	Most broadleaf forests and forest edge, less common in pine forest
Striped Cuckoo ( <i>Tapera naevia</i> )	R	X	X	X	Open second-growth scrub and fallow fields
Pheasant Cuckoo ( <i>Dromococcyx phasianellus</i> )	R	X			Primary and secondary broadleaf forest, dense second growth
Groove-billed Ani ( <i>Crotophaga sulcirostris</i> )	R	X	X	X	Second-growth scrub, fallow fields, forest edge, and pastures
<b>BARN OWLS - TYTONIDAE</b>					
Barn Owl ( <i>Tyto alba</i> )	R		X	X	Urban areas, agricultural fields, quarries
<b>TYPICAL OWLS - STRIGIDAE</b>					
Vermiculated Screech-Owl ( <i>Megascops guatemalae</i> )	R	X	X	X	Broadleaf forest, also, but not as commonly in pine forest
Central American Pygmy-Owl ( <i>Glaucidium griseiceps</i> )	R			X	Primary and secondary broadleaf forest
Ferruginous Pygmy-Owl ( <i>Glaucidium brasilianum</i> )	R	X	X	X	Deciduous and semi-deciduous broadleaf forest, submontane pine and broadleaf forest, sometimes in urban areas
Mottled Owl ( <i>Ciccaba virgata</i> )	R	X	X	X	Forested areas including forest edge
Striped Owl ( <i>Pseudoscops clamator</i> )	R	X			Open disturbed areas, marshes, meadows, savannas with scattered trees
<b>GOATSUCKERS - CAPRIMULGIDAE</b>					
Lesser Nighthawk ( <i>Chordeiles acutipennis</i> )	M	X	X	X	Feeds in air at night and can be seen at dawn and dusk in many areas including urban areas. Perches on ground or on tree branch during the day.
Common Nighthawk ( <i>Chordeiles minor</i> )	S	X	X	X	Feeds in air at night and is easiest to see at dawn and dusk in many areas including urban areas. Perches on tree branch during the day.
Common Pauraque ( <i>Nyctidromus albicollis</i> )	R	X	X	X	Forest edge, second-growth scrub, roadsides
Yucatan Nightjar ( <i>Caprimulgus badius</i> )	M		X		Forest edge
<b>POTOOS - NYCTIBIIDAE</b>					
Northern Potoo ( <i>Nyctibius jamaicensis</i> )	R			X	Forest clearings and edge, second growth and other disturbed habitats, rural areas
<b>SWIFTS - APODIDAE</b>					
White-collared Swift ( <i>Streptoprocne zonaris</i> )	R	X	X	X	In air, over most habitats but mainly near or over forested areas
Chimney Swift ( <i>Chaetura pelagica</i> )	T			X	In air over most habitats, but usually not over forested streams or forest clearings
Vaux's Swift ( <i>Chaetura vauxi</i> )	R	X	X	X	In air, mostly over forested and semi-forested areas and small and large clearings including agricultural fields. Usually not near coastal plain.
Lesser Swallow-tailed Swift ( <i>Panyptila cayennensis</i> )	R	X	X	X	In air, most habitats, usually near or over forests



## SPECIES OF BIRDS FOUND AT EACH STUDY SITE (AS OF 5/9/05) CONTINUED.

Species (Families in bold & caps)	Belize seasonality	RCNP	TEC	CHAA	Preferred Habitats in Belize
<b>HUMMINGBIRDS - TROCHILIDAE</b>					
Long-billed Hermit ( <i>Phaethornis longirostris</i> )	R	X	X	X	Broadleaf forest edge and clearings, second-growth scrub
Stripe-throated Hermit ( <i>Phaethornis striigularis</i> )	R	X	X	X	Broadleaf forest and forest edge, clearings, second-growth scrub
Scaly-breasted Hummingbird ( <i>Phaechroa cuvieri</i> )	R	X			Broadleaf forest edge, clearings
Wedge-tailed Sabrewing ( <i>Campylopterus curvipennis</i> )	R	X	X	X	Broadleaf and submontane pine forest clearings and edge
White-necked Jacobin ( <i>Florisuga mellivora</i> )	R	X	X	X	Broadleaf forest edge and clearings, often over wooded streams and ponds
Green-breasted Mango ( <i>Anthracothorax prevostii</i> )	R	X	X	X	Littoral forest, second-growth scrub, broadleaf forest edge, cultivated areas, towns and villages
Canivet's Emerald ( <i>Chlorostilbon canivetii</i> )	R	X	X	X	Deciduous and semi-deciduous forest edge, second-growth scrub, savannas, cultivated areas
White-bellied Emerald ( <i>Amazilia candida</i> )	R	X	X	X	Broadleaf forest and forest edge
Azure-crowned Hummingbird ( <i>Amazilia cyanocephala</i> )	R	X	X	X	Pine woodland and savanna, broadleaf forest and forest edge
Rufous-tailed Hummingbird ( <i>Amazilia tzacatl</i> )	R	X	X	X	Most habitats except for interior of extensive forests
Buff-bellied Hummingbird ( <i>Amazilia yucatanensis</i> )	R	X	X		Pinelands, arid scrub, open second growth. Not found in areas with high annual rainfall and dense forest.
Cinnamon Hummingbird ( <i>Amazilia rutila</i> )	R	X	X		Littoral forest and forest edge, mangroves, cultivated areas
Purple-crowned Fairy ( <i>Heliodytes barroti</i> )	R	X			Broadleaf forest and forest edge
Long-billed Starthroat ( <i>Heliomaster longirostris</i> )	X	X			Forest edge and clearings, plantations
Ruby-throated Hummingbird ( <i>Archilochus colubris</i> )	N	X	X	X	Forest edge and clearings, second-growth scrub, landscaped yards in towns and villages
<b>TROGONS - TROGONIDAE</b>					
Black-headed Trogon ( <i>Trogon melanocephalus</i> )	R	X	X	X	Broadleaf forest, also pine forest, forest edge, broken forest with scrub. Usually not in large areas of primary forest.
Violaceous Trogon ( <i>Trogon violaceus</i> )	R	X	X	X	Broadleaf forest, also pine forest, forest edge, broken forest with scrub.
Slaty-tailed Trogon ( <i>Trogon massena</i> )	R	X		X	Primary broadleaf forest and forest edge
<b>MOTMOTS - MOMOTIDAE</b>					
Tody Motmot ( <i>Hylomanes momotula</i> )	R	X		X	Primary broadleaf forest interior
Blue-crowned Motmot ( <i>Momotus momota</i> )	R	X	X	X	Primary and secondary broadleaf forest interior, sometimes pine forest
<b>KINGFISHERS - ALCEDINIDAE</b>					
Ringed Kingfisher ( <i>Ceryle torquatus</i> )	R	X	X	X	Widespread wherever there is water including open areas, forested streams, swamps and rivers
Belted Kingfisher ( <i>Ceryle alcyon</i> )	M	X	X	X	Roadside ditches and creeks, coastal lagoons, mangrove swamps, rice fields, power lines near water. Avoids forested rivers and creeks.
Amazon Kingfisher ( <i>Chloroceryle amazona</i> )	R		X	X	Forested rivers, streams, lagoons; sometimes open areas like field edges and roadside ditches
Green Kingfisher ( <i>Chloroceryle americana</i> )	R	X	X	X	Wood-lined streams and rivers
American Pygmy Kingfisher ( <i>Chloroceryle aenea</i> )	R	X	X	X	Quiet pools of water, swamps, backwaters, heavily vegetated lagoon edges. Usually avoids fast-flowing streams.
<b>PUFFBIRDS - BUCCONIDAE</b>					
White-necked Puffbird ( <i>Notharchus macrorhynchos</i> )	R	X	X	X	Forest edge, semi-open to open areas with scattered trees
<b>JACAMARS - GALBULIDAE</b>					
Rufous-tailed Jacamar ( <i>Galbula ruficauda</i> )	R	X	X	X	Broadleaf forest interior and edge, river sides
<b>TOUCANS - RAMPHASTIDAE</b>					
Emerald Toucanet ( <i>Aulacorhynchus prasinus</i> )	R			X	Submontane and foothill broadleaf forest interior and edge, less often in submontane pine forest
Collared Aracari ( <i>Pteroglossus torquatus</i> )	R	X	X	X	Broadleaf forest and forest edge
Keel-billed Toucan ( <i>Ramphastos sulfuratus</i> )	R	X	X	X	Broadleaf forest and forest edge

**SPECIES OF BIRDS FOUND AT EACH STUDY SITE (AS OF 5/9/05) CONTINUED.**

Species (Families in bold & caps)	Belize seasonality	RCNP	TEC	CHAA	Preferred Habitats in Belize
<b>WOODPECKERS - PICIDAE</b>					
Acorn Woodpecker ( <i>Melanerpes formicivorus</i> )	R	X	X		Pine and pine-oak forest, dependant on acorns from oaks
Black-cheeked Woodpecker ( <i>Melanerpes pucherani</i> )	R	X	X	X	Broadleaf forest edge and forest clearings
Yucatan (Red-vented) Woodpecker ( <i>Melanerpes pygmaeus</i> )	R	X	X		Open forest types including broadleaf and pine
Golden-fronted Woodpecker ( <i>Melanerpes aurifrons</i> )	R	X	X	X	Forest edge and most open areas with trees. Found in some plantations. Most common woodpecker in towns
Yellow-bellied Sapsucker ( <i>Sphyrapicus varius</i> )	N	X	X		Broadleaf and pine forest and forest edge
Ladder-backed Woodpecker ( <i>Picoides scalaris</i> )	R	X	X		Open pine woodlands
Smoky-brown Woodpecker ( <i>Veniliornis fumigatus</i> )	R	X	X		Broadleaf forest interior and edge, scrub
Golden-olive Woodpecker ( <i>Piculus rubiginosus</i> )	R	X	X	X	Pine and broadleaf forest and forest edge
Chestnut-colored Woodpecker ( <i>Celeus castaneus</i> )	R	X			Broadleaf forest interior
Lineated Woodpecker ( <i>Dryocopus lineatus</i> )	R	X	X	X	Most areas with large trees, including primary and secondary broadleaf forest, open areas with large trees, pines, towns and villages
Pale-billed Woodpecker ( <i>Campephilus guatemalensis</i> )	R	X	X	X	Most areas with large trees, including primary and secondary broadleaf forest, open areas with large trees. (Found less often than Lineated Woodpecker in pines, towns and villages.)
<b>OVENBIRDS - FURNARIIDAE</b>					
Rufous-breasted Spinetail ( <i>Synallaxis erythrothorax</i> )	R	X	X		Dense tangles, especially along roads and riverbanks
Plain Xenops ( <i>Xenops minutus</i> )	R	X		X	Broadleaf forest interior and edge
Scaly-throated Leaf-tosser ( <i>Sclerurus guatemalensis</i> )	R	X			Primary and secondary broadleaf forest
<b>WOODCREEPERS - DENDROCOLAPTIDAE</b>					
Tawny-winged Woodcreeper ( <i>Dendrocincla anabatina</i> )	R	X	X	X	Primary and secondary broadleaf forest, forest edge, high scrub. Found at army ant swarms.
Ruddy Woodcreeper ( <i>Dendrocincla homochroa</i> )	R	X	X	X	Primary and secondary broadleaf forest, forest edge, high scrub. Found at army ant swarms.
Olivaceous Woodcreeper ( <i>Sittasomus griseicapillus</i> )	R	X	X	X	Primary and secondary broadleaf and pine forest and forest edge.
Wedge-billed Woodcreeper ( <i>Glyphorhynchus spirurus</i> )	R	X	X		Primary and secondary broadleaf and pine forest and forest edge.
Northern Barred-Woodcreeper ( <i>Dendrocolaptes sanctithomae</i> )	R	X	X	X	Broadleaf and pine forest interior, occasionally forest edge
Ivory-billed Woodcreeper ( <i>Xiphorhynchus flavigaster</i> )	R	X	X	X	Forested areas and forest edge, including pines
Streak-headed Woodcreeper ( <i>Lepidocolaptes souleyetii</i> )	R	X	X	X	Broadleaf and pine forest and forest edge
<b>ANTBIRDS - THAMNOPHILIDAE</b>					
Great Antshrike ( <i>Taraba major</i> )	R	X	X	X	Dense tangles, second-growth scrub, forest edge, occasionally forest interior.
Barred Antshrike ( <i>Thamnophilus doliatus</i> )	R	X	X	X	Dense tangles, second-growth scrub, broadleaf and pine forest edge
Dusky Antbird ( <i>Cercomacra tyrannina</i> )	R	X	X	X	Dense second-growth scrub, tangles, forest edge
<b>ANTTHRUSHES - FORMICARIIDAE</b>					
Black-faced Antthrush [ <i>Formicarius analis (moniliger)</i> ]	R	X	X	X	Broadleaf forest interior
<b>TYRANT FLYCATCHERS - TYRANNIDAE</b>					
<b>Tyrannulets and Elaenias - Elaeniinae</b>					
Yellow-bellied Tyrannulet ( <i>Ornithion semiflavum</i> )	R	X	X	X	Broadleaf forest and forest edge
Northern Beardless-Tyrannulet ( <i>Camptostoma imberbe</i> )	R	X	X	X	Open pine forest and savanna, broadleaf forest edge, second-growth scrub
Greenish Elaenia ( <i>Myiopagis viridicata</i> )	R	X	X	X	Broadleaf and pine forest, forest edge, tall second growth, also parks and urban areas with large shade trees
Yellow-bellied Elaenia ( <i>Elaenia flavogaster</i> )	R	X	X	X	Forest edge, pine woodlands, open areas with scattered trees including towns and villages
Ochre-bellied Flycatcher ( <i>Mionectes oleagineus</i> )	R	X	X	X	Broadleaf forest interior and clearings
Sepia-capped Flycatcher ( <i>Leptopogon amaurocephalus</i> )	R	X		X	Broadleaf forest interior

**SPECIES OF BIRDS FOUND AT EACH STUDY SITE (AS OF 5/9/05) CONTINUED.**

Species (Families in bold & caps)	Belize seasonality	RCNP	TEC	CHAA	Preferred Habitats in Belize
<b>Tody-Tyrants &amp; Flatbills - Platyrinchinae</b>					
Northern Bentbill ( <i>Oncostoma cinereigulare</i> )	R	X	X	X	Broadleaf forest, forest edge, second-growth scrub, sometimes dense roadside and riverbank tangles
Slate-headed Tody-Flycatcher ( <i>Poecilotriccus sylvia</i> )	R	X	X	X	Dense tangles along roadsides and riverbanks and broadleaf forest edge
Common Tody-Flycatcher ( <i>Todirostrum cinereum</i> )	R	X	X	X	Open areas with scattered large trees, including plantations, orchards, towns and villages. Also in forest edge
Eye-ringed Flatbill ( <i>Rhynchocyclus brevirostris</i> )	R	X	X	X	Broadleaf forest interior
Yellow-olive Flycatcher ( <i>Tolmomyias sulphurescens</i> )	R	X	X	X	Broadleaf forest and forest edge, less often in pine forest
Stub-tailed Spadebill ( <i>Platyrinchus cancrominus</i> )	R	X	X	X	Broadleaf forest interior
<b>Fluicoline Flycatchers - Fluicolinae</b>					
Royal Flycatcher ( <i>Onychorhynchus coronatus</i> )	R	X	X	X	Broadleaf forest and forest edge
Sulphur-rumped Flycatcher ( <i>Myiobius sulphureipygius</i> )	R	X	X		Broadleaf forest interior
Eastern Wood-Pewee ( <i>Contopus virens</i> )	T	X			Widespread, found in nearly all habitats with woody vegetation during migration
Tropical Pewee ( <i>Contopus cinereus</i> )	R	X	X	X	Open broadleaf forest and forest edge, less often in pines, occasionally in more open habitats with scattered trees
Yellow-bellied Flycatcher ( <i>Empidonax flaviventris</i> )	N	X		X	Forest interior and edge. During migration is found in a wider range of habitats
White-throated Flycatcher ( <i>Empidonax albigularis</i> )	M	X		X	Edge of freshwater marshes. Secondary broadleaf forest. May be more widespread during migration
Least Flycatcher ( <i>Empidonax minimus</i> )	N	X	X	X	Most habitats with woody vegetation except broadleaf forest interior. Most common at woodland and second-growth edge
Black Phoebe ( <i>Sayornis nigricans</i> )	R	X	X	X	Fast-flowing forest-lined streams
Vermilion Flycatcher ( <i>Pyrocephalus rubinus</i> )	R	X	X	X	Savannas, fallow fields, pasture and agricultural areas, parks and other landscaped areas in towns and villages
<b>Tyrannine Flycatchers - Tyranninae</b>					
Bright-rumped Attila ( <i>Attila spadiceus</i> )	R	X	X	X	Broadleaf and pine forest, less often at forest edge
Yucatan Flycatcher ( <i>Myiarchus yucatanensis</i> )	R	X		X	Open woodlands and forest edge including broadleaf and pine
Dusky-capped Flycatcher ( <i>Myiarchus tuberculifer</i> )	R	X	X	X	Broadleaf and pine forest interior, forest edge and second-growth scrub
Great Crested Flycatcher ( <i>Myiarchus crinitus</i> )	N	X	X	X	Broadleaf forest interior, pine savanna. More widespread during migration
Brown-crested Flycatcher ( <i>Myiarchus tyrannulus</i> )	S	X	X	X	Broadleaf and pine forest interior, forest edge
Great Kiskadee ( <i>Pitangus sulphuratus</i> )	R	X	X	X	Most open habitats and forest edge, including broadleaf and pine, second growth, fields, marshes with scattered trees, parks, towns and villages
Boat-billed Flycatcher ( <i>Megarynchus pitangua</i> )	R	X	X	X	Broadleaf forests near rivers, streams and natural clearings, forest edge
Social Flycatcher ( <i>Myiozetetes similis</i> )	R	X	X	X	Wide-ranging. Broadleaf and pine forest and forest edge, second growth, open areas with scattered trees, towns and villages
Streaked Flycatcher ( <i>Myiodynastes maculatus</i> )	S			X	Broadleaf and pine savanna edges, forest interior and edge
Sulphur-bellied Flycatcher ( <i>Myiodynastes luteiventris</i> )	S	X	X	X	Broadleaf and pine forest interior and edge, open habitats with scattered trees
Piratic Flycatcher ( <i>Legatus leucophaeus</i> )	S	X	X	X	Broadleaf forest interior and edge, pine savanna
Tropical Kingbird ( <i>Tyrannus melancholicus</i> )	R	X	X	X	Open areas wherever there are exposed perches, sometimes in forested areas
Couch's Kingbird ( <i>Tyrannus couchii</i> )	R	X	X	X	Similar to Tropical Kingbird, but Couch's found in drier areas such as upland savannas and Mountain Pine Ridge, also forest edge
Eastern Kingbird ( <i>Tyrannus tyrannus</i> )	T	X	X	X	Most wooded areas, both interior and edge, less often in open areas with exposed perches
Fork-tailed Flycatcher ( <i>Tyrannus savana</i> )	R	X	X	X	Pine and pine-oak savanna, pasture



**SPECIES OF BIRDS FOUND AT EACH STUDY SITE (AS OF 5/9/05) CONTINUED.**

Species (Families in bold & caps)	Belize seasonality	RCNP	TEC	CHAA	Preferred Habitats in Belize
<b>TITYRAS &amp; BECARDS -</b>					
<b>GENERA INCERTAE SEDIS</b>					
Thrush-like Schiffornis ( <i>Schiffornis turdina</i> )	R	X	X	X	Broadleaf forest
White-winged Becard ( <i>Pachyramphus polychopterus</i> )	R	X			Broadleaf forest edge, second growth, open areas with scattered trees
Gray-collared Becard ( <i>Pachyramphus major</i> )	R	X	X		Broadleaf and pine forest and forest edge
Rose-throated Becard ( <i>Pachyramphus aglaiae</i> )	R	X	X	X	Deciduous to evergreen broadleaf forest and forest edge, second-growth scrub
Masked Tityra ( <i>Tityra semifasciata</i> )	R	X	X	X	Broadleaf forest interior and edge, open areas with scattered trees, pines
Black-crowned Tityra ( <i>Tityra inquisitor</i> )	R		X	X	Broadleaf forest interior and edge, open areas with scattered trees, pines
<b>MANAKINS - PIPRIDAE</b>					
White-collared Manakin ( <i>Manacus candei</i> )	R	X	X	X	Broadleaf forest and forest edge, second-growth scrub
Red-capped Manakin ( <i>Pipra mentalis</i> )	R	X	X	X	Broadleaf forest, sometimes at forest edge, found in more mature forest than White-collared Manakin
<b>VIREOS - VIREONIDAE</b>					
White-eyed Vireo ( <i>Vireo griseus</i> )	N	X	X	X	Second-growth scrub, roadside tangles, mangroves, forest edge, occasionally forest interior
Mangrove Vireo [ <i>Vireo pallens (semiflavus)</i> ]	R	X	X	X	Second-growth scrub, roadside tangles, forest edge. Occasionally found in mangroves, but more common in scrubby habitats both near the coast and inland
Yellow-throated Vireo ( <i>Vireo flavifrons</i> )	N	X	X	X	Mature and old second-growth broadleaf and pine forests and forest edge, less often in younger second growth
Red-eyed Vireo ( <i>Vireo olivaceus</i> )	T	X			Tall second growth and forest edge, less often in mature forest
Yellow-green Vireo ( <i>Vireo flavoviridis</i> )	S	X	X	X	Broadleaf forest, tall second growth, forest edge, open woodland with scattered large trees
Tawny-crowned Greenlet ( <i>Hylophilus ochraceiceps</i> )	R	X	X	X	Mature and old second-growth broadleaf forest interior
Lesser Greenlet ( <i>Hylophilus decurtatus</i> )	R	X	X	X	Tall second-growth to mature broadleaf forest, riverine forest
Rufous-browed Peppershrike ( <i>Cyclarhis gujanensis</i> )	R	X	X		Open country with scattered trees and shrubs, roadside brush, forest and second-growth edge, pinelands and occasionally mangroves
<b>JAYS - CORVIDAE</b>					
Green Jay ( <i>Cyanocorax yncas</i> )	R	X	X	X	Broadleaf and pine forest interior and forest edge
Brown Jay ( <i>Cyanocorax morio</i> )	R	X	X	X	Most forest types, usually near edge, open country with scattered trees
Yucatan Jay ( <i>Cyanocorax yucatanicus</i> )	R	X			Semi-deciduous and deciduous broadleaf forest, scrub forest, pine and pine-oak forest, forest edge
<b>SWALLOWS - HIRUNDINIDAE</b>					
Purple Martin ( <i>Progne subis</i> )	T	X	X		In air over open country, perches on power lines and tall dead trees in open areas, can be found roosting (sleeping) on power lines in towns
Gray-breasted Martin ( <i>Progne chalybea</i> )	S	X	X	X	Open country, can be found roosting (sleeping) on power lines in towns
Tree Swallow ( <i>Tachycineta bicolor</i> )	N	X	X	X	Mainly in air over open areas, often groups can be found over wetlands, perches on power lines and dead trees
Mangrove Swallow ( <i>Tachycineta albilinea</i> )	R	X	X	X	Lagoons, coastal areas, rivers, found more widely when not nesting
Northern Rough-Winged Swallow ( <i>Stelgidopteryx serripennis</i> )	R/M	X	X	X	Residents found in forest clearings, (similar in appearance to Ridgeway Rough-Winged Swallow so habitat preferences of Northern not clear). Migrants can be found in most open areas, especially along the coast and over lagoons, agricultural fields, orchards, pasture, roadways
Ridgeway Rough-winged Swallow	R	X			Forest clearings and wooded streams in karst limestone areas
Barn Swallow ( <i>Hirundo rustica</i> )	T	X	X	X	Widespread, concentrations can be found along coast and offshore, in interior over wetlands, farms and pastures

**SPECIES OF BIRDS FOUND AT EACH STUDY SITE (AS OF 5/9/05) CONTINUED.**

Species (Families in bold & caps)	Belize seasonality	RCNP	TEC	CHAA	Preferred Habitats in Belize
<b>WRENS - TROGLODYTIDAE</b>					
Band-backed Wren ( <i>Campylorhynchus zonatus</i> )	R			X	Broadleaf forest and forest edge, feeds on bromeliads in large trees
Spot-breasted Wren ( <i>Thryothorus maculipectus</i> )	R	X	X	X	Forest edge, second-growth scrub, roadside tangles, also forest interior
Carolina Wren ( <i>Thryothorus ludovicianus</i> )	R			X	Low semi-deciduous and deciduous forest and forest edge, locally in savannas along streamside trees and brush
House Wren ( <i>Troglodytes aedon</i> )	R	X	X		Towns and villages, orchards, open country with scattered trees and brush, less common in pine forest and savanna
White-bellied Wren ( <i>Uropsila leucogastra</i> )	R	X	X	X	Broadleaf forest and forest edge, second-growth scrub
White-breasted Wood-Wren ( <i>Henicorhina leucosticta</i> )	R	X	X	X	Broadleaf forest interior and forest edge
<b>GNATCATCHERS - SYLVIIDAE</b>					
Long-billed Gnatwren ( <i>Ramphocaenus melanurus</i> )	R	X	X	X	Vines and tangles at forest edge, second-growth scrub, forest interior
Blue-gray Gnatcatcher ( <i>Polioptila caerulea</i> )	R/M	X	X	X	Residents in pine and pine-oak woodlands and savannas, also Calabash-Palmetto savannas without pines. Migrants found in any wooded habitats.
Tropical Gnatcatcher ( <i>Polioptila plumbea</i> )	R	X	X	X	Broadleaf forest interior and edge
<b>SOLITAIRES, THRUSHES &amp; ALLIES - TURDIDAE</b>					
Veery ( <i>Catharus fuscescens</i> )	T	X			Broadleaf forests
Gray-cheeked Thrush ( <i>Catharus minimus</i> )	T	X			Broadleaf forests
Swainson's Thrush ( <i>Catharus ustulatus</i> )	T	X		X	Broadleaf forests
Wood Thrush ( <i>Hylocichla mustelina</i> )	N	X	X	X	Broadleaf forests
Clay-colored Robin ( <i>Turdus grayi</i> )	R	X	X	X	Broadleaf forests, usually near edge, parks, towns, open areas with scattered trees
White-throated Robin ( <i>Turdus assimilis</i> )	R	X			Montane and foothill broadleaf forest interior and edge
<b>MOCKINGBIRDS, THRASHERS, &amp; ALLIES - MIMIDAE</b>					
Gray Catbird ( <i>Dumetella carolinensis</i> )	N	X	X	X	Forest edge and occasionally interior, second-growth scrub, fruiting trees, and savanna
Black Catbird ( <i>Melanoptila glabirostris</i> )	R	X			On cayes within littoral forest, on mainland semi-deciduous to deciduous forest interior and edge
Tropical Mockingbird ( <i>Mimus gilvus</i> )	R	X	X	X	Open country including towns, villages, open pine woodland, savannas, pasture, orchards, areas with scattered shrubs and trees
<b>WOOD WARBLERS - PARULIDAE</b>					
Blue-winged Warbler ( <i>Vermivora pinus</i> )	N	X	X	X	Forest interior and edges, and second-growth scrub
Tennessee Warbler ( <i>Vermivora peregrina</i> )	T	X	X	X	Forest edge and high second-growth scrub
Orange-crowned Warbler ( <i>Vermivora celata</i> )	M	X			Forest interior and edges, and second-growth scrub
Nashville Warbler ( <i>Vermivora ruficapilla</i> )	T			X	Forest edge, second-growth scrub, fallow fields, roadside brush
Northern Parula ( <i>Parula americana</i> )	N	X	X	X	Forest interior and edge, tall second-growth scrub
Yellow Warbler ( <i>Dendroica petechia</i> )	N	X	X	X	Second-growth scrub, forest edge, fallow fields, roadside brush, open country with scattered woody vegetation, towns and villages
Chestnut-sided Warbler ( <i>Dendroica pensylvanica</i> )	N	X	X	X	Second-growth scrub, forest edge
Magnolia Warbler ( <i>Dendroica magnolia</i> )	N	X	X	X	Most forest types in both interior and edge, second-growth scrub, open country with trees
Yellow-rumped Warbler ( <i>Dendroica coronata</i> )	M		X	X	Open pine forest, pine and pine-oak savannas, fallow fields, occasionally second-growth scrub
Black-throated Green Warbler ( <i>Dendroica virens</i> )	N	X	X	X	Pine and broadleaf forest interior and forest edge
Blackburnian Warbler ( <i>Dendroica fusca</i> )	T	X	X	X	Broadleaf forest interior and edge
Yellow-throated Warbler ( <i>Dendroica dominica</i> )	N	X	X	X	Open areas with trees including towns, villages, pine forest and broadleaf forest edge. Found often in coconut palms and pines and around eaves of houses

**SPECIES OF BIRDS FOUND AT EACH STUDY SITE (AS OF 5/9/05) CONTINUED.**

Species (Families in bold & caps)	Belize seasonality	RCNP	TEC	CHAA	Preferred Habitats in Belize
<b>WOOD WARBLERS - PARULIDAE (CONTINUED)</b>					
Grace's Warbler ( <i>Dendroica graciae</i> )	R	X	X		Pine woodlands
Bay-breasted Warbler ( <i>Dendroica castanea</i> )	T	X	X	X	Broadleaf forest interior and edge
Black-and-white Warbler ( <i>Mniotilta varia</i> )	N	X	X	X	Broadleaf and pine forest interior and edge
American Redstart ( <i>Setophaga ruticilla</i> )	N	X	X	X	Widespread, broadleaf and pine forest interior and edge, second-growth scrub, open areas with scattered woody vegetation
Prothonotary Warbler ( <i>Protonotaria citrea</i> )	T	X		X	Swamp forest, river and stream edge, mangrove forest
Worm-eating Warbler ( <i>Helmitheros vermivorum</i> )	N	X	X	X	Broadleaf forest interior and edge (often feeds in hanging clumps of dead leaves)
Swainson's Warbler ( <i>Limnithlypis swainsonii</i> )	N	X	X		Broadleaf swamp forest interior, especially swamp and littoral forest
Ovenbird ( <i>Seiurus aurocapilla</i> )	N	X	X	X	Broadleaf forest interior, scrub-shrub
Northern Waterthrush ( <i>Seiurus noveboracensis</i> )	N	X	X	X	Mangroves, woody streambanks, wooded shores of estuaries, swamp forests
Louisiana Waterthrush ( <i>Seiurus motacilla</i> )	T	X	X	X	Wooded areas with flowing streams, ranges more widely during migration
Kentucky Warbler ( <i>Oporornis formosus</i> )	N	X	X	X	Broadleaf forest interior
Common Yellowthroat ( <i>Geothlypis trichas</i> )	N	X	X	X	Second-growth scrub, fallow fields, marshes, seasonally wet and dry savannas, roadside brush
Gray-crowned Yellowthroat ( <i>Geothlypis poliocephala</i> )	R	X	X	X	Open pine forest, pine and pine-oak savannas, wooded edge of marshes
Hooded Warbler ( <i>Wilsonia citrina</i> )	N	X	X	X	Broadleaf forest interior, scrub-shrub
Golden-crowned Warbler ( <i>Basileuterus culicivorus</i> )	R	X	X	X	Mature broadleaf forest interior
Yellow-breasted Chat ( <i>Icteria virens</i> )	N	X	X	X	Second-growth scrub, forest edge
Gray-throated Chat ( <i>Granatellus sallaei</i> )	R	X		X	Deciduous and semi-deciduous forest, flooded and swamp forest interior and edge, less often in non-flooded tropical moist forest
<b>BANANAQUITS - COEREBOIDAE</b>					
Bananaquit ( <i>Coereba flaveola</i> )	R			X	Broadleaf forest interior and edge
<b>TANAGERS - THRAUPIDAE</b>					
Gray-headed Tanager ( <i>Eucometis penicillata</i> )	R	X	X	X	Broadleaf forest interior and edge
Black-throated Shrike-Tanager ( <i>Lanio aurantius</i> )	R	X		X	Mature broadleaf forest interior
Red-crowned Ant-Tanager ( <i>Habia rubica</i> )	R	X	X	X	Broadleaf forest interior and forest edge
Red-throated Ant-Tanager ( <i>Habia fuscicauda</i> )	R	X	X	X	Broadleaf forest interior and forest edge
Rose-throated Tanager ( <i>Piranga roseogularis</i> )	R	X		X	Deciduous and semi-deciduous seasonally flooded broadleaf forest interior
Hepatic Tanager ( <i>Piranga flava</i> )	R	X	X		Pine forest
Summer Tanager ( <i>Piranga rubra</i> )	N	X	X	X	Broadleaf and pine forest interior and edge, open country with scattered trees. Feeds at fruiting trees.
Scarlet Tanager ( <i>Piranga olivacea</i> )	T	X			Broadleaf forest interior and edge
Crimson-collared Tanager ( <i>Ramphocelus sanguinolentus</i> )	R	X	X	X	Second-growth scrub, roadside brush and tangles, riverine forest
Passerini's Tanager ( <i>Ramphocelus passerinii</i> )	R	X	X	X	Second-growth scrub, riverine forest, roadside brush and tangles
Blue-gray Tanager ( <i>Thraupis episcopus</i> )	R	X	X	X	Open areas with scattered trees, towns and villages, parks, orchards, forest edge. Feeds at fruiting trees.
Yellow-winged Tanager ( <i>Thraupis abbas</i> )	R	X	X	X	Forest edge, open areas with scattered trees, towns and villages. Feeds at fruiting trees.
Red-legged Honeycreeper ( <i>Cyanerpes cyaneus</i> )	R	X	X	X	Broadleaf forest interior and edge, less often in pine forest, open areas with scattered trees. Feeds at flowering and fruiting trees.
<b>EMBERIZINES - EMBERIZIDAE</b>					
Blue-black Grassquit ( <i>Volatinia jacarina</i> )	R	X	X	X	Rice fields, fallow fields, roadside brush, low second growth
Variable Seedeater ( <i>Sporophila americana</i> )	R	X	X	X	Fallow fields and low second-growth scrub, roadside brush, orchards, broadleaf and pine forest edge
White-collared Seedeater ( <i>Sporophila torqueola</i> )	R	X	X	X	Fallow fields and low second-growth scrub, roadside brush, orchards, broadleaf and pine forest edge
Thick-billed Seed-Finch ( <i>Oryzoborus funereus</i> )	R	X	X	X	Open pine forest and savannas, also broadleaf forest edge, second-growth scrub, roadside brush



**SPECIES OF BIRDS FOUND AT EACH STUDY SITE (AS OF 5/9/05) CONTINUED.**

Species (Families in bold & caps)	Belize seasonality	RCNP	TEC	CHAA	Preferred Habitats in Belize
<b>EMBERIZINES - EMBERIZIDAE (CONTINUED)</b>					
Blue Seedeater ( <i>Amaurospiza concolor</i> )	R	X			Riverside bamboo thickets
Yellow-faced Grassquit ( <i>Tiaris olivaceus</i> )	R	X	X	X	Roadside thickets, orchards, second-growth scrub, pastures
Grassland Yellow-Finch ( <i>Sicalis luteola</i> )	R		X		Seasonally flooded savannas, fallow fields
Orange-billed Sparrow ( <i>Arremon aurantirostris</i> )	R		X		Broadleaf forest interior, riverine forest
Olive Sparrow ( <i>Arremonops rufivirgatus</i> )	R	X	X		Dry and semi-dry broadleaf and pine forest edge, second-growth scrub
Green-backed Sparrow ( <i>Arremonops chloronotus</i> )	R	X	X	X	Broadleaf second-growth woodland, thickets and forest edge, open pine woodland and second growth
Chipping Sparrow ( <i>Spizella passerina</i> )	R	X	X		Pine woodland
Savannah Sparrow ( <i>Passerculus sandwichensis</i> )	M	X			Fallow fields, flooded and dry meadows
Grasshopper Sparrow ( <i>Ammodramus savannarum</i> )	R/M	X	X		Low bushes, savannas. Migrants can be found in any open, weedy habitat.
<b>CARDINALS &amp; ALLIES - CARDINALIDAE</b>					
Grayish Saltator ( <i>Saltator coerulescens</i> )	R	X	X	X	Open habitats with scattered brush or trees, edges of towns and villages
Buff-throated Saltator ( <i>Saltator maximus</i> )	R	X	X	X	Broadleaf forest edge
Black-headed Saltator ( <i>Saltator atriceps</i> )	R	X	X	X	Broadleaf forest edge, second-growth scrub. Feeds at fruiting trees.
Black-faced Grosbeak ( <i>Caryothraustes poliogaster</i> )	R	X	X	X	Broadleaf forest interior, forest edge
Northern Cardinal ( <i>Cardinalis cardinalis</i> )	R	X	X		Broadleaf and pine forest edge, second-growth scrub
Rose-breasted Grosbeak ( <i>Pheucticus ludovicianus</i> )	N	X	X	X	Broadleaf forest edge, open areas with scattered trees
Blue-black Grosbeak ( <i>Cyanocopsa cyanooides</i> )	R	X	X	X	Broadleaf forest interior and edge, second-growth scrub
Blue Bunting ( <i>Cyanocopsa parellina</i> )	R	X	X	X	Deciduous and semi-deciduous forest edge
Blue Grosbeak ( <i>Passerina caerulea</i> )	N	X		X	Fallow fields, roadside brush, rice fields
Indigo Bunting ( <i>Passerina cyanea</i> )	N	X	X	X	Rice fields, fallow fields, roadside brush, second-growth scrub, forest edge
Painted Bunting ( <i>Passerina ciris</i> )	N	X	X		Fallow fields, roadside brush, second-growth scrub
Dickcissel ( <i>Spiza americana</i> )	T	X	X		Rice fields, fallow fields, second-growth scrub, savanna
<b>BLACKBIRDS &amp; ALLIES - ICTERIDAE</b>					
Red-winged Blackbird ( <i>Agelaius phoeniceus</i> )	R		X		Nesting: freshwater marshes, Feeding: fallow fields, recently plowed agricultural fields, pastures
Eastern Meadowlark ( <i>Sturnella magna</i> )	R	X	X	X	Savannas, farmland, mowed fields
Melodious Blackbird ( <i>Dives dives</i> )	R	X	X	X	Open areas with scattered trees, forest edge, clearings within forest interior, occasionally feeds in fields away from trees
Great-tailed Grackle ( <i>Quiscalus mexicanus</i> )	R	X	X	X	Nearly all open areas, including rice fields, pasture, plowed fields, less common in wooded habitats such as pine forest and mangroves, urban areas
Bronzed Cowbird ( <i>Molothrus aeneus</i> )	R		X	X	Fallow fields, pasture and agricultural fields, brush and second-growth, open areas with scattered trees
Giant Cowbird ( <i>Molothrus oryzivorus</i> )	R	X	X	X	Feeds in plowed fields and other fields with low or little vegetation, nests in oropendola colonies
Black-cowled Oriole ( <i>Icterus prosthemelas</i> )	R	X	X	X	Broadleaf, pine and palm forest interior and edge, open areas with scattered trees, especially coconut palms
Orchard Oriole ( <i>Icterus spurius</i> )	N	X	X	X	Broadleaf and pine forest edge, open areas with scattered trees, second-growth scrub, fallow fields (including rice). Feeds at flowering and fruiting trees.
Hooded Oriole ( <i>Icterus cucullatus</i> )	R		X		Open areas with scattered trees, especially palms and flowering and fruiting trees.
Yellow-backed Oriole ( <i>Icterus chrysater</i> )	R	X	X	X	Mainly pines, also locally in open broadleaf forest and forest edge
Yellow-tailed Oriole ( <i>Icterus mesomelas</i> )	R	X	X	X	Broadleaf forest edge, often along stream edges, sometimes in open areas with scattered trees around towns and villages

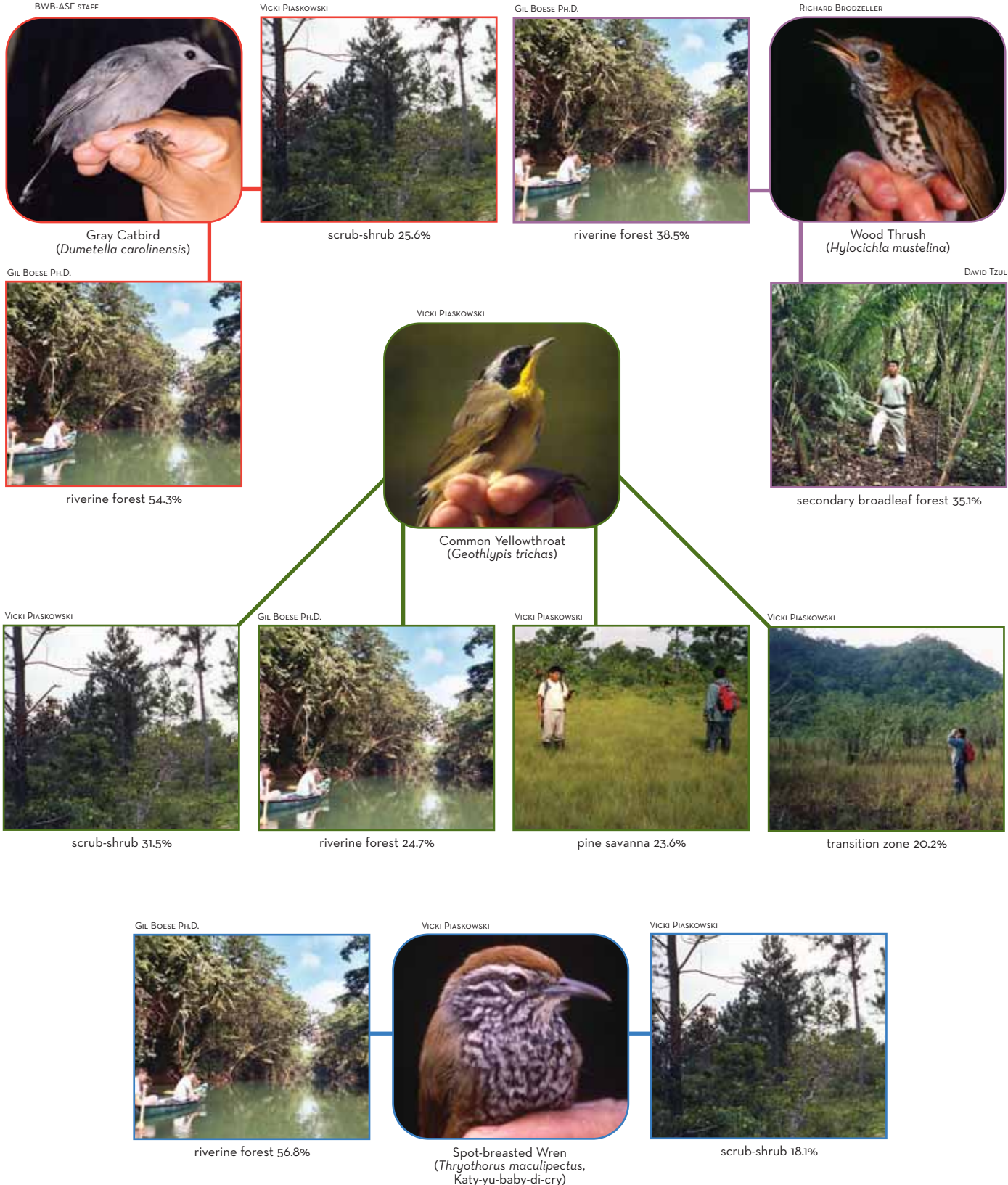
**SPECIES OF BIRDS FOUND AT EACH STUDY SITE (AS OF 5/9/05) CONTINUED.**

Species (Families in bold & caps)	Belize seasonality	RCNP	TEC	CHAA	Preferred Habitats in Belize
<b>BLACKBIRDS &amp; ALLIES - ICTERIDAE (CONTINUED)</b>					
Baltimore Oriole ( <i>Icterus galbula</i> )	N	X	X	X	Broadleaf forest interior and edge, open areas with scattered trees. Feeds at flowering and fruiting trees. During migration, second-growth scrub and roadside brush.
Yellow-billed Cacique ( <i>Amblycercus holosericeus</i> )	R	X	X	X	Broadleaf and pine forest interior and edge, second-growth scrub
Montezuma Oropendola ( <i>Psarocolius montezuma</i> )	R	X	X	X	Broadleaf forest interior and edge, open areas with scattered large trees and savanna. Feeds at fruiting trees. Nests in isolated trees, typically Cotton tree ( <i>Ceiba pentandra</i> ).
<b>FINCHES &amp; EUPHONIAS - FRINGILLIDAE</b>					
Scrub Euphonia ( <i>Euphonia affinis</i> )	R	X	X	X	Second-growth scrub, pine woodland and pine-oak savannas, broadleaf forest edge
Yellow-throated Euphonia ( <i>Euphonia hirundinacea</i> )	R	X	X	X	Broadleaf forest edge, open areas with scattered trees including towns and villages. Feeds at flowering and fruiting trees and at bromeliads.
Olive-backed Euphonia ( <i>Euphonia gouldi</i> )	R	X	X	X	Broadleaf forest interior and edge. Feeds at bromeliads.

## BELIZE HABITATS THAT ARE PREFERRED BY RESIDENT AND MIGRATORY BIRDS

One of the techniques Birds Without Borders – *Aves Sin Fronteras*® researchers used to study birds was bird banding. (Please see Appendix 4 on page 100 for a description of bird banding.) BWB-ASF found that some bird species preferred specific habitats, while others were found in many different habitats. Below

are pictures of some of Belize’s resident and migratory birds, the habitats in which most birds of this species were found from December through March, and the percentages of birds found in these habitats. Descriptions of the habitats are found on pages 36-37 and 44-47.





## BELIZE HABITATS THAT ARE PREFERRED BY RESIDENT AND MIGRATORY BIRDS (CONTINUED)

GIL BOESE PH.D.



riverine forest 33%

GENE ALBANESE



Red-throated Ant-Tanager  
(*Habia fuscicauda*)

DAVID TZUL



secondary broadleaf forest 44.3%

GIL BOESE PH.D.



riverine forest 38.9%

VICKI PIASKOWSKI



Clay-colored Robin  
(*Turdus grayi*, Brown Cusco)

VICKI PIASKOWSKI



scrub-shrub 52.8%

### NEOTROPICAL MIGRANTS FLY MORE THAN 1,500 MILES TO RETURN TO BELIZE EACH YEAR

Neotropical migratory birds breed in North America but spend more of their lives (up to six months) in Belize. During North American winters, they are also found in southern Mexico, other parts of Central America, South America and the islands in the Caribbean Sea (Greater Antilles). They fly more than 1,500 miles between these two places twice each year.

Birds Without Borders – *Aves Sin Fronteras*® staff have been banding birds in Belize since 1999. When we band birds, we capture them in special nets called mist nets, carefully remove them, place a numbered U.S. Bird Banding Laboratory aluminum band on their leg, examine them and take measurements, and then release the birds. (See Appendix 4 on page 100 for more information on bird banding.) Bird banding requires very specialized training and a permit from the U.S. and Belize governments. Banding does not harm the birds in any way and provides valuable information on the birds captured.

We sometimes recapture both migrant and resident birds that we have banded. In Belize from 1999 through 2003, we recaptured 323 Neotropical migrant birds of 17 species (23.9% of the total number of Neotropical migrants banded). Many were recaptured within six months of their original banding. However, 125 birds of 15 species (9.3% of the total birds banded) were recaptured one to three years after being banded. These birds made the journey of at least 1,500 miles between Belize and North America from two to six times. Amazing, when you consider that some weigh as little as ¼ ounce (less than a Belize \$1 coin), and even the larger ones weigh only 1¾ ounces (about as much as five Belize \$1 coins)!

## AMAZING BIRD STORY!

**December 2001: Tropical Education Center of the Belize Zoo**

Staff from the Zoological Society of Milwaukee's Birds Without Borders-*Aves Sin Fronteras*® project band and release an ovenbird. (shown below)

**August 2003: Ontario, Canada**

Bird researchers capture the same ovenbird! That means that this little bird flew almost 2,000 miles twice each year!

### We think this is very cool. Why?

Billions of migratory birds fly similar distances twice each year between their breeding and wintering grounds. Fewer than 1 in 1,000 songbirds are ever recovered!



So, when you see a migrant, think about how far it flew just to reach Belize! Migrants will make the same long journey to fly north to breed and raise young. If they survive, many return to exactly the same place in the tropics each year. When you preserve Belize habitats, the returning birds can come back to the same area and find a home that is familiar to them.

## OTHER BELIZE HABITATS THAT ARE IMPORTANT TO BIRDS

**Mangroves (mangal, mangle)** line Belize's coasts, lagoons and many cayes (Kricher 1997). They also may extend inland along major rivers (Jones 2003). Mangrove plants often have aerial roots and are salt-tolerant, but can be very slow-growing. Mangroves

provide important habitat for birds and insects and shelter and food for many fish and invertebrates (Kricher 1997). They are a very important Belize habitat.

VICKI PIASKOWSKI



These Red mangroves (*Rhizophora mangle*) can be found along the Western Highway west of Belize City.

©JAMES BEVERIDGE



Mangroves, like these on Caye Caulker, line many of Belize's cayes.

VICKI PIASKOWSKI



Man-o'-War Caye, located 16 km (10 mi.) east of Belize's coast, is home to a nesting colony of Magnificent Frigatebirds (*Fregata magnificens*, Man-o'-war Bird).

NICK STEPHENS



Magnificent Frigatebirds can catch fish, but often steal fish from other birds, which is how they got the name Man-o'-war Bird (Kricher 1997).

**Littoral forests** replace mangroves above the tide line. Littoral forests are an important habitat on many of Belize's cayes (Meerman and Sabido 2001, Jones 2003).

Trees found in littoral forests include the Red gumbolimbo (*Bursera simaruba*), Black poisonwood (*Metopium browneii*), Zericote (*Cordia sebestena*), Sea grape (*Coccoloba uvifera*) and Cocoplum (*Chrysobalanus icaco*). The Black Catbird (*Melanoptila glabirostris*) and Yucatan Vireo (*Vireo magister*) are found in littoral forests on Belize's cayes.

©JAMES BEVERIDGE



Littoral forest.

VICKI PIASKOWSKI



Sea grapes (*Coccoloba uvifera*) are common in littoral forests.

VICKI PIASKOWSKI



Cocoplum (*Chrysobalanus icaco*) are common in littoral forests.

©JAMES BEVERIDGE



Yucatan Vireos (*Vireo magister*) are found in littoral forests.

©JAMES BEVERIDGE



Black Catbirds (*Melanoptila glabirostris*) are found in littoral forests.

**Beaches** provide feeding areas for many wading birds, including shore-birds. Birds find food in the seaweeds that wash up on the shore. Please do not rake and clear beaches. Leaving the seaweeds will provide natural feeding areas for birds.

©JAMES BEVERIDGE



Ruddy Turnstones (*Arenaria interpres*) find food in the seaweeds that wash up on Belize's beaches.

©JAMES BEVERIDGE



Spotted Sandpipers (*Actitis macularius*, Shaky batty/body) nest in Alaska and Canada. Some spend northern winters on Belize's beaches and other areas with water.

©JAMES BEVERIDGE



Ruddy Turnstones (*Arenaria interpres*) nest in the Arctic. Some spend northern winters on Belize's beaches.



## HELPING JABIRUS

Many people think that Jabirus (*Jabiru mycteria*, Fillymingo, Turk), members of the stork family, are one of Belize's most beautiful birds. They are the largest flying birds in the Americas (Howell and Webb 1995). Jabirus stand 4.3-5 feet tall (Howell and Webb 1995) and have a wingspan of about 11 feet (Jones 2003). Their huge bill is 12-13 inches long (Howell and Webb 1995). Jabirus are wading birds and feed by both sight and touch (Thomas 1985, del Hoyo et al. 1992). To detect prey by touch, they submerge their open bills in shallow water. When they feel food with their bill, they snap their bill shut to capture the prey. Jabirus feed on fish (including eels), frogs, snakes, crabs and insects (del Hoyo et al. 1992).

Birds Without Borders – *Aves Sin Fronteras*<sup>®</sup> has been studying the nesting cycle of the Jabiru since 2001. We have found three nests that are on or close to the Runaway Creek Nature Preserve. Each nest has had from one to three chicks (baby Jabirus) each year. To help Jabirus continue to breed successfully on the Runaway Creek Nature Preserve, we are protecting the habitats it uses for nesting and feeding.

In Belize, the Jabiru is threatened with extinction (Jones and Vallely 2001). The Jabiru is also at risk in neighboring countries. It is endangered in Guatemala (CONAP 2000) and in danger of extinction in Mexico (CONABIO 2005). By continuing to study the Jabiru, we hope to learn more about its nesting cycle and use this information to help to protect Jabirus.

You can help Jabirus by protecting the wetlands or seasonal wetlands on your property. These are very important to Jabirus and other wading birds for feeding areas.



NICK STEPHENS



CAROL FARNETH-FOSTER



NICK STEPHENS

Jabiru (*Jabiru mycteria*, Fillymingo, Turk) nests with young of different ages.



## HELPING BIRDS THAT NEST IN HOLES OR CAVITIES

Many birds nest in holes (cavities). In Belize, these cavities can be found in living and dead standing trees and stumps, old termite or wasp nests, on cliffs and in the walls of archeological temples. In Belize, 14 families of birds use cavities to nest and raise their young (Stiles and Skutch 1989, Howell and Webb 1995, Jones 2003). Some species, such as the Mangrove Swallow (*Tachycineta albilinea*), return to the same nesting sites each year (D. Tzul field experience). **So, if you have dead trees or termite nests on your land, save them and watch to see if birds use them to nest.**

There are many ways you can help cavity-nesting birds:

- Save dead trees.
- Leave termite nests in trees.
- Clean around the base of dead trees to protect the tree from burning in a wild fire.
- Talk to other people about saving these important nesting sites.
- Provide wooden nest boxes. (Please contact the Birds Without Borders – *Aves Sin Fronteras*® office at 822-0236 or [bwbasf@btl.net](mailto:bwbasf@btl.net) for information on making nest boxes for birds.)



KEVIN SCHAFER  
The Yellow-headed Parrot (*Amazona oratrix*, Yellow-head) is endemic to Belize, (found only in a certain area). It nests and raises its young in cavities in dead trees found in pine savanna habitats. This species is endangered because birds are taken from the wild for the pet trade. **Please leave birds free in their homes in the wild!**



VICKI PIASKOWSKI

NICK STEPHENS  
Acorn Woodpeckers (*Melanerpes formicivorus*) use dead standing trees and thick-barked pine trees to store seeds such as acorns (Gill 1994). They also nest in tree cavities.



VICKI PIASKOWSKI  
Dead trees like these provide places for cavity-nesting birds to make nests.



REYNOLD CAL



VICKI PIASKOWSKI  
Birds make nest cavities like this one in dead or soft wood.



VICKI PIASKOWSKI  
Birds also nest in natural cavities like this one.



DAVID WINKLER  
Nest boxes provide a place for swallows and other birds to nest.



VICKI PIASKOWSKI



VICKI PIASKOWSKI  
Termite nests are used to build nest cavities.



VICKI PIASKOWSKI  
The termite nest shown here has a nest cavity.

### Families of Belizean birds that nest in holes (cavities):

Falcons-some species (Falconidae)  
Parrots (Psittacidae)  
Owls (Tytonidae, Strigidae)-some species  
Swifts-some species (Apodidae)  
Trogon (Trogonidae)  
Toucans (Ramphastidae)  
Woodpeckers (Picidae)

Ovenbirds (Furnariidae)-one species  
Woodcreepers (Dendrocolaptidae)  
Antthrushes (Formicariidae)-one species  
Flycatchers (Genus *Myiarchus* only)  
Tityras (Genera *Incertae sedis*)  
Martins and Swallows (Hirundinidae)-some species  
Wrens (Genus *Troglodytes* only)

**SOME CAVITY NESTERS FOUND IN BELIZE ARE PICTURED BELOW.**



©JAMES BEVERIDGE  
Laughing Falcons (*Herpetotheres cachinnans*, Guaco) nest in tree cavities.



VICKI PIASKOWSKI  
Red-lored Parrots (*Amazona autumnalis*, Mangro Parrot) nest in tree cavities.



NICK STEPHENS  
Spectacled Owls (*Pulsatrix perspicillata*) nest in tree cavities.



©JAMES BEVERIDGE  
Ferruginous Pygmy-Owls (*Glaucidium brasilianum*, Screech Owl) nest in tree cavities.



GENE ALBANESE  
Black-headed Trogons (*Trogon melanocephalus*, Ramatatu) nest in tree cavities or stumps, root masses or termite nests.



VICKI PIASKOWSKI  
The termite nest shown here has a nest hole.



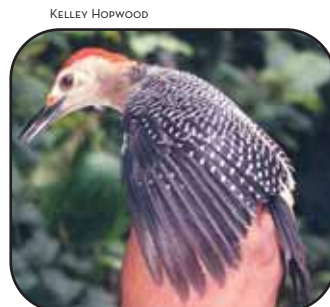
NICK STEPHENS  
Emerald Toucanets (*Aulacorhynchus prasinus*) nest in tree cavities.



JOHN MCQUILLAN  
Collared Aracaris (*Pteroglossus torquatus*, Pillis) nest in tree cavities.



NICK STEPHENS  
Keel-billed Toucans (*Ramphastos sulfuratus*, Belizean Bill Bird, Big-Bill Pillis) nest in tree cavities.



KELLEY HOPWOOD  
Golden-fronted Woodpeckers (*Melanerpes aurifrons*, Carpenter) nest in tree cavities.



©JAMES BEVERIDGE  
Pale-billed Woodpeckers (*Campephilus guatemalensis*, Father Red-cap) nest in tree cavities.



VICKI PIASKOWSKI  
Ivory-billed Woodcreepers (*Xiphorhynchus flavigaster*) nest in tree cavities or hollow trunks of trees.



GENE ALBANESE  
Black-faced Anthrushes (*Formicarius analis moniliger*) are the only species of antbird that nest in tree cavities.



©JAMES BEVERIDGE  
Brown-crested Flycatchers (*Myiarchus tyrannulus*) nest in existing tree cavities, hollow posts and old woodpecker holes. They don't make the cavity, so must find one.



©JAMES BEVERIDGE  
Masked Tityras (*Tityra semifasciata*, White Woodpecker) nest in existing tree cavities or old woodpecker holes. They don't make the cavity, so must find one.



©J. DUNNING/VIREO  
Gray-breasted Martins (*Progne chalybea*) nest in existing tree cavities, holes in buildings or in small rocky islands.



DAVID TZUL  
Mangrove Swallows (*Tachycineta albilinea*) nest in existing tree cavities or in rocks or walls with holes. They also use nest boxes.



©JAMES BEVERIDGE  
Northern Rough-winged Swallows (*Stelgidopteryx serripennis*) nest in holes in road cuts or in banks.



KEVIN BRONSON  
House Wrens (*Troglodytes aedon*) nest in existing cavities in trees and buildings. Like the Northern House Wren pictured here, they also will nest in boxes.



## THE MORE COMMON CAVITY NESTING BIRDS FOUND IN BELIZE ARE LISTED BELOW:

### Falcons and Forest-falcons (Falconidae)

Collared Forest-Falcon

(*Micrastur semitorquatus*)

Laughing Falcon

(*Herpetotheres cachinnans*, Guaco)

Bat Falcon

(*Falco ruficularis*, Lion Hawk)

### Parrots (Psittacidae)

Red-lored Parrot

(*Amazona autumnalis*, Mangro Parrot)

Yellow-headed Parrot

(*Amazona oratrix*, Yellow-head)

### Owls (Strigidae)

Ferruginous Pygmy-Owl

(*Glaucidium brasilianum*, Screech Owl)

Vermiculated Screech Owl

(*Megascops guatemalae*, Monkey-bird)

### Swifts (Apodidae)

Vaux's Swift

(*Chaetura vauxi*)

### Trogon (Trogonidae)

Black-headed Trogon

(*Trogon melanocephalus*, Ramatatu)

### Toucans (Ramphastidae)

Emerald Toucanet

(*Aulacorhynchus prasinus*)

Collared Aracari

(*Pteroglossus torquatus*, Pillis)

Keel-billed Toucan

(*Ramphastos sulfuratus*, Belizean Bill Bird,  
Big-Bill Pillis)

### Woodpeckers (Picidae)

Acorn Woodpecker

(*Melanerpes formicivorus*)

Golden-fronted Woodpecker

(*Melanerpes aurifrons*, Carpenter)

Pale-billed Woodpecker

(*Campephilus guatemalensis*, Father Red-cap)

### Ovenbirds (Furnariidae)

Plain Xenops

(*Xenops minutus*)

### Woodcreepers (Dendrocolaptidae)

Olivaceous Woodcreeper

(*Sittasomus griseicapillus*)

Ivory-billed Woodcreeper

(*Xiphorhynchus flavigaster*)

### Antthrushes (Formicariidae)

Black-faced Antthrush

(*Formicarius analis moniliger*)

### Flycatchers (Genus Myiarchus)

Brown-crested Flycatcher

(*Myiarchus tyrannulus*)

Dusky-capped Flycatcher

(*Myiarchus tuberculifer*)

### Tityras (Genera Incertae sedis)

Masked Tityra

(*Tityra semifasciata*, White Woodpecker)

### Martins and Swallows (Hirundinidae)

Gray-breasted Martin

(*Progne chalybea*)

Mangrove Swallow

(*Tachycineta albilinea*)

Northern Rough-winged Swallow

(*Stelgidopteryx serripennis*)

### Wrens (Genus Troglodytes)

House Wren

(*Troglodytes aedon*)



## NATURALLY OCCURRING WATER CAN BENEFIT BIRDS

VICKI PIASKOWSKI



This pond at the Tropical Education Center of the Belize Zoo provides birds with food and water.

GENE ALBANESE



This wetland at the Runaway Creek Nature Preserve is an important feeding area for wading birds.

VICKI PIASKOWSKI



The lagoon at Crooked Tree Wildlife Sanctuary provides wetland habitat and feeding areas for many species of wading birds.

VICKI PIASKOWSKI



Water that occurs naturally as natural waterways, flowing streams or flooded areas in savannas can attract birds and provide them with much-needed water, especially during the dry season. Even small ponds can provide food for birds like kingfishers and wading birds. Ponds and wetlands provide an important source of food for many wading birds.

Please do not drain wetlands. Wetlands filter and clean contaminated water before it enters the reef ecosystem.

Stagnant ponds or bird baths provide breeding areas for mosquitoes and therefore should not be used unless they are emptied, rinsed and filled with fresh water daily.

### These birds can be found near water:

GENE ALBANESE



American Pygmy Kingfisher  
(*Chloroceryle aenea*)

VICKI PIASKOWSKI



Wood Stork (*Mycteria americana*,  
John Crow Culu/Curlew)

VICKI PIASKOWSKI



Snowy Egret  
(*Egretta thula*, White Gaulin)

NICK STEPHENS



Great Egret  
(*Ardea alba*, White Gaulin)

©JAMES BEVERIDGE



Great Blue Heron  
(*Ardea herodias*, Blue Gaulin,  
Toby Full Pot)

NICK STEPHENS



Northern Jacana  
(*Jacana spinosa*, Georgie Bull)

NICK STEPHENS



Yellow-crowned Night Heron  
(*Nyctanassa violacea*, King Carpenter)

NICK STEPHENS



Purple Gallinule  
(*Porphyrio martinica*)

RICHARD BRODZELLER



Boat-billed Heron  
(*Cochlearius cochlearius*, Cooper,  
Spoon-bill Carpenter)

## COLLISIONS WITH GLASS WINDOWS CAN CAUSE BIRD DEATHS.

Glass is invisible to birds. Glass can reflect images of the sky, trees and other plants. When these are reflected on the outside of windows, a bird may think that it is flying toward the sky or a tree. Instead, it strikes the window and is injured or killed. If indoor plants are placed next to a window, birds may try to perch on the plant and strike the window.

Glass also poses a threat to birds at night. Many birds migrate at night and become confused by the artificial lights coming from buildings. They are injured or killed when they collide with windows. This is especially a problem on foggy or rainy nights.

In the U.S.A., it is estimated that window strikes kill millions of birds each year. In Belize's urban areas, there are a number of large buildings with glass windows that pose a significant threat to birds. Many homes in Belize have louvered screens or windows, and these do not pose the risk to birds that plain glass windows do.

You can prevent bird-window collisions by doing the following:

- Close curtains or blinds when birds are active.
- Change the appearance of windows by hanging ribbons or streamers in front of them. Or, place objects on the glass (like decals or hawk silhouettes) to make the glass more visible to birds. These are effective only if they cover the full length and width of the glass.
- Cover windows with external shades or sun-screens to change their appearance.
- Move houseplants so that they are not directly in front of windows. Plants can be moved away from windows and still receive enough natural light to grow.



- Place bird feeders or bird baths less than one meter (3 feet) from your windows. When feeders or baths are placed within this distance, birds approaching them usually are not flying quickly enough to injure themselves if they do collide with the window.
- If you are designing a home or building with glass windows, angle the windows downward 20 to 40 degrees so that the glass reflects the ground, not the sky.
- For large buildings with glass windows, help to prevent bird collisions by turning off building lights after dark; also turn off (or dim) atrium and outdoor decorative lighting after dark. This is especially important when birds are migrating.

For more information, contact the Birds without Borders – *Aves Sin Fronteras*<sup>®</sup> office (822-0236 or [bwbbsf@btl.net](mailto:bwbbsf@btl.net)) or see the following Web sites:

<http://www.flap.org/>

<http://www.lightsout.audubon.org/>

<http://www.bcnbirds.org/window.html>

[https://www.abcbirds.org/birdconservationalliance/members/window\\_paper.PDF](https://www.abcbirds.org/birdconservationalliance/members/window_paper.PDF)

<http://www.fws.gov/birds/documents/Collisions.pdf>

## YOUR OUTDOOR CAT KILLS MANY BIRDS

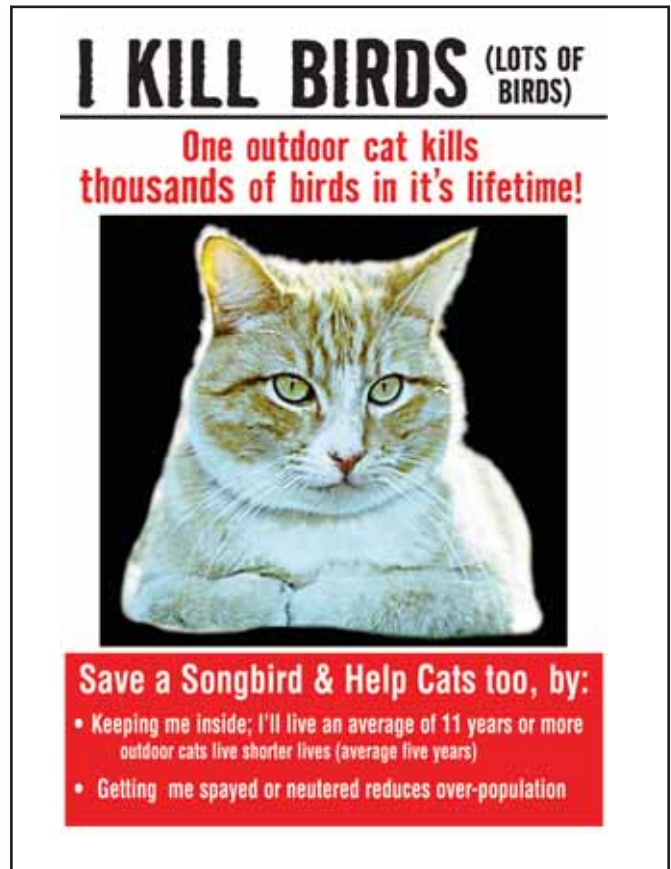
Cats hold a special place in the hearts of people who have them as pets. Farmers often use cats to control rodents (mice and rats) on their farms, in their barns, and in other buildings. Although many people believe that outdoor cats kill only rodents, studies done in the United States and Great Britain have shown that cats also kill many wild birds and other wildlife. Even cats that are well-fed by their owners still have a natural instinct to hunt when they are outdoors (Coleman and Temple 1996). A study done on free-ranging cats in rural Wisconsin estimated that more than seven million birds are killed each year by rural cats in Wisconsin (Coleman and Temple 1993).

Free-roaming cats (owned cats allowed to go outside as well as stray and feral cats) are often hit by vehicles and subjected to diseases, starvation, poisons, attacks by other animals and mistreatment by humans. Free-roaming cats also can be a nuisance when they enter people's homes and eat their food provisions. The average lifespan of an outdoor cat is 2-5 years. Cats that live their entire lives indoors can live 17 or more years (American Bird Conservancy 2005). Spaying or neutering cats helps to prevent births of unwanted cats and overpopulation.

Staying indoors is best for your cat and will help to save birds.


For more information and to learn how to make an outdoor cat an indoor cat, visit the following Web sites:  
American Bird Conservancy *Cats Indoors!* Program:  
<http://www.abcbirds.org/cats/>

The Humane Society of the United States statement on free-roaming cats:  
[http://www.hsus.org/pets/pet\\_care/cat\\_care/keep\\_your\\_cat\\_safe\\_at\\_home\\_hsus\\_safe\\_cats\\_campaign/](http://www.hsus.org/pets/pet_care/cat_care/keep_your_cat_safe_at_home_hsus_safe_cats_campaign/)



**I KILL BIRDS** (LOTS OF BIRDS)

One outdoor cat kills thousands of birds in it's lifetime!



**Save a Songbird & Help Cats too, by:**

- Keeping me inside; I'll live an average of 11 years or more  
outdoor cats live shorter lives (average five years)
- Getting me spayed or neutered reduces over-population



## OTHER THINGS THAT YOU CAN DO TO PROTECT BIRDS AND ENHANCE BIRD POPULATIONS

### DON'T KILL OR HARM BIRDS WITH SLINGSHOTS OR PELLET GUNS

The use of slingshots for hunting dates back to biblical times. Slingshots have been used traditionally in Maya and Mestizo communities to kill birds for food and sport.



Misusing slingshots to kill birds for sport (not for food) decreases some bird populations.

Many birds feed on spiders and insects, both adult insects and larvae (caterpillars) (Gill 1994, Ehrlich et al. 1988). Many insects are pests that damage agricultural crops and harm forests by eating the leaves of trees and other plants. So that birds can continue to control insects, do not kill them for target practice with slingshots or pellet guns. Instead, use non-living objects like an old can, a dead tree, or plastic bottles for target practice. Make a drawing of an animal or bird on cardboard or use a decoy. Hang these and use them as targets instead of using living birds.

### DO NOT TRAP OR CAGE WILD BIRDS FOR PETS. REPORT PEOPLE WHO HAVE WILD BIRDS AS PETS.

Trapping wild birds stresses the birds and can cause their death. Keeping wild birds as pets is illegal in Belize. Caged wild birds do not have happy lives because they are alone and will not share their lives with a mate or live freely with other birds.

If you know of people who are trapping birds illegally for sale as pets, or if someone you know has a wild bird as a pet, please report them to the Conservation Unit, Forestry Department, promptly! ***Your report will be kept confidential.***

To report people trapping wild birds or keeping birds as pets please contact:

Wildlife Officer  
Forest Department  
Forest Drive  
Belmopan, Belize  
Telephone: 822-1524  
Fax: 822-1523

Or:

Corozal District / Orange Walk District: 322-2208  
Belize District: 223-5714  
Cayo District: 824-3280  
Stann Creek District: 522-2094 / 523-2341  
Toledo District: 722-2765

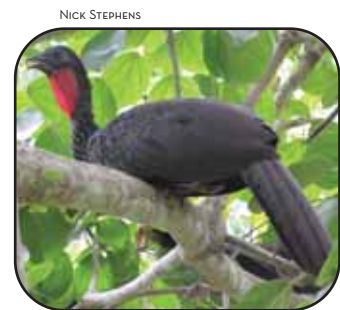
If the above offices have moved or the telephone number has changed, please check your telephone directory for the current numbers.

### PLEASE DO YOUR PART TO HELP PROTECT OUR BELIZEAN BIRDS.



KEVIN SCHAFER

Yellow-headed Parrot  
(*Amazona oratrix*, Yellow-head)



NICK STEPHENS

Crested Guan  
(*Penelope purpurascens*, Quam)



VICKI PIASKOWSKI

Great Curassow  
(*Crax rubra*, Carasow) male



VICKI PIASKOWSKI

Great Curassow female

## ANOTHER LINK BETWEEN BELIZE AND WISCONSIN: LANDOWNERS IN BOTH PLACES ARE INTERESTED IN HABITAT CONSERVATION

Many Wisconsin and Belize landowners showed their concern for both migratory and resident bird species by allowing Birds Without Borders – *Aves Sin Fronteras*<sup>®</sup> research and education to take place on their land. Many birds that spend northern winters in Belize use lands in Wisconsin as migration stopover sites and breeding homes. By working together, landowners in both Belize and Wisconsin protected large areas of habitat used by birds throughout the year, and helped to conserve birds.

### **Belize: The Tropical Education Center of the Belize Zoo, the Runaway Creek Nature Preserve and the Chaa Creek study sites**

The landowners listed below allowed BWB-ASF to conduct research and education programs at the study sites described on pages 43-47:

Sharon Matola, Director of the Belize Zoo and Tropical Education Center

The Foundation for Wildlife Conservation, Inc.

Mick and Lucy Fleming of the Chaa Creek Nature Reserve

Chial Farms

Louis Sylvester and Family

Salvador Espat and Family

James and Debbie Scott

Tracy and Mark Langan

### **Wisconsin: Pewaukee, Land O' Lakes, and Rosendale study sites**

The following private landowners (and one government agency) united to provide BWB-ASF access to more than 1,400 ha (3,460 acres) of land in three areas of the state. These study sites were used for BWB-ASF research and education programs.

Brian and Sylvia Bartling

Bud and Mary Beattie

Dan Beattie

Mr. and Mrs. Wayne Beattie

Dr. Richard and Doris Bibler

Dr. Gil and Lillian Boese

John and Judy Brennan

Dr. Charles and Sonja Durkee

Mr. and Mrs. William Emory

Brian and Dianne Henke

Brian and Debbie King

John and Raquel Koch

Dr. and Mrs. John Lindstrom

Dr. and Mrs. William Mateicka

Mr. and Mrs. Bob Meier

Dr. Anthony and Donna Meyer

Dr. and Mrs. Kenneth Rath

Russ and Betty Schallert

Mr. and Mrs. M. J. Schmid

Richard and Susie Steinman

Dr. and Mrs. Jim Steinmatz

James Tiefenthaler

Mrs. Robert Uihlein

Charles Shong and the Lake Pewaukee Sanitary District

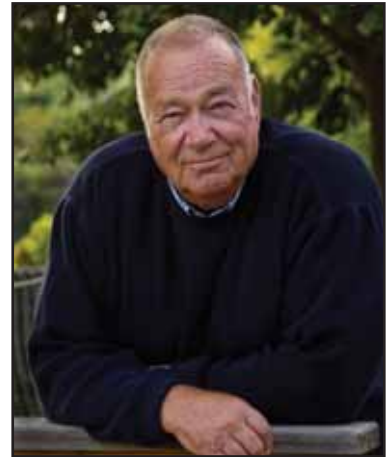
In 1998, Fred Ott donated 72 ha (179 acres) of land near Rosendale, Wisconsin, to the Foundation for Wildlife Conservation, Inc. BWB-ASF conducted research and education programs on this land.

Dick Steinman, of Mequon, Wisconsin, U.S.A., worked on restoring wildlife habitats for more than 40 years.

Independently and with assistance from some of the U.S. government programs listed below, he restored grasslands and wetlands

on farmlands he purchased, and then sold them to other conservationists, who have preserved these wildlife habitats. Dick and his partners (Emory, King, Koch, Schallert and Tiefenthaler) allowed BWB-ASF staff to live rent-free in a house at the Rosendale, Wisconsin, site, which also was used to plan and carry out the research.

©HAIG & WEBB STUDIOS



**The following are some of the landowner-assistance programs available in the U.S.A. that help private (non-governmental) landowners preserve, enhance, and restore wildlife habitat on their land. All are voluntary. Could programs like these be implemented in Belize?**

### **U.S. FISH AND WILDLIFE SERVICE**

(<http://www.fws.gov/partners/>):

#### **Partners for Fish and Wildlife:**

This program offers technical and financial assistance to private landowners to voluntarily restore wetlands and other fish and wildlife habitats on

## U.S. GOVERNMENT LANDOWNER ASSISTANCE PROGRAMS (CONTINUED)

their land. The landowner is reimbursed based on a cost-sharing formula. The landowners agree to retain the restoration projects for the length of the agreement, but otherwise retain full control of their land.

### USDA NATURAL RESOURCES CONSERVATION SERVICE

(<http://www.nrcs.usda.gov/programs/>):

#### ***Wetlands Reserve Program:***

This program helps private landowners restore wetlands that were altered previously for agricultural use. Assistance is provided for restoration and wildlife habitat establishment on lands that can be restored to wetlands. Landowners may restore wetlands with permanent easements (are paid up to 100% of agricultural value of the land and 100% of restoration cost), 30-year easements (are paid up to 75% of the agricultural value of the land and 75% of restoration cost), or restoration contracts (are paid 75% of restoration cost). Easements do set limits on future use of restored land, but public access to the land is not required.

#### ***Wildlife Habitat Incentives Program:***

This program is designed to develop and improve fish and wildlife habitat on privately owned land through prairie and savanna restoration and establishment, seeding of warm-season grasses, fencing, creation of in-stream fish structures, livestock exclusion, and related practices. Almost any type of land is eligible. Applications are funded based on compatibility with the statewide program. Landowners agree to maintain practices for 5-10 years, or at a higher level of cost-sharing for 15 years.

#### ***Conservation Reserve Program and Conservation Reserve Enhancement Program:***

These programs assist landowners who plant vegetative cover on cropland (or pasture adjacent to surface water) by paying them annual rental payments throughout the contract period. For conservation practices, cost-sharing as well as other incentives are provided. Annual rental payments are provided based on the local land rental rates. Management practices include tree planting, grass cover, small wetland restoration, prairie and oak-savanna restoration and others. Land eligibility varies by soil type and crop history. Contracts last 10-15

years and can be transferred with a change in ownership.

#### ***Environmental Quality Incentives Program:***

This program provides technical and financial help to agricultural producers for conservation practices that protect soil and water quality. Agricultural producers on agricultural lands are eligible. Many practices are available for cost-sharing and projects are selected based on their environmental value. Agricultural producers may be eligible for up to 75% cost-sharing, up to \$450,000 per producer for the life of the Federal Farm Bill.

#### ***Grassland Reserve Program:***

This program helps restore and protect grassland while allowing its use as grazing land. Owners of at least 40 contiguous acres are eligible for several options: permanent easements (payment is fair market value of the property minus the grassland value), 30-year easements (payment is 30% of what would be paid for a permanent easement), rental agreements of 10-, 15-, 20- or 30-year duration (payment is based on nationally developed grazing rates by county). Restoration agreements are also available where 75%-90% of the costs are provided depending on whether or not the land has been previously cropped.

#### ***Conservation Security Program:***

Farmers who meet the highest standards of conservation and environmental management on their farm operations are rewarded for their good land stewardship. They receive annual payments based on their level of stewardship, through a 5-10 year contract.



## APPENDIX 1. LISTS OF BIRD NAMES

A single bird is often known by more than one name. All birds have a scientific name (Latin name), consisting of a genus and a species, that is usually printed in italics. All scientists worldwide use the same scientific name to refer to each bird species. There are also English common names and Spanish common names (Howell and Webb 1995) for many bird species. In Belize, birds also

can have a Creole name, a local Spanish name, a K'ekchi or Mopan Mayan name or an archaic or colloquial name (Jones 2003). Following are tables (in alphabetical order) listing the different names used to refer to the birds of Belize. In this manual, each time a bird is mentioned, we list its English common name, scientific name and Creole name.

### APPENDIX 1A. CREOLE NAMES (IN ALPHABETICAL ORDER, FROM JONES 2003)

CREOLE NAME	ENGLISH NAME AND SCIENTIFIC NAME OF SPECIES	PHOTO ON PAGE
Bamboo Cracker	Yellow-billed Cacique ( <i>Amblycercus holosericeus</i> )	17
Banana Bird	Baltimore Oriole ( <i>Icterus galbula</i> ), Black-cowled Oriole ( <i>Icterus prothemelas</i> ), Hooded Oriole ( <i>Icterus cucullatus</i> ), Orchard Oriole ( <i>Icterus spurius</i> ), Yellow-backed Oriole ( <i>Icterus chrysater</i> ), Yellow-tailed Oriole ( <i>Icterus mesomelas</i> )	13, 17
Barking Gaulin	Bare-throated Tiger-Heron ( <i>Tigrisoma mexicanum</i> )	
Bawley	Little Tinamou ( <i>Crypturellus soui</i> )	
Belizean Bill Bird	Keel-billed Toucan ( <i>Ramphastos sulfuratus</i> )	5, 31
Big-bill Pillis	Keel-billed Toucan ( <i>Ramphastos sulfuratus</i> )	5, 31
Billy Hawk	Osprey ( <i>Pandion haliaetus</i> )	
Blackbird	Great-tailed Grackle ( <i>Quiscalus mexicanus</i> ), Melodious Blackbird ( <i>Dives dives</i> )	30
Blue Dove	Blue Ground-Dove ( <i>Claravis pretiosa</i> )	37
Blue Gaulin	Great Blue Heron ( <i>Ardea herodias</i> ), Little Blue Heron ( <i>Egretta caerulea</i> )	32
Blue Jacket	Agami Heron ( <i>Agamia agami</i> )	
Blue Piam-piam	Yucatan Jay ( <i>Cyanocorax yucatanicus</i> )	
Blue Pigeon	Pale-vented Pigeon ( <i>Patagioenas cayennensis</i> )	14
Bluebird	Blue-gray Tanager ( <i>Thraupis episcopus</i> )	13
Blue-foot Partridge	Great Tinamou ( <i>Tinamus major</i> )	
Bob-white	Eastern Meadowlark ( <i>Sturnella magna</i> )	
Brown Cusco	Clay-colored Robin ( <i>Turdus grayi</i> )	14
Carasow	Great Curassow ( <i>Crax rubra</i> )	70
Carasow/Curassow Hawk	Ornate Hawk-Eagle ( <i>Spizaetus ornatus</i> )	
Carpenter	Golden-fronted Woodpecker ( <i>Melanerpes aurifrons</i> ), Little Blue Heron ( <i>Egretta caerulea</i> )	
Chestnut Hawk	Black-collared Hawk ( <i>Busarellus nigricollis</i> )	
Chicken Hawk	Common Black-Hawk ( <i>Buteogallus anthracinus</i> ), Great Black-Hawk ( <i>Buteogallus urubitinga</i> ), Roadside Hawk ( <i>Buteo magnirostris</i> )	
Christmas Bird	Tree Swallow ( <i>Tachycineta bicolor</i> )	
Cling-cling	Green Jay ( <i>Cyanocorax yncas</i> )	
Clucking Hen	Limpkin ( <i>Aramus guarauna</i> )	
Coco	White Ibis ( <i>Eudocimus albus</i> )	
Cocoli	Gray-necked Wood-Rail ( <i>Aramides cajanea</i> )	
Cocrico	Plain Chachalaca ( <i>Ortalis vetula</i> )	17
Cohune Popper	White-collared Manakin ( <i>Manacus candei</i> )	47
Congo Bird	Spotted Wood-Quail ( <i>Odontophorus guttatus</i> )	
Cooper	Boat-billed Heron ( <i>Cochlearius cochlearius</i> )	67
Corn Kiti	White-fronted Parrot ( <i>Amazona albifrons</i> ), Yellow-lored Parrot ( <i>Amazona xantholora</i> )	
Corn-eater	White-fronted Parrot ( <i>Amazona albifrons</i> ), Yellow-lored Parrot ( <i>Amazona xantholora</i> )	
Cowboy Blackbird	Groove-billed Ani ( <i>Crotophaga sulcirostris</i> )	
Crab Hawk	Common Black-Hawk ( <i>Buteogallus anthracinus</i> )	
Diving Dopper	Least Grebe ( <i>Tachybaptus dominicus</i> )	
Doctor John Crow	Turkey Vulture ( <i>Cathartes aura</i> )	4

CREOLE NAME	ENGLISH NAME AND SCIENTIFIC NAME OF SPECIES	PHOTO ON PAGE
Dodging Bull	Ruddy Crake ( <i>Laterallus ruber</i> )	
Duck	Blue-winged Teal ( <i>Anas discors</i> )	
Father Red-cap	Lineated Woodpecker ( <i>Dryocopus lineatus</i> ), Pale-billed Woodpecker ( <i>Campephilus guatemalensis</i> )	65
Fillymingo	Jabiru ( <i>Jabiru mycteria</i> )	63
Fishing Hawk	Black-collared Hawk ( <i>Busarellus nigricollis</i> ), Osprey ( <i>Pandion haliaetus</i> )	
Georgie Bull	Northern Jacana ( <i>Jacana spinosa</i> )	67
Good Cook	Blue-crowned Motmot ( <i>Momotus momota</i> )	46
Grassy Bird	White-collared Seedeater ( <i>Sporophila torqueola</i> )	34
Ground Pigeon	Gray-chested Dove ( <i>Leptotila cassini</i> ), Gray-fronted Dove [ <i>Leptotila rufaxilla (plumbeiceps)</i> ], White-tipped Dove ( <i>Leptotila verreauxi</i> )	46
Guaco	Laughing Falcon ( <i>Herpetotheres cachinnans</i> )	65
Hoo-yoo	Common Pauraque ( <i>Nyctidromus albicollis</i> )	
John Crow	Black Vulture ( <i>Coragyps atratus</i> ), Lesser Yellow-headed Vulture ( <i>Cathartes burrovianus</i> )	4, 35
John Crow Culu/Curlew	Wood Stork ( <i>Mycteria americana</i> )	67
John Smith Kill a Bird	Grayish Saltator ( <i>Saltator coerulescens</i> )	
Katy-yu-baby-di-cry	Spot-breasted Wren ( <i>Thryothorus maculipectus</i> )	44
King Carpenter	Yellow-crowned Night Heron ( <i>Nyctanassa violacea</i> )	67
King John Crow	King Vulture ( <i>Sarcoramphus papa</i> )	
Kiskadee	Boat-billed Flycatcher ( <i>Megarynchus pitangua</i> ), Great Kiskadee ( <i>Pitangus sulphuratus</i> ), Social Flycatcher ( <i>Myiozetetes similis</i> )	44
Lion Hawk	Bat Falcon ( <i>Falco rufifigularis</i> )	
Mangro Parrot	Red-lored Parrot ( <i>Amazona autumnalis</i> )	13
Monkey Bird	Barn Owl ( <i>Tyto alba</i> ), Vermiculated Screech-Owl ( <i>Megascops guatemalae</i> )	
Mountain Pigeon	Scaled Pigeon ( <i>Patagioenas speciosa</i> )	
Nancy Swasey	Red-winged Blackbird ( <i>Agelaius phoeniceus</i> )	
Nightingale	Tropical Mockingbird ( <i>Mimus gilvus</i> )	13
Partridge	Thicket Tinamou ( <i>Crypturellus cinnamomeus</i> )	
Pepper Bird	Hepatic Tanager ( <i>Piranga flava</i> )	
Pe-quam	Squirrel Cuckoo ( <i>Piaya cayana</i> )	
Piam-piam	Brown Jay ( <i>Cyanocorax morio</i> )	12
Pilikin	Brown Pelican ( <i>Pelecanus occidentalis</i> )	
Pillis	Collared Aracari ( <i>Pteroglossus torquatus</i> )	12, 16
Pink Gaulin	Roseate Spoonbill ( <i>Platalea ajaja</i> )	
Poor Joe	Green Heron ( <i>Butorides virescens</i> )	
Quail	Black-throated Bobwhite ( <i>Colinus nigrogularis</i> ), Ruddy Quail-Dove ( <i>Geotrygon montana</i> )	
Quam	Crested Guan ( <i>Penelope purpurascens</i> )	12
Ramatatu	Black-headed Trogon ( <i>Trogon melanocephalus</i> ), Slaty-tailed Trogon ( <i>Trogon massena</i> ), Violaceous Trogon ( <i>Trogon violaceus</i> )	15, 38
Red Mangrove Pigeon	Pale-vented Pigeon ( <i>Patagioenas cayennensis</i> )	14
Red-footed Partridge	Slaty-breasted Tinamou ( <i>Crypturellus boucardi</i> )	
Rice Bird	Blue Bunting ( <i>Cyanocompsa parellina</i> )	46
Rice Eater	Blue-black Grassquit ( <i>Volatinia jacarina</i> )	
Ricey	White-collared Seedeater ( <i>Sporophila torqueola</i> )	34
Robin Redbreast	Vermilion Flycatcher ( <i>Pyrocephalus rubinus</i> )	31
Scissors Tail	Magnificent Frigatebird ( <i>Fregata magnificens</i> )	62
Scissors-tail	Fork-tailed Flycatcher ( <i>Tyrannus savana</i> )	34
Scissors-tail Hawk	Swallow-tailed Kite ( <i>Elanoides forficatus</i> )	
Screech Owl	Ferruginous Pygmy-Owl ( <i>Glaucidium brasilianum</i> ), Mottled Owl ( <i>Ciccaba virgata</i> )	65
Shag	Neotropic Cormorant ( <i>Phalacrocorax brasilianus</i> )	
Shaky Batty/Body	Spotted Sandpiper ( <i>Actitis macularius</i> )	62
Sheg	Neotropic Cormorant ( <i>Phalacrocorax brasilianus</i> )	
Six-month Bird	Northern Potoo ( <i>Nyctibius jamaicensis</i> )	
Snake Bird	Anhinga ( <i>Anhinga anhinga</i> )	

CREOLE NAME	ENGLISH NAME AND SCIENTIFIC NAME OF SPECIES	PHOTO ON PAGE
Soldier Bird	Red-winged Blackbird ( <i>Agelaius phoeniceus</i> )	
Spoon-bill Carpenter	Boat-billed Heron ( <i>Cochlearius cochlearius</i> )	67
Tick Bird	Giant Cowbird ( <i>Molothrus oryzivorus</i> )	
Toby Full Pot	Great Blue Heron ( <i>Ardea herodias</i> )	32
Top-na-chick	Gray-necked Wood-Rail ( <i>Aramides cajanea</i> )	
Turk	Jabiru ( <i>Jabiru mycteria</i> )	63
Turtle Dove	Plain-breasted Ground-Dove ( <i>Columbina minuta</i> ), Ruddy Ground-Dove ( <i>Columbina talpacoti</i> )	34
Wari Tick Blackbird	Groove-billed Ani ( <i>Crotophaga sulcirostris</i> )	
Watch-out Parrot	Mealy Parrot ( <i>Amazona farinosa</i> )	
Welk's Hawk	Snail Kite ( <i>Rostrhamus sociabilis</i> )	
Whistling Duck	Black-bellied Whistling-Duck ( <i>Dendrocygna autumnalis</i> )	
White Culu/Curlew	White Ibis ( <i>Eudocimus albus</i> )	
White Gaurin	Cattle Egret ( <i>Bubulcus ibis</i> ), Great Egret ( <i>Ardea alba</i> ), Snowy Egret ( <i>Egretta thula</i> )	32, 67
White Woodpecker	Masked Tityra ( <i>Tityra semifasciata</i> )	21
Wood-lice Kiti	Olive-throated Parakeet ( <i>Aratinga nana</i> )	
Yellow-head	Yellow-headed Parrot ( <i>Amazona oratrix</i> )	35
Yellow-tail	Montezuma Oropendola ( <i>Psarocolius montezuma</i> )	13

## APPENDIX 1B. ENGLISH AND SCIENTIFIC NAMES (IN EVOLUTIONARY ORDER, FROM AOU 2005)

ENGLISH COMMON NAME (BIRD FAMILIES IN CAPITAL LETTERS)	SCIENTIFIC NAME	PHOTO ON PAGE
<b>TINAMOUS - TINAMIDAE</b>		
Great Tinamou	<i>Tinamus major</i>	
Little Tinamou	<i>Crypturellus soui</i>	
Thicket Tinamou	<i>Crypturellus cinnamomeus</i>	
Slaty-breasted Tinamou	<i>Crypturellus boucardi</i>	
<b>SWANS, GEESE &amp; DUCKS - ANATIDAE</b>		
Black-bellied Whistling-Duck	<i>Dendrocygna autumnalis</i>	
Muscovy Duck	<i>Cairina moschata</i>	
Blue-winged Teal	<i>Anas discors</i>	
<b>CURASSOWS &amp; GUANS - CRACIDAE</b>		
Plain Chachalaca	<i>Ortalis vetula</i>	17
Crested Guan	<i>Penelope purpurascens</i>	12
Great Curassow	<i>Crax rubra</i>	70
<b>NEW WORLD QUAIL - ODONTOPHORIDAE</b>		
Black-throated Bobwhite	<i>Colinus nigrogularis</i>	
Spotted Wood-Quail	<i>Odontophorus guttatus</i>	
Singing Quail	<i>Dactylortyx thoracicus</i>	
<b>GREBES - PODICIPEDIDAE</b>		
Least Grebe	<i>Tachybaptus dominicus</i>	
<b>PELICANS - PELECANIDAE</b>		
Brown Pelican	<i>Pelecanus occidentalis</i>	
<b>CORMORANTS - PHALACROCORACIDAE</b>		
Neotropic Cormorant	<i>Phalacrocorax brasilianus</i>	
<b>ANHINGAS - ANHINGIDAE</b>		
Anhinga	<i>Anhinga anhinga</i>	
<b>FRIGATEBIRDS - FREGATIDAE</b>		
Magnificent Frigatebird	<i>Fregata magnificens</i>	62
<b>BITTERNs &amp; HERONS - ARDEIDAE</b>		
Bare-throated Tiger-Heron	<i>Tigrisoma mexicanum</i>	
Great Blue Heron	<i>Ardea herodias</i>	32
Great Egret	<i>Ardea alba</i>	32
Snowy Egret	<i>Egretta thula</i>	67



ENGLISH COMMON NAME (BIRD FAMILIES IN CAPITAL LETTERS)	SCIENTIFIC NAME	PHOTO ON PAGE
<b>BITTERNS &amp; HERONS - ARDEIDAE (CONTINUED)</b>		
Little Blue Heron	<i>Egretta caerulea</i>	
Cattle Egret	<i>Bubulcus ibis</i>	
Green Heron	<i>Butorides virescens</i>	
Agami Heron	<i>Agamia agami</i>	
Black-crowned Night Heron	<i>Nycticorax nycticorax</i>	
Yellow-crowned Night Heron	<i>Nyctanassa violacea</i>	67
Boat-billed Heron	<i>Cochlearius cochlearius</i>	67
<b>IBISES &amp; SPOONBILLS - THRESKIORNITHIDAE</b>		
White Ibis	<i>Eudocimus albus</i>	
Roseate Spoonbill	<i>Platalea ajaja</i>	
<b>STORKS - CICONIIDAE</b>		
Jabiru	<i>Jabiru mycteria</i>	63
Wood Stork	<i>Mycteria americana</i>	67
<b>AMERICAN VULTURES - CATHARTIDAE</b>		
Black Vulture	<i>Coragyps atratus</i>	4, 35
Turkey Vulture	<i>Cathartes aura</i>	4
Lesser Yellow-headed Vulture	<i>Cathartes burrovianus</i>	
King Vulture	<i>Sarcoramphus papa</i>	
<b>KITES, EAGLES, HAWKS &amp; ALLIES - ACCIPITRIDAE</b>		
Osprey	<i>Pandion haliaetus</i>	
Gray-headed Kite	<i>Leptodon cayanensis</i>	
Hook-billed Kite	<i>Chondrohierax uncinatus</i>	
Swallow-tailed Kite	<i>Elanoides forficatus</i>	
White-tailed Kite	<i>Elanus leucurus</i>	
Snail Kite	<i>Rostrhamus sociabilis</i>	
Double-toothed Kite	<i>Harpagus bidentatus</i>	
Plumbeous Kite	<i>Ictinia plumbea</i>	
Black-collared Hawk	<i>Busarellus nigricollis</i>	
White Hawk	<i>Leucopternis albicollis</i>	46
Gray Hawk	<i>Asturina nitida (plagiata)</i>	
Common Black-Hawk	<i>Buteogallus anthracinus</i>	
Great Black-Hawk	<i>Buteogallus urubitinga</i>	
Roadside Hawk	<i>Buteo magnirostris</i>	4
Short-tailed Hawk	<i>Buteo brachyurus</i>	
White-tailed Hawk	<i>Buteo albicaudatus</i>	
Zone-tailed Hawk	<i>Buteo albonotatus</i>	
Black Hawk-Eagle	<i>Spizaetus tyrannus</i>	
Ornate Hawk-Eagle	<i>Spizaetus ornatus</i>	
<b>CARACARAS &amp; FALCONS - FALCONIDAE</b>		
Barred Forest-Falcon	<i>Micrastur ruficollis</i>	
Collared Forest-Falcon	<i>Micrastur semitorquatus</i>	
Laughing Falcon	<i>Herpetotheres cachinnans</i>	65
American Kestrel	<i>Falco sparverius</i>	
Aplomado Falcon	<i>Falco femoralis</i>	
Bat Falcon	<i>Falco rufigularis</i>	
<b>RAILS, GALLINULES, &amp; COOTS - RALLIDAE</b>		
Ruddy Crake	<i>Laterallus ruber</i>	
Gray-necked Wood-Rail	<i>Aramides cajanea</i>	
Purple Gallinule	<i>Porphyrio martinica</i>	67
American Coot	<i>Fulica americana</i>	
<b>SUNGREBES - HELIORNITHIDAE</b>		
Sungrebe	<i>Heliornis fulica</i>	
<b>LIMPKINS - ARAMIDAE</b>		
Limpkin	<i>Aramus guarauna</i>	

ENGLISH COMMON NAME (BIRD FAMILIES IN CAPITAL LETTERS)	SCIENTIFIC NAME	PHOTO ON PAGE
<b>PLOVERS - CHARADRIIDAE</b>		
Killdeer	<i>Charadrius vociferus</i>	
<b>JACANAS - JACANIDAE</b>		
Northern Jacana	<i>Jacana spinosa</i>	67
<b>SANDPIPERS &amp; ALLIES - SCOLOPACIDAE</b>		
Solitary Sandpiper	<i>Tringa solitaria</i>	
Spotted Sandpiper	<i>Actitis macularius</i>	62
Common Snipe	<i>Gallinago gallinago</i>	
<b>PIGEONS &amp; DOVES - COLUMBIDAE</b>		
Pale-vented Pigeon	<i>Patagioenas cayennensis</i>	14
Scaled Pigeon	<i>Patagioenas speciosa</i>	
Red-billed Pigeon	<i>Patagioenas flavirostris</i>	
Short-billed Pigeon	<i>Patagioenas nigrirostris</i>	
Mourning Dove	<i>Zenaida macroura</i>	
Plain-breasted Ground-Dove	<i>Columbina minuta</i>	
Ruddy Ground-Dove	<i>Columbina talpacoti</i>	34
Blue Ground-Dove	<i>Claravis pretiosa</i>	37
White-tipped Dove	<i>Leptotila verreauxi</i>	
Gray-fronted Dove	<i>Leptotila rufaxilla (plumbeiceps)</i>	
Gray-chested Dove	<i>Leptotila cassini</i>	46
Ruddy Quail-Dove	<i>Geotrygon montana</i>	
<b>PARROTS - PSITTACIDAE</b>		
Olive-throated Parakeet	<i>Aratinga nana</i>	
Brown-hooded Parrot	<i>Pionopsitta haematotis</i>	
White-crowned Parrot	<i>Pionus senilis</i>	
White-fronted Parrot	<i>Amazona albifrons</i>	
Yellow-lored Parrot	<i>Amazona xantholora</i>	
Red-lored Parrot	<i>Amazona autumnalis</i>	13
Mealy Parrot	<i>Amazona farinosa</i>	
Yellow-headed Parrot	<i>Amazona oratrix</i>	35
<b>CUCKOOS &amp; ALLIES - CUCULIDAE</b>		
Mangrove Cuckoo	<i>Coccyzus minor</i>	
Squirrel Cuckoo	<i>Piaya cayana</i>	
Striped Cuckoo	<i>Tapera naevia</i>	
Pheasant Cuckoo	<i>Dromococcyx phasianellus</i>	
Groove-billed Ani	<i>Crotophaga sulcirostris</i>	
<b>BARN OWLS - TYTONIDAE</b>		
Barn Owl	<i>Tyto alba</i>	
<b>TYPICAL OWLS - STRIGIDAE</b>		
Vermiculated Screech-Owl	<i>Megascops guatemalae</i>	
Central American Pygmy-Owl	<i>Glaucidium griseiceps</i>	
Ferruginous Pygmy-Owl	<i>Glaucidium brasilianum</i>	65
Mottled Owl	<i>Ciccaba virgata</i>	
Striped Owl	<i>Pseudoscops clamator</i>	
<b>GOATSUCKERS - CAPRIMULGIDAE</b>		
Lesser Nighthawk	<i>Chordeiles acutipennis</i>	
Common Nighthawk	<i>Chordeiles minor</i>	
Common Pauraque	<i>Nyctidromus albicollis</i>	
Yucatan Nightjar	<i>Caprimulgus badius</i>	
<b>POTOOS - NYCTIBIIDAE</b>		
Northern Potoo	<i>Nyctibius jamaicensis</i>	
<b>SWIFTS - APODIDAE</b>		
White-collared Swift	<i>Streptoprocne zonaris</i>	
Chimney Swift	<i>Chaetura pelagica</i>	
Vaux's Swift	<i>Chaetura vauxi</i>	
Lesser Swallow-tailed Swift	<i>Panyptila cayennensis</i>	

ENGLISH COMMON NAME (BIRD FAMILIES IN CAPITAL LETTERS)	SCIENTIFIC NAME	PHOTO ON PAGE
<b>HUMMINGBIRDS - TROCHILIDAE</b>		
Long-billed (Long-tailed) Hermit	<i>Phaethornis longirostris</i>	16
Stripe-throated (Little) Hermit	<i>Phaethornis striigularis</i>	16
Scaly-breasted Hummingbird	<i>Phaeochroa cuvieri</i>	
Wedge-tailed Sabrewing	<i>Campylopterus curvipennis</i>	
White-necked Jacobin	<i>Florisuga mellivora</i>	
Green-breasted Mango	<i>Anthracothorax prevostii</i>	
Canivet's Emerald	<i>Chlorostilbon canivetii</i>	
White-bellied Emerald	<i>Amazilia candida</i>	16
Azure-crowned Hummingbird	<i>Amazilia cyanocephala</i>	
Rufous-tailed Hummingbird	<i>Amazilia tzacatl</i>	5, 16
Buff-bellied Hummingbird	<i>Amazilia yucatanensis</i>	
Cinnamon Hummingbird	<i>Amazilia rutila</i>	
Purple-crowned Fairy	<i>Heliothryx barroti</i>	
Long-billed Starthroat	<i>Heliomaster longirostris</i>	
Ruby-throated Hummingbird	<i>Archilochus colubris</i>	4
<b>TROGONS - TROGONIDAE</b>		
Black-headed Trogon	<i>Trogon melanocephalus</i>	15
Violaceous Trogon	<i>Trogon violaceus</i>	38
Slaty-tailed Trogon	<i>Trogon massena</i>	
<b>MOTMOTS - MOMOTIDAE</b>		
Tody Motmot	<i>Hylomanes momotula</i>	47
Blue-crowned Motmot	<i>Momotus momota</i>	46
<b>KINGFISHERS - ALCEDINIDAE</b>		
Ringed Kingfisher	<i>Ceryle torquatus</i>	
Belted Kingfisher	<i>Ceryle alcyon</i>	
Amazon Kingfisher	<i>Chloroceryle amazona</i>	
Green Kingfisher	<i>Chloroceryle americana</i>	
American Pygmy Kingfisher	<i>Chloroceryle aenea</i>	67
<b>PUFFBIRDS - BUCCONIDAE</b>		
White-necked Puffbird	<i>Notharchus macrorhynchos</i>	
<b>JACAMARS - GALBULIDAE</b>		
Rufous-tailed Jacamar	<i>Galbula ruficauda</i>	37
<b>TOUCANS - RAMPHASTIDAE</b>		
Emerald Toucanet	<i>Aulacorhynchus prasinus</i>	65
Collared Aracari	<i>Pteroglossus torquatus</i>	12, 16
Keel-billed Toucan	<i>Ramphastos sulfuratus</i>	5, 31
<b>WOODPECKERS - PICIDAE</b>		
Acorn Woodpecker	<i>Melanerpes formicivorus</i>	
Black-cheeked Woodpecker	<i>Melanerpes pucherani</i>	
Red-vented Woodpecker	<i>Melanerpes pygmaeus</i>	
Golden-fronted Woodpecker	<i>Melanerpes aurifrons</i>	18
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	
Ladder-backed Woodpecker	<i>Picoides scalaris</i>	
Smoky-brown Woodpecker	<i>Veniliornis fumigatus</i>	38
Golden-olive Woodpecker	<i>Piculus rubiginosus</i>	
Chestnut-colored Woodpecker	<i>Celeus castaneus</i>	
Lineated Woodpecker	<i>Dryocopus lineatus</i>	
Pale-billed Woodpecker	<i>Campephilus guatemalensis</i>	65
<b>OVENBIRDS - FURNARIIDAE</b>		
Rufous-breasted Spinetail	<i>Synallaxis erythrothorax</i>	37
Plain Xenops	<i>Xenops minutus</i>	
Scaly-throated Leaf-tosser	<i>Sclerurus guatemalensis</i>	



ENGLISH COMMON NAME (BIRD FAMILIES IN CAPITAL LETTERS)	SCIENTIFIC NAME	PHOTO ON PAGE
<b>WOODCREEPERS - DENDROCOLAPTIDAE</b>		
Tawny-winged Woodcreeper	<i>Dendrocincla anabatina</i>	
Ruddy Woodcreeper	<i>Dendrocincla homochroa</i>	
Olivaceous Woodcreeper	<i>Sittasomus griseicapillus</i>	
Wedge-billed Woodcreeper	<i>Glyphorhynchus spirurus</i>	47
Northern Barred-Woodcreeper	<i>Dendrocolaptes sanctithomae</i>	
Ivory-billed Woodcreeper	<i>Xiphorhynchus flavigaster</i>	46
Streak-headed Woodcreeper	<i>Lepidocolaptes souleyetii</i>	
<b>ANTBIRDS - THAMNOPHILIDAE</b>		
Great Antshrike	<i>Taraba major</i>	37
Barred Antshrike	<i>Thamnophilus doliatus</i>	38
Dusky Antbird	<i>Cercomacra tyrannina</i>	38
<b>ANTTHRUSHES - FORMICARIIDAE</b>		
Black-faced Antthrush	<i>Formicarius analis (moniliger)</i>	65
<b>TYRANT FLYCATCHERS - TYRANNIDAE</b>		
<b>TYRANNULETS AND ELAENIAS - ELAENIINAE</b>		
Yellow-bellied Tyrannulet	<i>Ornithion semiflavum</i>	
Northern Beardless-Tyrannulet	<i>Camptostoma imberbe</i>	
Greenish Elaenia	<i>Myiopagis viridicata</i>	
Yellow-bellied Elaenia	<i>Elaenia flavogaster</i>	
Ochre-bellied Flycatcher	<i>Mionectes oleagineus</i>	16
Sepia-capped Flycatcher	<i>Leptopogon amaurocephalus</i>	38
<b>TODY-TYRANTS &amp; FLATBILLS - PLATYRINCHINAE</b>		
Northern Bentbill	<i>Oncostoma cinereigulare</i>	
Slate-headed Tody-Flycatcher	<i>Poecilotriccus sylvia</i>	47
Common Tody-Flycatcher	<i>Todirostrum cinereum</i>	44
Eye-ringed Flatbill	<i>Rhynchocyclus brevirostris</i>	
Yellow-olive Flycatcher	<i>Tolmomyias sulphureus</i>	
Stub-tailed Spadebill	<i>Platyrinchus cancrominus</i>	
<b>FLUVICOLINE FLYCATCHERS - FLUVICOLINAE</b>		
Royal Flycatcher	<i>Onychorhynchus coronatus</i>	38
Sulphur-rumped Flycatcher	<i>Myiobius sulphureipygius</i>	
Eastern Wood-Pewee	<i>Contopus virens</i>	
Tropical Pewee	<i>Contopus cinereus</i>	
Yellow-bellied Flycatcher	<i>Empidonax flaviventris</i>	
White-throated Flycatcher	<i>Empidonax albigularis</i>	
Least Flycatcher	<i>Empidonax minimus</i>	
Black Phoebe	<i>Sayornis nigricans</i>	
Vermilion Flycatcher	<i>Pyrocephalus rubinus</i>	31
<b>TYRANNINE FLYCATCHERS - TYRANNINAE</b>		
Bright-rumped Attila	<i>Attila spadiceus</i>	21
Yucatan Flycatcher	<i>Myiarchus yucatanensis</i>	
Dusky-capped Flycatcher	<i>Myiarchus tuberculifer</i>	
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	
Brown-crested Flycatcher	<i>Myiarchus tyrannulus</i>	65
Great Kiskadee	<i>Pitangus sulphuratus</i>	44
Boat-billed Flycatcher	<i>Megarhynchus pitangua</i>	
Social Flycatcher	<i>Myiozetetes similis</i>	
Streaked Flycatcher	<i>Myiodynastes maculatus</i>	
Sulphur-bellied Flycatcher	<i>Myiodynastes luteiventris</i>	
Piratic Flycatcher	<i>Legatus leucophaeus</i>	
Tropical Kingbird	<i>Tyrannus melancholicus</i>	34
Couch's Kingbird	<i>Tyrannus couchii</i>	
Eastern Kingbird	<i>Tyrannus tyrannus</i>	
Fork-tailed Flycatcher	<i>Tyrannus savana</i>	34

ENGLISH COMMON NAME (BIRD FAMILIES IN CAPITAL LETTERS)	SCIENTIFIC NAME	PHOTO ON PAGE
<b>TITYRAS AND BECARDS - GENERA INCERTAE SEDIS</b>		
Thrush-like Schiffornis	<i>Schiffornis turdina</i>	
White-winged Becard	<i>Pachyramphus polychopterus</i>	
Gray-collared Becard	<i>Pachyramphus major</i>	
Rose-throated Becard	<i>Pachyramphus aglaiae</i>	
Masked Tityra	<i>Tityra semifasciata</i>	21
Black-crowned Tityra	<i>Tityra inquisitor</i>	
<b>MANAKINS - PIPRIDAE</b>		
White-collared Manakin	<i>Manacus candei</i>	47
Red-capped Manakin	<i>Pipra mentalis</i>	15
<b>VIREOS - VIREONIDAE</b>		
White-eyed Vireo	<i>Vireo griseus</i>	21
Mangrove Vireo	<i>Vireo pallens (semiflavus)</i>	34
Yellow-throated Vireo	<i>Vireo flavifrons</i>	
Red-eyed Vireo	<i>Vireo olivaceus</i>	
Yellow-green Vireo	<i>Vireo flavoviridis</i>	
Tawny-crowned Greenlet	<i>Hylophilus ochraceiceps</i>	
Lesser Greenlet	<i>Hylophilus decurtatus</i>	
Rufous-browed Peppershrike	<i>Cyclarhis gujanensis</i>	
<b>JAYS - CORVIDAE</b>		
Green Jay	<i>Cyanocorax yncas</i>	
Brown Jay	<i>Cyanocorax morio</i>	12
Yucatan Jay	<i>Cyanocorax yucatanicus</i>	
<b>SWALLOWS - HIRUNDINIDAE</b>		
Purple Martin	<i>Progne subis</i>	
Gray-breasted Martin	<i>Progne chalybea</i>	65
Tree Swallow	<i>Tachycineta bicolor</i>	35
Mangrove Swallow	<i>Tachycineta albilinea</i>	65
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>	65
Ridgeway Rough-winged Swallow		
Barn Swallow	<i>Hirundo rustica</i>	
<b>WRENS - TROGLODYTIDAE</b>		
Band-backed Wren	<i>Campylorhynchus zonatus</i>	
Spot-breasted Wren	<i>Thryothorus maculipectus</i>	44
Carolina Wren	<i>Thryothorus ludovicianus</i>	
House Wren	<i>Troglodytes aedon</i>	65
White-bellied Wren	<i>Uropsila leucogastra</i>	
White-breasted Wood-Wren	<i>Henicorhina leucosticta</i>	
<b>GNATCATCHERS - SYLVIIDAE</b>		
Long-billed Gnatwren	<i>Ramphocaenus melanurus</i>	
Blue-gray Gnatcatcher	<i>Polioptila caerulea</i>	35
Tropical Gnatcatcher	<i>Polioptila plumbea</i>	
<b>SOLITAIRES, THRUSHES &amp; ALLIES - TURDIDAE</b>		
Veery	<i>Catharus fuscescens</i>	
Gray-cheeked Thrush	<i>Catharus minimus</i>	
Swainson's Thrush	<i>Catharus ustulatus</i>	
Wood Thrush	<i>Hylocichla mustelina</i>	37
Clay-colored Robin	<i>Turdus grayi</i>	14
White-throated Robin	<i>Turdus assimilis</i>	
<b>MOCKINGBIRDS, THRASHERS, &amp; ALLIES - MIMIDAE</b>		
Gray Catbird	<i>Dumetella carolinensis</i>	13
Black Catbird	<i>Melanoptila glabirostris</i>	62
Tropical Mockingbird	<i>Mimus gilvus</i>	13

ENGLISH COMMON NAME (BIRD FAMILIES IN CAPITAL LETTERS)	SCIENTIFIC NAME	PHOTO ON PAGE
<b>WOOD WARBLERS - PARULIDAE</b>		
Blue-winged Warbler	<i>Vermivora pinus</i>	
Tennessee Warbler	<i>Vermivora peregrina</i>	4
Orange-crowned Warbler	<i>Vermivora celata</i>	
Nashville Warbler	<i>Vermivora ruficapilla</i>	
Northern Parula	<i>Parula americana</i>	
Yellow Warbler	<i>Dendroica petechia</i>	
Chestnut-sided Warbler	<i>Dendroica pensylvanica</i>	
Magnolia Warbler	<i>Dendroica magnolia</i>	17
Yellow-rumped Warbler	<i>Dendroica coronata</i>	
Black-throated Green Warbler	<i>Dendroica virens</i>	47
Blackburnian Warbler	<i>Dendroica fusca</i>	
Yellow-throated Warbler	<i>Dendroica dominica</i>	
Grace's Warbler	<i>Dendroica graciae</i>	
Bay-breasted Warbler	<i>Dendroica castanea</i>	
Black-and-white Warbler	<i>Mniotilta varia</i>	44
American Redstart	<i>Setophaga ruticilla</i>	18
Prothonotary Warbler	<i>Protonotaria citrea</i>	
Worm-eating Warbler	<i>Helmitheros vermivorum</i>	37
Swainson's Warbler	<i>Limnithlypis swainsonii</i>	
Ovenbird	<i>Seiurus aurocapilla</i>	47
Northern Waterthrush	<i>Seiurus noveboracensis</i>	37
Louisiana Waterthrush	<i>Seiurus motacilla</i>	
Kentucky Warbler	<i>Oporornis formosus</i>	38
Common Yellowthroat	<i>Geothlypis trichas</i>	18
Gray-crowned Yellowthroat	<i>Geothlypis poliocephala</i>	
Hooded Warbler	<i>Wilsonia citrina</i>	46
Golden-crowned Warbler	<i>Basileuterus culicivorus</i>	
Yellow-breasted Chat	<i>Icteria virens</i>	13
Gray-throated Chat	<i>Granatellus sallaei</i>	47
<b>BANANAQUITS - COEREBIDAE</b>		
Bananaquit	<i>Coereba flaveola</i>	
<b>TANAGERS - THRAUPIDAE</b>		
Gray-headed Tanager	<i>Eucometis penicillata</i>	44
Black-throated Shrike-Tanager	<i>Lanio aurantius</i>	
Red-crowned Ant-Tanager	<i>Habia rubica</i>	
Red-throated Ant-Tanager	<i>Habia fuscicauda</i>	4
Rose-throated Tanager	<i>Piranga roseogularis</i>	
Hepatic Tanager	<i>Piranga flava</i>	
Summer Tanager	<i>Piranga rubra</i>	
Scarlet Tanager	<i>Piranga olivacea</i>	46
Crimson-collared Tanager	<i>Ramphocelus sanguinolentus</i>	22
Passerini's Tanager	<i>Ramphocelus passerinii</i>	
Blue-gray Tanager	<i>Thraupis episcopus</i>	13
Yellow-winged Tanager	<i>Thraupis abbas</i>	12
Red-legged Honeycreeper	<i>Cyanerpes cyaneus</i>	13
<b>EMBERIZINES - EMBERIZIDAE</b>		
Blue-black Grassquit	<i>Volatinia jacarina</i>	
Variable Seedeater	<i>Sporophila americana</i>	
White-collared Seedeater	<i>Sporophila torqueola</i>	34
Thick-billed Seed-Finch	<i>Oryzoborus funereus</i>	
Blue Seedeater	<i>Amaurospiza concolor</i>	36
Yellow-faced Grassquit	<i>Tiaris olivaceus</i>	
Grassland Yellow-Finch	<i>Sicalis luteola</i>	
Orange-billed Sparrow	<i>Arremon aurantirostris</i>	



ENGLISH COMMON NAME (BIRD FAMILIES IN CAPITAL LETTERS)	SCIENTIFIC NAME	PHOTO ON PAGE
<b>EMBERIZINES - EMBERIZIDAE (CONTINUED)</b>		
Olive Sparrow	<i>Arremonops rufivirgatus</i>	
Green-backed Sparrow	<i>Arremonops chloronotus</i>	34
Chipping Sparrow	<i>Spizella passerina</i>	
Savannah Sparrow	<i>Passerculus sandwichensis</i>	
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	
<b>CARDINALS &amp; ALLIES - CARDINALIDAE</b>		
Grayish Saltator	<i>Saltator coerulescens</i>	
Buff-throated Saltator	<i>Saltator maximus</i>	
Black-headed Saltator	<i>Saltator atriceps</i>	
Black-faced Grosbeak	<i>Caryothraustes poliogaster</i>	
Northern Cardinal	<i>Cardinalis cardinalis</i>	46
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	
Blue-black Grosbeak	<i>Cyanocompsa cyanoides</i>	14
Blue Bunting	<i>Cyanocompsa parellina</i>	46
Blue Grosbeak	<i>Passerina caerulea</i>	
Indigo Bunting	<i>Passerina cyanea</i>	21
Painted Bunting	<i>Passerina ciris</i>	
Dickcissel	<i>Spiza americana</i>	35
<b>BLACKBIRDS &amp; ALLIES - ICTERIDAE</b>		
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	
Eastern Meadowlark	<i>Sturnella magna</i>	
Melodious Blackbird	<i>Dives dives</i>	
Great-tailed Grackle	<i>Quiscalus mexicanus</i>	30
Bronzed Cowbird	<i>Molothrus aeneus</i>	
Giant Cowbird	<i>Molothrus oryzivorus</i>	
Black-cowled Oriole	<i>Icterus prothemelas</i>	13
Orchard Oriole	<i>Icterus spurius</i>	17
Hooded Oriole	<i>Icterus cucullatus</i>	
Yellow-backed Oriole	<i>Icterus chrysater</i>	
Yellow-tailed Oriole	<i>Icterus mesomelas</i>	
Baltimore Oriole	<i>Icterus galbula</i>	13
Yellow-billed Cacicque	<i>Amblycercus holosericeus</i>	17
Montezuma Oropendola	<i>Psarocolius montezuma</i>	13
<b>FINCHES &amp; EUPHONIAS - FRINGILLIDAE</b>		
Scrub Euphonia	<i>Euphonia affinis</i>	
Yellow-throated Euphonia	<i>Euphonia hirundinacea</i>	12
Olive-backed Euphonia	<i>Euphonia gouldi</i>	

## APPENDIX 1C. SPANISH COMMON NAMES (IN ALPHABETICAL ORDER, FROM HOWELL AND WEBB 1995)

COMMON SPANISH NAME	ENGLISH NAME AND SCIENTIFIC NAME OF SPECIES	PHOTO ON PAGE
Agachona Común	Common Snipe ( <i>Gallinago gallinago</i> )	
Aguila Elegante	Ornate Hawk-Eagle ( <i>Spizaetus ornatus</i> )	
Aguila Tirana	Black Hawk-Eagle ( <i>Spizaetus tyrannus</i> )	
Aguililla Aura	Zone-tailed Hawk ( <i>Buteo albonotatus</i> )	
Aguililla Blanca	White Hawk ( <i>Leucopternis albicollis</i> )	46
Aguililla Caminera	Roadside Hawk ( <i>Buteo magnirostris</i> )	4
Aguililla Canela	Black-collared Hawk ( <i>Busarellus nigricollis</i> )	
Aguililla Coliblanca	White-tailed Hawk ( <i>Buteo albicaudatus</i> )	
Aguililla Colicorta	Short-tailed Hawk ( <i>Buteo brachyurus</i> )	
Aguililla Gris	Gray Hawk [ <i>Asturina nitida (plagiata)</i> ]	
Aguililla Negra Mayor	Great Black-Hawk ( <i>Buteogallus urubitinga</i> )	
Aguililla Negra Menor	Common Black-Hawk ( <i>Buteogallus anthracinus</i> )	

COMMON SPANISH NAME	ENGLISH NAME AND SCIENTIFIC NAME OF SPECIES	PHOTO ON PAGE
Anhinga Americana	Anhinga ( <i>Anhinga anhinga</i> )	
Arrocero Americano	Dickcissel ( <i>Spiza americana</i> )	35
Atila Rabadilla-brillante	Bright-rumped Attila ( <i>Attila spadiceus</i> )	21
Aura Cabecirroja	Turkey Vulture ( <i>Cathartes aura</i> )	4
Aura Sabanera	Lesser Yellow-headed Vulture ( <i>Cathartes burrovianus</i> )	
Batará Barrada	Barred Antshrike ( <i>Thamnophilus doliatus</i> )	38
Batará Mayor	Great Antshrike ( <i>Taraba major</i> )	37
Biemparedo Norteño	Northern Potoo ( <i>Nyctibius jamaicensis</i> )	
Bolsero Capucha-negra	Black-cowled Oriole ( <i>Icterus prothemelas</i> )	13
Bolsero Castaño	Orchard Oriole ( <i>Icterus spurius</i> )	17
Bolsero Coliamarillo	Yellow-tailed Oriole ( <i>Icterus mesomelas</i> )	
Bolsero Culculado	Hooded Oriole ( <i>Icterus cucullatus</i> )	
Bolsero de Baltimore	Baltimore Oriole ( <i>Icterus galbula</i> )	13
Bolsero Dorsidorado	Yellow-backed Oriole ( <i>Icterus chrysater</i> )	
Buco Collarejo	White-necked Puffbird ( <i>Notharchus macrorhynchos</i> )	
Búho Café	Mottled Owl ( <i>Ciccaba virgata</i> )	
Búho-cornudo Cariblanco	Striped Owl ( <i>Pseudoscops clamator</i> )	
Cabezón Aliblanco	White-winged Becard ( <i>Pachyramphus polychopterus</i> )	
Cabezón Cuelligris	Gray-collared Becard ( <i>Pachyramphus major</i> )	
Cabezón Degollado	Rose-throated Becard ( <i>Pachyramphus aglaiae</i> )	
Cacique Piquiclaro	Yellow-billed Cacique ( <i>Amblycercus holosericeus</i> )	17
Carao	Limpkin ( <i>Aramus guarauna</i> )	
Cardenal Norteño	Northern Cardinal ( <i>Cardinalis cardinalis</i> )	46
Carpintero Alibronceado	Golden-olive Woodpecker ( <i>Piculus rubiginosus</i> )	
Carpintero Arlequín	Acorn Woodpecker ( <i>Melanerpes formicivorus</i> )	
Carpintero Cachetinegro	Black-cheeked Woodpecker ( <i>Melanerpes pucherani</i> )	
Carpintero Café	Smoky-brown Woodpecker ( <i>Veniliornis fumigatus</i> )	38
Carpintero Castaño	Chestnut-colored Woodpecker ( <i>Celeus castaneus</i> )	
Carpintero Frentidorado	Golden-fronted Woodpecker ( <i>Melanerpes aurifrons</i> )	18
Carpintero Lineado	Lineated Woodpecker ( <i>Dryocopus lineatus</i> )	
Carpintero Listado	Ladder-backed Woodpecker ( <i>Picoides scalaris</i> )	
Carpintero Piquiclaro	Pale-billed Woodpecker ( <i>Campephilus guatemalensis</i> )	65
Carpintero Yucateco	Red-vented Woodpecker ( <i>Melanerpes pygmaeus</i> )	
Cenzontle Sureño	Tropical Mockingbird ( <i>Mimus gilvus</i> )	13
Cerceta Aliazul	Blue-winged Teal ( <i>Anas discors</i> )	
Cernícalo Americano	American Kestrel ( <i>Falco sparverius</i> )	
Chachalaca Común	Plain Chachalaca ( <i>Ortalis vetula</i> )	17
Chara Papán	Brown Jay ( <i>Cyanocorax morio</i> )	12
Chara Verde	Green Jay ( <i>Cyanocorax yncas</i> )	
Chara Yucateca	Yucatan Jay ( <i>Cyanocorax yucatanicus</i> )	
Chipe Aliazul	Blue-winged Warbler ( <i>Vermivora pinus</i> )	
Chipe Amarillo	Yellow Warbler ( <i>Dendroica petechia</i> )	
Chipe Corona-dorada	Golden-crowned Warbler ( <i>Basileuterus culicivorus</i> )	
Chipe Corono-naranja	Orange-crowned Warbler ( <i>Vermivora celata</i> )	
Chipe de Grace	Grace's Warbler ( <i>Dendroica graciae</i> )	
Chipe de Kentucky	Kentucky Warbler ( <i>Oporornis formosus</i> )	38
Chipe de Magnolia	Magnolia Warbler ( <i>Dendroica magnolia</i> )	17
Chipe de Nashville	Nashville Warbler ( <i>Vermivora ruficapilla</i> )	
Chipe de Swainson	Swainson's Warbler ( <i>Limnithlypis swainsonii</i> )	
Chipe Dorsiverde	Black-throated Green Warbler ( <i>Dendroica virens</i> )	47
Chipe Encapuchado	Hooded Warbler ( <i>Wilsonia citrina</i> )	46
Chipe Flanquicasaño	Chestnut-sided Warbler ( <i>Dendroica pensylvanica</i> )	
Chipe Gorjamarillo	Yellow-throated Warbler ( <i>Dendroica dominica</i> )	
Chipe Gorjinaranja	Blackburnian Warbler ( <i>Dendroica fusca</i> )	

COMMON SPANISH NAME	ENGLISH NAME AND SCIENTIFIC NAME OF SPECIES	PHOTO ON PAGE
Chipe Gusanero	Worm-eating Warbler ( <i>Helmitheros vermivorum</i> )	37
Chipe Pechicastaño	Bay-breasted Warbler ( <i>Dendroica castanea</i> )	
Chipe Peregrino	Tennessee Warbler ( <i>Vermivora peregrina</i> )	4
Chipe Protonotario	Prothonotary Warbler ( <i>Protonotaria citrea</i> )	
Chipe Rabadilla-amarilla	Yellow-rumped Warbler ( <i>Dendroica coronata</i> )	
Chipe Trepador	Black-and-white Warbler ( <i>Mniotilta varia</i> )	44
Chipe-suelero Arroyero	Louisiana Waterthrush ( <i>Seiurus motacilla</i> )	
Chipe-suelero Charquero	Northern Waterthrush ( <i>Seiurus noveboracensis</i> )	37
Chipe-suelero Coronado	Ovenbird ( <i>Seiurus aurocapilla</i> )	47
Chorlito Tildío	Killdeer ( <i>Charadrius vociferus</i> )	
Chotacabras Mayor	Common Nighthawk ( <i>Chordeiles minor</i> )	
Chotacabras Menor	Lesser Nighthawk ( <i>Chordeiles acutipennis</i> )	
Chupasavia Vientre-amarillo	Yellow-bellied Sapsucker ( <i>Sphyrapicus varius</i> )	
Cigüeña Americana	Wood Stork ( <i>Mycteria americana</i> )	67
Codorniz Bolanchaco	Spotted Wood-Quail ( <i>Odontophorus guttatus</i> )	
Codorniz Silbadora	Singing Quail ( <i>Dactylortyx thoracicus</i> )	
Codorniz-cotui Yucateca	Black-throated Bobwhite ( <i>Colinus nigrogularis</i> )	
Colibri Canelo	Cinnamon Hummingbird ( <i>Amazilia rutila</i> )	
Colibri Colirrufo	Rufous-tailed Hummingbird ( <i>Amazilia tzacatl</i> )	5, 16
Colibri Coroniazul	Azure-crowned Hummingbird ( <i>Amazilia cyanocephala</i> )	
Colibri Gorjirubi	Ruby-throated Hummingbird ( <i>Archilochus colubris</i> )	4
Colibri Vientre-canelo	Buff-bellied Hummingbird ( <i>Amazilia yucatanensis</i> )	
Colorín Azul	Indigo Bunting ( <i>Passerina cyanea</i> )	21
Colorín Azulinegro	Blue Bunting ( <i>Cyanocompsa parellina</i> )	46
Colorín Sietecolores	Painted Bunting ( <i>Passerina ciris</i> )	
Copetón Tirano	Brown-crested Flycatcher ( <i>Myiarchus tyrannulus</i> )	65
Copetón Trieste	Dusky-capped Flycatcher ( <i>Myiarchus tuberculifer</i> )	
Copetón Viajero	Great Crested Flycatcher ( <i>Myiarchus crinitus</i> )	
Copetón Yucateco	Yucatan Flycatcher ( <i>Myiarchus yucatanensis</i> )	
Cormorán Neotropical	Neotropic Cormorant ( <i>Phalacrocorax brasilianus</i> )	
Cuco Ardilla	Squirrel Cuckoo ( <i>Piaya cayana</i> )	
Cuco Faisán	Pheasant Cuckoo ( <i>Dromococcyx phasianellus</i> )	
Cuco Manglero	Mangrove Cuckoo ( <i>Coccyzus minor</i> )	
Cuco Rayado	Striped Cuckoo ( <i>Tapera naevia</i> )	
Elenia Verdosa	Greenish Elaenia ( <i>Myiopagis viridicata</i> )	
Elenia Vientre-amarillo	Yellow-bellied Elaenia ( <i>Elaenia flavogaster</i> )	
Ermitaño Chico	Stripe-throated Hermit ( <i>Phaethornis striigularis</i> )	16
Ermitaño Colilargo	Long-billed Hermit ( <i>Phaethornis longirostris</i> )	16
Esmeralda de Canivet	Canivet's Emerald ( <i>Chlorostilbon canivetii</i> )	
Esmeralda Vientre-blanco	White-bellied Emerald ( <i>Amazilia candida</i> )	16
Espátula Rosada	Roseate Spoonbill ( <i>Platalea ajaja</i> )	
Espatulilla Cabecigris	Slate-headed Tody-Flycatcher ( <i>Poecilotriccus sylvia</i> )	47
Espatulilla Común	Common Tody-Flycatcher ( <i>Todirostrum cinereum</i> )	44
Eufonia Gorjiamarillo	Yellow-throated Euphonia ( <i>Euphonia hirundinacea</i> )	12
Eufonia Gorjinegro	Scrub Euphonia ( <i>Euphonia affinis</i> )	
Eufonia Olivácea	Olive-backed Euphonia ( <i>Euphonia gouldi</i> )	
Fandangero Colicuña	Wedge-tailed Sabrewing ( <i>Campylopterus curvipennis</i> )	
Fandangero Pechiescamoso	Scaly-breasted Hummingbird ( <i>Phaeochroa cuvieri</i> )	
Fragata Magnífica	Magnificent Frigatebird ( <i>Fregata magnificens</i> )	62
Gallareta Americana	American Coot ( <i>Fulica americana</i> )	
Gallineta Morada	Purple Gallinule ( <i>Porphyrio martinica</i> )	67
Garrapatero Pijuy	Groove-billed Ani ( <i>Crotophaga sulcirostris</i> )	
Garza Agami	Agami Heron ( <i>Agamia agami</i> )	
Garza Azul	Little Blue Heron ( <i>Egretta caerulea</i> )	



COMMON SPANISH NAME	ENGLISH NAME AND SCIENTIFIC NAME OF SPECIES	PHOTO ON PAGE
Garza Cucharón	Boat-billed Heron ( <i>Cochlearius cochlearius</i> )	67
Garza Ganadera	Cattle Egret ( <i>Bubulcus ibis</i> )	
Garza Grande	Great Egret ( <i>Ardea alba</i> )	32
Garza Nivea	Snowy Egret ( <i>Egretta thula</i> )	67
Garza Verde	Green Heron ( <i>Butorides virescens</i> )	
Garza-nocturna Coroniclara	Yellow-crowned Night Heron ( <i>Nyctanassa violacea</i> )	67
Garza-nocturna Coroninegra	Black-crowned Night Heron ( <i>Nycticorax nycticorax</i> )	
Garza-tigre Gorjinuda	Bare-throated Tiger-Heron ( <i>Tigrisoma mexicanum</i> )	
Garzón Cenizo	Great Blue Heron ( <i>Ardea herodias</i> )	32
Gavilán Pescador	Osprey ( <i>Pandion haliaetus</i> )	
Golondrina Arbolera	Tree Swallow ( <i>Tachycineta bicolor</i> )	35
Golondrina Manglera	Mangrove Swallow ( <i>Tachycineta albilinea</i> )	65
Golondrina Ranchera	Barn Swallow ( <i>Hirundo rustica</i> )	
Golondrina-aliserraada Norteña	Northern Rough-winged Swallow ( <i>Stelgidopteryx serripennis</i> )	65
Golondrina-aliserraada Yucateca	Ridgeway Rough-winged Swallow	
Gorrión Cejiblanco	Chipping Sparrow ( <i>Spizella passerina</i> )	
Gorrión Chapulín	Grasshopper Sparrow ( <i>Ammodramus savannarum</i> )	
Gorrión Dorsiverde	Green-backed Sparrow ( <i>Arremonops chloronotus</i> )	34
Gorrión Oliváceo	Olive Sparrow ( <i>Arremonops rufivirgatus</i> )	
Gorrión Sabanero	Savannah Sparrow ( <i>Passerculus sandwichensis</i> )	
Granatelo Yucateco	Gray-throated Chat ( <i>Granatellus sallaei</i> )	47
Gritón Pechiamarillo	Yellow-breasted Chat ( <i>Icteria virens</i> )	13
Guitio Pechirrufo	Rufous-breasted Spinetail ( <i>Synallaxis erythrothorax</i> )	37
Hada Coronimorada	Purple-crowned Fairy ( <i>Heliothryx barroti</i> )	
Halcón Aplomado	Aplomado Falcon ( <i>Falco femoralis</i> )	
Halcón Guaco	Laughing Falcon ( <i>Herpetotheres cachinnans</i> )	65
Halcón Murcielaguero	Bat Falcon ( <i>Falco rufifigularis</i> )	
Halcón-selvático Barrado	Barred Forest-Falcon ( <i>Micrastur ruficollis</i> )	
Halcón-selvático Collarejo	Collared Forest-Falcon ( <i>Micrastur semitorquatus</i> )	
Hocofaisán	Great Curassow ( <i>Crax rubra</i> )	70
Hojarasquero Oscuro	Scaly-throated Leaf-tosser ( <i>Sclerurus guatemalensis</i> )	
Hormiguero Negruzco	Dusky Antbird ( <i>Cercomacra tyrannina</i> )	38
Hormiguero-gallito Mexicano	Black-faced Antthrush [ <i>Formicarius analis (moniliger)</i> ]	65
Ibis Blanco	White Ibis ( <i>Eudocimus albus</i> )	
Jabirú	Jabiru ( <i>Jabiru mycteria</i> )	63
Jacamar Colirrufo	Rufous-tailed Jacamar ( <i>Galbula ruficauda</i> )	37
Jacana Mesoamericana	Northern Jacana ( <i>Jacana spinosa</i> )	67
Jacobino Nuquiblanco	White-necked Jacobin ( <i>Florisuga mellivora</i> )	
Lechuga de Campanario	Barn Owl ( <i>Tyto alba</i> )	
Llorón Café	Thrush-like Schiffornis ( <i>Schiffornis turdina</i> )	
Loro Cabeciamarillo	Yellow-headed Parrot ( <i>Amazona oratrix</i> )	35
Loro Cachete-amarillo	Red-lored Parrot ( <i>Amazona autumnalis</i> )	13
Loro Coroniblanco	White-crowned Parrot ( <i>Pionus senilis</i> )	
Loro Frentiblanco	White-fronted Parrot ( <i>Amazona albifrons</i> )	
Loro Orejirrojo	Brown-hooded Parrot ( <i>Pionopsitta haematotis</i> )	
Loro Verde	Mealy Parrot ( <i>Amazona farinosa</i> )	
Loro Yucateco	Yellow-lored Parrot ( <i>Amazona xantholora</i> )	
Luis Grande	Great Kiskadee ( <i>Pitangus sulphuratus</i> )	44
Luis Gregario	Social Flycatcher ( <i>Myiozetetes similis</i> )	44
Luis Piquirueso	Boat-billed Flycatcher ( <i>Megarynchus pitangua</i> )	
Mango Pechiverde	Green-breasted Mango ( <i>Anthracothorax prevostii</i> )	
Martín Azul	Purple Martin ( <i>Progne subis</i> )	
Martín Pechigris	Gray-breasted Martin ( <i>Progne chalybea</i> )	65
Martin-pescador Amazona	Amazon Kingfisher ( <i>Chloroceryle amazona</i> )	

COMMON SPANISH NAME	ENGLISH NAME AND SCIENTIFIC NAME OF SPECIES	PHOTO ON PAGE
Martin-pescador Collarejo	Ringed Kingfisher ( <i>Ceryle torquatus</i> )	
Martin-pescador Enano	American Pygmy Kingfisher ( <i>Chloroceryle aenea</i> )	67
Martin-pescador Norteño	Belted Kingfisher ( <i>Ceryle alcyon</i> )	
Martin-pescador Verde	Green Kingfisher ( <i>Chloroceryle americana</i> )	
Mascarita Común	Common Yellowthroat ( <i>Geothlypis trichas</i> )	18
Mascarita Piquigruesa	Gray-crowned Yellowthroat ( <i>Geothlypis poliocephala</i> )	
Matraca-barrada Tropical	Band-backed Wren ( <i>Campylorhynchus zonatus</i> )	
Mielero Patirrojo	Red-legged Honeycreeper ( <i>Cyanerpes cyaneus</i> )	13
Milano Bidentado	Double-toothed Kite ( <i>Harpagus bidentatus</i> )	
Milano Cabecigris	Gray-headed Kite ( <i>Leptodon cayanensis</i> )	
Milano Caracolero	Snail Kite ( <i>Rostrhamus sociabilis</i> )	
Milano Coliblanco	White-tailed Kite ( <i>Elanus leucurus</i> )	
Milano Piquiganchudo	Hook-billed Kite ( <i>Chondrohierax uncinatus</i> )	
Milano Plomizo	Plumbeous Kite ( <i>Ictinia plumbea</i> )	
Milano Tijereta	Swallow-tailed Kite ( <i>Elanoides forficatus</i> )	
Momoto Coroniazul	Blue-crowned Motmot ( <i>Momotus momota</i> )	46
Momoto Enano	Tody Motmot ( <i>Hylomanes momotula</i> )	47
Mosquerito Lampino Norteño	Northern Beardless-Tyrannulet ( <i>Camptostoma imberbe</i> )	
Mosquerito Rabadilla-amarilla	Sulphur-rumped Flycatcher ( <i>Myiobius sulphureipygius</i> )	
Mosquerito Vientre-amarillo	Yellow-bellied Tyrannulet ( <i>Ornithion semiflavum</i> )	
Mosquero Cardenal	Vermilion Flycatcher ( <i>Pyrocephalus rubinus</i> )	31
Mosquero Gorjiblanco	White-throated Flycatcher ( <i>Empidonax albigularis</i> )	
Mosquero Gorripardo	Sepia-capped Flycatcher ( <i>Leptopogon amaurocephalus</i> )	38
Mosquero Mínimo	Least Flycatcher ( <i>Empidonax minimus</i> )	
Mosquero Negro	Black Phoebe ( <i>Sayornis nigricans</i> )	
Mosquero Real	Royal Flycatcher ( <i>Onychorhynchus coronatus</i> )	38
Mosquero Vientre-amarillo	Yellow-bellied Flycatcher ( <i>Empidonax flaviventris</i> )	
Mosquero Vientre-ocre	Ochre-bellied Flycatcher ( <i>Mionectes oleagineus</i> )	16
Oropéndola de Moctezuma	Montezuma Oropendola ( <i>Psarocolius montezuma</i> )	13
Pájaro-cantil	Sungrebe ( <i>Heliornis fulica</i> )	
Pájaro-gato Gris	Gray Catbird ( <i>Dumetella carolinensis</i> )	13
Pájaro-gato Negro	Black Catbird ( <i>Melanoptila glabirostris</i> )	62
Paloma Arroyera	White-tipped Dove ( <i>Leptotila verreauxi</i> )	
Paloma Cabecigris	Gray-fronted Dove [ <i>Leptotila rufaxilla (plumbeiceps)</i> ]	
Paloma Escamosa	Scaled Pigeon ( <i>Patagioenas speciosa</i> )	
Paloma Huilota	Mourning Dove ( <i>Zenaida macroura</i> )	
Paloma Morada	Red-billed Pigeon ( <i>Patagioenas flavirostris</i> )	
Paloma Pechigris	Gray-chested Dove ( <i>Leptotila cassini</i> )	46
Paloma Piquinegra	Short-billed Pigeon ( <i>Patagioenas nigrirostris</i> )	
Paloma Vientre-claro	Pale-vented Pigeon ( <i>Patagioenas cayennensis</i> )	14
Paloma-perdiz Rojiza	Ruddy Quail-Dove ( <i>Geotrygon montana</i> )	
Papamoscas Pirata	Piratic Flycatcher ( <i>Legatus leucophaeus</i> )	
Papamoscas Rayado	Streaked Flycatcher ( <i>Myiodynastes maculatus</i> )	
Papamoscas Vientre-amarillo	Sulphur-bellied Flycatcher ( <i>Myiodynastes luteiventris</i> )	
Parula Norteño	Northern Parula ( <i>Parula americana</i> )	
Pato Real	Muscovy Duck ( <i>Cairina moschata</i> )	
Pavito Migratorio	American Redstart ( <i>Setophaga ruticilla</i> )	18
Pavo Cojolito	Crested Guan ( <i>Penelope purpurascens</i> )	12
Pelicano Café	Brown Pelican ( <i>Pelecanus occidentalis</i> )	
Perico Pechisucio	Olive-throated Parakeet ( <i>Aratinga nana</i> )	
Perlita Grisilla	Blue-gray Gnatcatcher ( <i>Polioptila caerulea</i> )	35
Perlita Tropical	Tropical Gnatcatcher ( <i>Polioptila plumbea</i> )	
Pibí Oriental	Eastern Wood-Pewee ( <i>Contopus virens</i> )	
Pibí Tropical	Tropical Pewee ( <i>Contopus cinereus</i> )	

COMMON SPANISH NAME	ENGLISH NAME AND SCIENTIFIC NAME OF SPECIES	PHOTO ON PAGE
Picochato Rabón	Stub-tailed Spadebill ( <i>Platyrrhynchus cancrominus</i> )	
Picocurvo Norteño	Northern Bentbill ( <i>Oncostoma cinereigulare</i> )	
Picogrueso Azul	Blue Grosbeak ( <i>Passerina caerulea</i> )	
Picogrueso Carinegro	Black-faced Grosbeak ( <i>Caryothraustes poliogaster</i> )	
Picogrueso Negro	Blue-black Grosbeak ( <i>Cyanocompsa cyanoides</i> )	14
Picogrueso Pechirrosado	Rose-breasted Grosbeak ( <i>Pheucticus ludovicianus</i> )	
Picolargo Coroniazul	Long-billed Starthroat ( <i>Helimaster longirostris</i> )	
Picolenza Sencillo	Plain Xenops ( <i>Xenops minutus</i> )	
Picoplano de Anteojos	Eye-ringed Flatbill ( <i>Rhynchocyclus brevirostris</i> )	
Picoplano Ojiblanco	Yellow-olive Flycatcher ( <i>Tolmomyias sulphureus</i> )	
Pijiji Aliblanco	Black-bellied Whistling-Duck ( <i>Dendrocygna autumnalis</i> )	
Platanero	Bananaquit ( <i>Coereba flaveola</i> )	
Playero Alzacolita	Spotted Sandpiper ( <i>Actitis macularius</i> )	62
Playero Solitario	Solitary Sandpiper ( <i>Tringa solitaria</i> )	
Polluela Rojiza	Ruddy Crake ( <i>Laterallus ruber</i> )	
Pradero Común	Eastern Meadowlark ( <i>Sturnella magna</i> )	
Rascador Piquinaranja	Orange-billed Sparrow ( <i>Arremon aurantirostris</i> )	
Rascón Cuelligris	Gray-necked Wood-Rail ( <i>Aramides cajanea</i> )	
Saltador Cabecinegro	Black-headed Saltator ( <i>Saltator atriceps</i> )	
Saltador Gorjileonado	Buff-throated Saltator ( <i>Saltator maximus</i> )	
Saltador Grisáceo	Grayish Saltator ( <i>Saltator coerulescens</i> )	
Saltapared de Carolina	Carolina Wren ( <i>Thryothorus ludovicianus</i> )	
Saltapared Pechimanchado	Spot-breasted Wren ( <i>Thryothorus maculipectus</i> )	44
Saltapared Vientre-blanco	White-bellied Wren ( <i>Uropsila leucogastra</i> )	
Saltapared-continental Sureño	House Wren ( <i>Troglodytes aedon</i> )	65
Saltapared-selvatico Pechiblanco	White-breasted Wood-Wren ( <i>Henicorhina leucosticta</i> )	
Saltarín Cabecirrojo	Red-capped Manakin ( <i>Pipra mentalis</i> )	15
Saltarín Cuelliblanco	White-collared Manakin ( <i>Manacus candei</i> )	47
Semillero Azul	Blue Seedeater ( <i>Amaurospiza concolor</i> )	36
Semillero Brincador	Blue-black Grassquit ( <i>Volatinia jacarina</i> )	
Semillero Collarejo	White-collared Seedeater ( <i>Sporophila torqueola</i> )	34
Semillero Oliváceo	Yellow-faced Grassquit ( <i>Tiaris olivaceus</i> )	
Semillero Piquigrueso	Thick-billed Seed-Finch ( <i>Oryzoborus funereus</i> )	
Semillero Variable	Variable Seedeater ( <i>Sporophila americana</i> )	
Soterillo Picudo	Long-billed Gnatwren ( <i>Ramphocaenus melanurus</i> )	
Tángara Aliamarilla	Yellow-winged Tanager ( <i>Thraupis abbas</i> )	12
Tángara Azuligris	Blue-gray Tanager ( <i>Thraupis episcopus</i> )	13
Tángara Cabecigris	Gray-headed Tanager ( <i>Eucometis penicillata</i> )	44
Tángara Cuellirroja	Crimson-collared Tanager ( <i>Ramphocelus sanguinolentus</i> )	22
Tángara Encinera	Hepatic Tanager ( <i>Piranga flava</i> )	
Tángara Escarlata	Scarlet Tanager ( <i>Piranga olivacea</i> )	46
Tángara Roja	Summer Tanager ( <i>Piranga rubra</i> )	
Tángara Terciopelo	Passerini's Tanager ( <i>Ramphocelus passerinii</i> )	
Tángara Yucateca	Rose-throated Tanager ( <i>Piranga roseogularis</i> )	
Tángara-hormiguera Coronirroja	Red-crowned Ant-Tanager ( <i>Habia rubica</i> )	
Tángara-hormiguera Gorjirroja	Red-throated Ant-Tanager ( <i>Habia fuscicauda</i> )	4
Tángara-lanio Gorjiinegro	Black-throated Shrike-Tanager ( <i>Lanio aurantius</i> )	
Tapacaminos Picuyo	Common Pauraque ( <i>Nyctidromus albicollis</i> )	
Tapacaminos Yucateco	Yucatan Nightjar ( <i>Caprimulgus badius</i> )	
Tecolote Vermiculado	Vermiculated Screech-Owl ( <i>Megascops guatemalae</i> )	
Tecolotito Centroamericano	Central American Pygmy-Owl ( <i>Glaucidium griseiceps</i> )	
Tecolotito Común	Ferruginous Pygmy-Owl ( <i>Glaucidium brasilianum</i> )	65
Tinamú Canelo	Thicket Tinamou ( <i>Crypturellus cinnamomeus</i> )	
Tinamú Jamuey	Slaty-breasted Tinamou ( <i>Crypturellus boucardi</i> )	



COMMON SPANISH NAME	ENGLISH NAME AND SCIENTIFIC NAME OF SPECIES	PHOTO ON PAGE
Tinamú Mayor	Great Tinamou ( <i>Tinamus major</i> )	
Tinamú Menor	Little Tinamou ( <i>Crypturellus soui</i> )	
Tirano de Couch	Couch's Kingbird ( <i>Tyrannus couchii</i> )	
Tirano Tropical	Tropical Kingbird ( <i>Tyrannus melancholicus</i> )	34
Tirano Viajero	Eastern Kingbird ( <i>Tyrannus tyrannus</i> )	
Tirano-tijereta Sabanero	Fork-tailed Flycatcher ( <i>Tyrannus savana</i> )	34
Titira Enmascarada	Masked Tityra ( <i>Tityra semifasciata</i> )	21
Titira Piquinegra	Black-crowned Tityra ( <i>Tityra inquisitor</i> )	
Tordo Cantor	Melodious Blackbird ( <i>Dives dives</i> )	
Tordo Sargento	Red-winged Blackbird ( <i>Agelaius phoeniceus</i> )	
Tórtola Azul	Blue Ground-Dove ( <i>Claravis pretiosa</i> )	37
Tórtola Pechilisa	Plain-breasted Ground-Dove ( <i>Columbina minuta</i> )	
Tórtola Rojiza	Ruddy Ground-Dove ( <i>Columbina talpacoti</i> )	34
Trepatroncos Alileonado	Tawny-winged Woodcreeper ( <i>Dendrocincla anabatina</i> )	
Trepatroncos Barrado	Northern Barred-Woodcreeper ( <i>Dendrocolaptes sanctithomae</i> )	
Trepatroncos Corona-rayada	Streak-headed Woodcreeper ( <i>Lepidocolaptes souleyetii</i> )	
Trepatroncos Oliváceo	Olivaceous Woodcreeper ( <i>Sittasomus griseicapillus</i> )	
Trepatroncos Piquiclaro	Ivory-billed Woodcreeper ( <i>Xiphorhynchus flavigaster</i> )	46
Trepatroncos Piquicuña	Wedge-billed Woodcreeper ( <i>Glyphorhynchus spirurus</i> )	47
Trepatroncos Rojizo	Ruddy Woodcreeper ( <i>Dendrocincla homochroa</i> )	
Trogon Cabecinegro	Black-headed Trogon ( <i>Trogon melanocephalus</i> )	15
Trogon Colioscuro	Slaty-tailed Trogon ( <i>Trogon massena</i> )	
Trogon Violáceo	Violaceous Trogon ( <i>Trogon violaceus</i> )	38
Tucán Pico-multicolor	Keel-billed Toucan ( <i>Ramphastos sulfuratus</i> )	5, 31
Tucancillo Collarejo	Collared Aracari ( <i>Pteroglossus torquatus</i> )	12, 16
Tucaneta Verde	Emerald Toucanet ( <i>Aulacorhynchus prasinus</i> )	65
Vaquero Gigante	Giant Cowbird ( <i>Molothrus oryzivorus</i> )	
Vaquero Ojirrojo	Bronzed Cowbird ( <i>Molothrus aeneus</i> )	
Vencejo Cuelliblanco	White-collared Swift ( <i>Streptoprocne zonaris</i> )	
Vencejo de Chimenea	Chimney Swift ( <i>Chaetura pelagica</i> )	
Vencejo de Vaux	Vaux's Swift ( <i>Chaetura vauxi</i> )	
Vencejo-tijereta Menor	Lesser Swallow-tailed Swift ( <i>Panyptila cayennensis</i> )	
Verdillo Corono-leonada	Tawny-crowned Greenlet ( <i>Hylophilus ochraceiceps</i> )	
Verdillo Menor	Lesser Greenlet ( <i>Hylophilus decurtatus</i> )	
Vireo Amarillo-verdoso	Yellow-green Vireo ( <i>Vireo flavoviridis</i> )	
Vireo Gorjiamarillo	Yellow-throated Vireo ( <i>Vireo flavifrons</i> )	
Vireo Manglero	Mangrove Vireo [ <i>Vireo pallens (semiflavus)</i> ]	34
Vireo Ojiblanco	White-eyed Vireo ( <i>Vireo griseus</i> )	21
Vireo Ojirrojo	Red-eyed Vireo ( <i>Vireo olivaceus</i> )	
Vireón Cejirrufo	Rufous-browed Peppershrike ( <i>Cyclarhis gujanensis</i> )	
Zacatero Amarillo	Grassland Yellow-Finch ( <i>Sicalis luteola</i> )	
Zambullidor Menor	Least Grebe ( <i>Tachybaptus dominicus</i> )	
Zanate Mayor	Great-tailed Grackle ( <i>Quiscalus mexicanus</i> )	30
Zopilote Negro	Black Vulture ( <i>Coragyps atratus</i> )	4, 35
Zopilote Rey	King Vulture ( <i>Sarcoramphus papa</i> )	
Zorzal Gorjiblanco	White-throated Robin ( <i>Turdus assimilis</i> )	
Zorzal Pardo	Clay-colored Robin ( <i>Turdus grayi</i> )	14
Zorzalito Carigris	Gray-cheeked Thrush ( <i>Catharus minimus</i> )	
Zorzalito de Swainson	Swainson's Thrush ( <i>Catharus ustulatus</i> )	
Zorzalito Maculado	Wood Thrush ( <i>Hylocichla mustelina</i> )	37
Zorzalito Rojizo	Veery ( <i>Catharus fuscescens</i> )	

## APPENDIX 1D. LOCAL SPANISH NAMES (IN ALPHABETICAL ORDER, FROM JONES 2003)

LOCAL SPANISH NAMES	ENGLISH NAME AND SCIENTIFIC NAME OF SPECIES	PHOTO ON PAGE
Checo	Black-cheeked Woodpecker ( <i>Melanerpes pucherani</i> ), Golden-fronted Woodpecker ( <i>Melanerpes aurifrons</i> ), Golden-olive Woodpecker ( <i>Piculus rubiginosus</i> ), Smoky-brown Woodpecker ( <i>Veniliornis fumigatus</i> )	18, 38
Chicas	Tropical Mockingbird ( <i>Mimus gilvus</i> )	13
Cocito	White Ibis ( <i>Eudocimus albus</i> )	
Cojolito	Crested Guan ( <i>Penelope purpurascens</i> )	12
Cuchara	Roseate Spoonbill ( <i>Platalea ajaja</i> )	
Curujo	Barn Owl ( <i>Tyto alba</i> )	
El Diablito	Vermilion Flycatcher ( <i>Pyrocephalus rubinus</i> )	31
Faisan	Great Curassow ( <i>Crax rubra</i> )	70
Galletan	Wood Stork ( <i>Mycteria americana</i> )	67
Gallinola	Gray-necked Wood-Rail ( <i>Aramides cajanea</i> )	
Gavilan	Roadside Hawk ( <i>Buteo magnirostris</i> )	4
Jincho	Osprey ( <i>Pandion haliaetus</i> )	
Martin Pescado	Amazon Kingfisher ( <i>Chloroceryle amazona</i> ), American Pygmy Kingfisher ( <i>Chloroceryle aenea</i> ), Belted Kingfisher ( <i>Ceryle alcyon</i> ), Green Kingfisher ( <i>Chloroceryle americana</i> ), Ringed Kingfisher ( <i>Ceryle torquatus</i> )	67
Medio Pito	Collared Aracari ( <i>Pteroglossus torquatus</i> )	12, 16
Paloma	Pale-vented Pigeon ( <i>Patagioenas cayennensis</i> ), Scaled Pigeon ( <i>Patagioenas speciosa</i> )	14
Peche Amarillo	Black-headed Trogon ( <i>Trogon melanocephalus</i> ), Violaceous Trogon ( <i>Trogon violaceus</i> )	15, 38
Perdiz	Thicket Tinamou ( <i>Crypturellus cinnamomeus</i> )	
Pijiji	Black-bellied Whistling-Duck ( <i>Dendrocygna autumnalis</i> )	
Pito Real	Keel-billed Toucan ( <i>Ramphastos sulfuratus</i> )	5, 31
Sope	Black Vulture ( <i>Coragyps atratus</i> ), Lesser Yellow-headed Vulture ( <i>Cathartes burrovianus</i> ), Turkey Vulture ( <i>Cathartes aura</i> )	4, 35
Sope Real	King Vulture ( <i>Sarcoramphus papa</i> )	
Tapacamino	Common Pauraque ( <i>Nyctidromus albicollis</i> )	
Tortolita	Ruddy Ground-Dove ( <i>Columbina talpacoti</i> )	34
Tres Pesos Son	Short-billed Pigeon ( <i>Patagioenas nigrirostris</i> )	

## APPENDIX 1E. K'EKCHI MAYAN NAMES (IN ALPHABETICAL ORDER, FROM JONES 2003)

K'EKCHI MAYAN NAME	ENGLISH NAME AND SCIENTIFIC NAME OF SPECIES	PHOTO ON PAGE
Belix	Bright-rumped Attila ( <i>Attila spadiceus</i> )	21
B'it i cuc	Dusky-capped Flycatcher ( <i>Myiarchus tuberculifer</i> )	
Bolich	Spot-breasted Wren ( <i>Thryothorus maculipectus</i> )	44
Cac i kok	Slaty-tailed Trogon ( <i>Trogon massena</i> )	
Cak i mukui	Ruddy Quail-Dove ( <i>Geotrygon montana</i> )	
Cak i pulcha jō chai	Green Heron ( <i>Butorides virescens</i> )	
Cak i t'otz bayal	Red-capped Manakin ( <i>Pipra mentalis</i> )	15
Cak i tut	Ruddy Ground-Dove ( <i>Columbina talpacoti</i> )	34
Cak i tz'ic	Summer Tanager ( <i>Piranga rubra</i> )	
Chak mut	Great Curassow ( <i>Crax rubra</i> )	70
Ch'ej chem	Amazon Kingfisher ( <i>Chloroceryle amazona</i> ), American Pygmy Kingfisher ( <i>Chloroceryle aenea</i> ), Belted Kingfisher ( <i>Ceryle alcyon</i> ), Green Kingfisher ( <i>Chloroceryle americana</i> ), Ringed Kingfisher ( <i>Ceryle torquatus</i> )	67
Che'ko'	Golden-fronted Woodpecker ( <i>Melanerpes aurifrons</i> )	
Chi chi sa'a	Gray Catbird ( <i>Dumetella carolinensis</i> )	13
Ch'i quan	Groove-billed Ani ( <i>Crotophaga sulcirostris</i> ), Melodious Blackbird ( <i>Dives dives</i> )	
Ch'in i tz'ic	Hooded Oriole ( <i>Icterus cucullatus</i> ), Baltimore Oriole ( <i>Icterus galbula</i> )	13
Cho cho'	Mealy Parrot ( <i>Amazona farinosa</i> ), Red-lored Parrot ( <i>Amazona autumnalis</i> )	13

K'EKCHI MAYAN NAME	ENGLISH NAME AND SCIENTIFIC NAME OF SPECIES	PHOTO ON PAGE
Ch'uluk	Black-faced Antthrush [ <i>Formicarius analis (moniliger)</i> ]	65
Colol	Great Tinamou ( <i>Tinamus major</i> )	
Hut hut	Blue-crowned Motmot ( <i>Momotus momota</i> )	46
Jeketso'	Plain Chachalaca ( <i>Ortalis vetula</i> )	17
Jo chai	Great Blue Heron ( <i>Ardea herodias</i> ), Limpkin ( <i>Aramus guarana</i> )	32
Jo'jo	Cattle Egret ( <i>Bubulcus ibis</i> ), Great Egret ( <i>Ardea alba</i> ), Snowy Egret ( <i>Egretta thula</i> )	32, 67
K'an i corochech	Chestnut-colored Woodpecker ( <i>Celeus castaneus</i> )	
K'an i kok	Black-headed Trogon ( <i>Trogon melanocephalus</i> ), Violaceous Trogon ( <i>Trogon violaceus</i> )	15, 38
K'an i tz'ic	Black-cowled Oriole ( <i>Icterus prothemelas</i> ), Yellow-backed Oriole ( <i>Icterus chrysater</i> ), Yellow-tailed Oriole ( <i>Icterus mesomelas</i> )	13
K'an y jolom cho cho'	Yellow-headed Parrot ( <i>Amazona oratrix</i> )	35
K'ek i c'och	Common Black-Hawk ( <i>Buteogallus anthracinus</i> ), Great Black-Hawk ( <i>Buteogallus urubitinga</i> )	
Kio kio kin	Red-crowned Ant-Tanager ( <i>Habia rubica</i> ), Red-throated Ant-Tanager ( <i>Habia fuscicauda</i> )	4
Kix hrir	Black-faced Grosbeak ( <i>Caryothraustes poliogaster</i> )	
K'o k'ob	Clay-colored Robin ( <i>Turdus grayi</i> )	14
Koej kampk	Laughing Falcon ( <i>Herpetotheres cachinnans</i> )	65
Kok keke' tz'ic	White-collared Seedeater ( <i>Sporophila torqueola</i> )	34
Kok'rax i pats	Blue-winged Teal ( <i>Anas discors</i> )	
Konkolich	Gray-necked Wood-Rail ( <i>Aramides cajanea</i> )	
Kubul	Montezuma Oropendola ( <i>Psarocolius montezuma</i> )	13
Letz letz	Ivory-billed Woodcreeper ( <i>Xiphorhynchus flavigaster</i> ), Northern Barred-Woodcreeper ( <i>Dendrocolaptes sanctithomae</i> ), Olivaceous Woodcreeper ( <i>Sittasomus griseicapillus</i> ), Ruddy Woodcreeper ( <i>Dendrocincla homochroa</i> ), Streak-headed Woodcreeper ( <i>Lepidocolaptes souleyetii</i> ), Tawny-winged Woodcreeper ( <i>Dendrocincla anabatina</i> ), Wedge-billed Woodcreeper ( <i>Glyphorhynchus spirurus</i> )	46, 47
Lik lik	Bat Falcon ( <i>Falco ruficularis</i> )	
Man sik kan sukuya'a	Spot-breasted Wren ( <i>Thryothorus maculipectus</i> )	44
Mayor	Crimson-collared Tanager ( <i>Ramphocelus sanguinolentus</i> )	22
Mukui	Gray-chested Dove ( <i>Leptotila cassini</i> ), Gray-fronted Dove [ <i>Leptotila rufaxilla (plumbeiceps)</i> ], White-tipped Dove ( <i>Leptotila verreauxi</i> )	46
Otz otz	Yellow-billed Cacique ( <i>Amblycercus holosericeus</i> )	17
Palom	Pale-vented Pigeon ( <i>Patagioenas cayennensis</i> ), Scaled Pigeon ( <i>Patagioenas speciosa</i> )	14
Pap	Brown Jay ( <i>Cyanocorax morio</i> )	12
Pasakuk	Short-billed Pigeon ( <i>Patagioenas nigrirostris</i> )	
Pats	Muscovy Duck ( <i>Cairina moschata</i> )	
Pats i ha	Neotropic Cormorant ( <i>Phalacrocorax brasilianus</i> )	
Pi chik	Collared Aracari ( <i>Pteroglossus torquatus</i> )	12, 16
Pich'	Squirrel Cuckoo ( <i>Piaya cayana</i> )	
Pijij	Black-bellied Whistling-Duck ( <i>Dendrocygna autumnalis</i> )	
Pom	Slaty-breasted Tinamou ( <i>Crypturellus boucardi</i> )	
Pu ju yuk	Common Pauraque ( <i>Nyctidromus albicollis</i> )	
Pulcha jo chai	Little Blue Heron ( <i>Egretta caerulea</i> )	
Pu'u	Crested Guan ( <i>Penelope purpurascens</i> )	
Puyuch'	White-crowned Parrot ( <i>Pionus senilis</i> )	
Quarom	Barn Owl ( <i>Tyto alba</i> ), Mottled Owl ( <i>Ciccaba virgata</i> ), Striped Owl ( <i>Pseudoscops clamator</i> ), Vermiculated Screech-Owl ( <i>Megascops guatemalae</i> )	
Rakax i tzul	Barred Antshrike ( <i>Thamnophilus doliatus</i> )	38
Rax i puyuch'	Brown-hooded Parrot ( <i>Pionopsitta haematotis</i> )	
Rax i selepan	Emerald Toucanet ( <i>Aulacorhynchus prasinus</i> )	65
Rax i tut	Blue Ground-Dove ( <i>Claravis pretiosa</i> )	37



K'EKCHI MAYAN NAME	ENGLISH NAME AND SCIENTIFIC NAME OF SPECIES	PHOTO ON PAGE
Raxon tzul	Blue-gray Tanager ( <i>Thraupis episcopus</i> )	13
Sak i c'och	White Hawk ( <i>Leucopternis albicollis</i> )	46
Sak i tuwiz ha'a	Spotted Sandpiper ( <i>Actitis macularius</i> )	62
Sakil	Louisiana Waterthrush ( <i>Seiurus motacilla</i> ), Northern Waterthrush ( <i>Seiurus noveboracensis</i> )	37
Selepan	Keel-billed Toucan ( <i>Ramphastos sulfuratus</i> )	5, 31
So choj	Masked Tityra ( <i>Tityra semifasciata</i> )	21
So'sol	Black Vulture ( <i>Coragyps atratus</i> ), Turkey Vulture ( <i>Cathartes aura</i> )	4, 35
Tixerx	Swallow-tailed Kite ( <i>Elanoides forficatus</i> )	
Tolocok	Wood Thrush ( <i>Hylocichla mustelina</i> )	37
T'otz bayal	White-collared Manakin ( <i>Manacus candei</i> )	47
Ts'ok	Giant Cowbird ( <i>Molothrus oryzivorus</i> )	
Ts'uhum ok'	Ruddy Crake ( <i>Laterallus ruber</i> )	
Tun tulin	White-breasted Wood-Wren ( <i>Henicorhina leucosticta</i> )	
Tunt	Eastern Wood-Pewee ( <i>Contopus virens</i> ), Greenish Elaenia ( <i>Myiopagis viridicata</i> ), Ochre-bellied Flycatcher ( <i>Mionectes oleagineus</i> ), Royal Flycatcher ( <i>Onychorhynchus coronatus</i> ), Sulphur-rumped Flycatcher ( <i>Myiobius sulphureipygius</i> ), Yellow-bellied Elaenia ( <i>Elaenia flavogaster</i> ), Yellow-olive Flycatcher ( <i>Tolmomyias sulphurescens</i> )	16, 38
Tza eki tz'ic	Bronzed Cowbird ( <i>Molothrus aeneus</i> )	
Tzen tse'rej	Black-cheeked Woodpecker ( <i>Melanerpes pucherani</i> ), Golden-olive Woodpecker ( <i>Piculus rubiginosus</i> ), Lineated Woodpecker ( <i>Dryocopus lineatus</i> ), Pale-billed Woodpecker ( <i>Campephilus guatemalensis</i> ), Smoky-brown Woodpecker ( <i>Veniliornis fumigatus</i> )	65, 38
Tzi tzob	Black-headed Saltator ( <i>Saltator atriceps</i> ), Buff-throated Saltator ( <i>Saltator maximus</i> ), Grayish Saltator ( <i>Saltator coerulescens</i> )	
Tzib tzob	Passerini's Tanager ( <i>Ramphocelus passerinii</i> )	
Tz'ic ha'sab	Northern Jacana ( <i>Jacana spinosa</i> )	67
Tz'ic i par	Great-tailed Grackle ( <i>Quiscalus mexicanus</i> )	30
Tz'ic nik ha	Spotted Sandpiper ( <i>Actitis macularius</i> )	62
Tzilon	Olive-throated Parakeet ( <i>Aratinga nana</i> )	
Tzub hin pur	Orange-billed Sparrow ( <i>Arremon aurantirostris</i> )	
Tz'unun	Canivet's Emerald ( <i>Chlorostilbon canivetii</i> ), Green-breasted Mango ( <i>Anthracothorax prevostii</i> ), Long-billed Hermit ( <i>Phaethornis longirostris</i> ), Purple-crowned Fairy ( <i>Heliodythrix barroti</i> ), Rufous-tailed Hummingbird ( <i>Amazilia tzacatl</i> ), Scaly-breasted Hummingbird ( <i>Phaeochroa cuvieri</i> ), Stripe-throated Hermit ( <i>Phaethornis striigularis</i> ), Wedge-tailed Sabrewing ( <i>Campylopterus curvipennis</i> ), White-bellied Emerald ( <i>Amazilia candida</i> ), White-necked Jacobin ( <i>Florisuga mellivora</i> )	5, 16
Wa wa	Tawny-crowned Greenlet ( <i>Hylophilus ochraceiceps</i> )	
Wilix	Sulphur-bellied Flycatcher ( <i>Myiodynastes luteiventris</i> )	
Wor'ik	Black-throated Bobwhite ( <i>Colinus nigrogularis</i> )	
Xep jo chai	Bare-throated Tiger-Heron ( <i>Tigrisoma mexicanum</i> )	
Xepi k'uch	Roadside Hawk ( <i>Buteo magnirostris</i> )	4
Xpuhuy	Common Nighthawk ( <i>Chordeiles minor</i> ), Lesser Nighthawk ( <i>Chordeiles acutipennis</i> ), Yucatan Nightjar ( <i>Caprimulgus badius</i> )	
Xulul	Little Tinamou ( <i>Crypturellus soui</i> )	
Xuxb tz'ic	Thrush-like Schiffornis ( <i>Schiffornis turdina</i> )	
Yab sik	Spotted Wood-Quail ( <i>Odontophorus guttatus</i> )	
Yawa so'sol	King Vulture ( <i>Sarcoramphus papa</i> )	

## APPENDIX 1F. MOPAN MAYAN NAMES (IN ALPHABETICAL ORDER, FROM JONES 2003)

MOPAN MAYAN NAME	ENGLISH NAME AND SCIENTIFIC NAME OF SPECIES	PHOTO ON PAGE
Bac bac	Laughing Falcon ( <i>Herpetotheres cachinnans</i> )	65
Balee	Slaty-breasted Tinamou ( <i>Crypturellus boucardi</i> )	
Batch	Plain Chachalaca ( <i>Ortalis vetula</i> )	17
Bosh ch'om	Black Vulture ( <i>Coragyps atratus</i> ), Turkey Vulture ( <i>Cathartes aura</i> )	4, 35
Bouh	Barn Owl ( <i>Tyto alba</i> ), Mottled Owl ( <i>Ciccaba virgata</i> ), Striped Owl ( <i>Pseudoscops clamator</i> ), Vermiculated Screech-Owl ( <i>Megascops guatemalae</i> )	
Ch'ej chem	Amazon Kingfisher ( <i>Chloroceryle amazona</i> ), American Pygmy Kingfisher ( <i>Chloroceryle aenea</i> ), Belted Kingfisher ( <i>Ceryle alcyon</i> ), Green Kingfisher ( <i>Chloroceryle americana</i> ), Ringed Kingfisher ( <i>Ceryle torquatus</i> )	67
Ch'i quan	Melodious Blackbird ( <i>Dives dives</i> )	
Chi'ix peech	Squirrel Cuckoo ( <i>Piaya cayana</i> )	
Ch'il kay	Boat-billed Flycatcher ( <i>Megarynchus pitangua</i> ), Great Kiskadee ( <i>Pitangus sulphuratus</i> ), Social Flycatcher ( <i>Myiozetetes similis</i> )	44
Chuc ya'ax kinnil chi'ich	Summer Tanager ( <i>Piranga rubra</i> )	
Chuk ko'ko'	Slaty-tailed Trogon ( <i>Trogon massena</i> )	
Chuk ni	Red-lored Parrot ( <i>Amazona autumnalis</i> )	13
Chuk pol hur hur	Red-capped Manakin ( <i>Pipra mentalis</i> )	15
Chuk tzu tzui	Ruddy Quail-Dove ( <i>Geotrygon montana</i> )	
Colol	Great Tinamou ( <i>Tinamus major</i> )	
Comitz	Blue-black Grassquit ( <i>Volatinia jacarina</i> ), Thick-billed Seed-Finch ( <i>Oryzoborus funereus</i> ), Variable Seedeater ( <i>Sporophila americana</i> ), White-collared Seedeater ( <i>Sporophila torqueola</i> ), Yellow-faced Grassquit ( <i>Tiaris olivaceus</i> )	34
Cosh	Crested Guan ( <i>Penelope purpurascens</i> )	12
Has has	Red-crowned Ant-Tanager ( <i>Habia rubica</i> ), Red-throated Ant-Tanager ( <i>Habia fuscicauda</i> )	4
Ho ho	Cattle Egret ( <i>Bubulcus ibis</i> ), Great Blue Heron ( <i>Ardea herodias</i> ), Great Egret ( <i>Ardea alba</i> ), Green Heron ( <i>Butorides virescens</i> ), Snowy Egret ( <i>Egretta thula</i> )	32, 67
Ho'chai	Bare-throated Tiger-Heron ( <i>Tigrisoma mexicanum</i> )	
Hotz arroz	Bronzed Cowbird ( <i>Molothrus aeneus</i> )	
Hur hur	White-collared Manakin ( <i>Manacus candei</i> )	47
Hut hut	Blue-crowned Motmot ( <i>Momotus momota</i> )	46
J'abb	Limpkin ( <i>Aramus guarauna</i> )	
Kan pol tut	Yellow-headed Parrot ( <i>Amazona oratrix</i> )	35
K'il kej	Boat-billed Flycatcher ( <i>Megarynchus pitangua</i> ), Great Kiskadee ( <i>Pitangus sulphuratus</i> ), Social Flycatcher ( <i>Myiozetetes similis</i> )	44
Ko ko ta'	Clay-colored Robin ( <i>Turdus grayi</i> )	14
Koban ch'a qua	Spotted Wood-Quail ( <i>Odontophorus guttatus</i> )	
Kobul	Montezuma Oropendola ( <i>Psarocolius montezuma</i> )	13
Ko'ko'	Black-headed Trogon ( <i>Trogon melanocephalus</i> ), Violaceous Trogon ( <i>Trogon violaceus</i> )	15, 38
Kolon te'	Black-cheeked Woodpecker ( <i>Melanerpes pucherani</i> ), Chestnut-colored Woodpecker ( <i>Celeus castaneus</i> ), Golden-fronted Woodpecker ( <i>Melanerpes aurifrons</i> ), Golden-olive Woodpecker ( <i>Piculus rubiginosus</i> ), Lineated Woodpecker ( <i>Dryocopus lineatus</i> ), Pale-billed Woodpecker ( <i>Campephilus guatemalensis</i> ), Smoky-brown Woodpecker ( <i>Veniliornis fumigatus</i> )	18, 65, 38
Konkolich	Gray-necked Wood-Rail ( <i>Aramides cajanea</i> )	
K'un bul	Great Curassow ( <i>Crax rubra</i> )	70

MOPAN MAYAN NAME	ENGLISH NAME AND SCIENTIFIC NAME OF SPECIES	PHOTO ON PAGE
Kusal	Barn Swallow ( <i>Hirundo rustica</i> ), Gray-breasted Martin ( <i>Progne chalybea</i> ), Mangrove Swallow ( <i>Tachycineta albilinea</i> ), Northern Rough-winged Swallow ( <i>Stelgidopteryx serripennis</i> ), Purple Martin ( <i>Progne subis</i> ), Tree Swallow ( <i>Tachycineta bicolor</i> ), Vaux's Swift ( <i>Chaetura vauxi</i> ), White-collared Swift ( <i>Streptoprocne zonaris</i> )	65, 35
Kush kush tapi	Black Hawk-Eagle ( <i>Spizaetus tyrannus</i> )	
Kwaren kosh	Tody Motmot ( <i>Hylomanes momotula</i> )	47
Lik lik	Bat Falcon ( <i>Falco ruficularis</i> )	
Muhan	Common Black-Hawk ( <i>Buteogallus anthracinus</i> ), Great Black-Hawk ( <i>Buteogallus urubitinga</i> ), Roadside Hawk ( <i>Buteo magnirostris</i> )	4
Noshi ne' bosh chich	Great-tailed Grackle ( <i>Quiscalus mexicanus</i> )	30
Oi oi	Ruddy Crake ( <i>Laterallus ruber</i> )	
Oro ich	Great Antshrike ( <i>Taraba major</i> )	37
Otz otz	Yellow-billed Cacique ( <i>Amblycercus holosericeus</i> )	17
Pa'ap	Brown Jay ( <i>Cyanocorax morio</i> )	12
Paloma	Pale-vented Pigeon ( <i>Patagioenas cayennensis</i> ), Scaled Pigeon ( <i>Patagioenas speciosa</i> )	14
Pato	Black-bellied Whistling-Duck ( <i>Dendrocygna autumnalis</i> ), Blue-winged Teal ( <i>Anas discors</i> ), Muscovy Duck ( <i>Cairina moschata</i> )	
Pi chik	Collared Aracari ( <i>Pteroglossus torquatus</i> )	12, 16
Pi pish	Wood Thrush ( <i>Hylocichla mustelina</i> )	37
Pili	Olive-throated Parakeet ( <i>Aratinga nana</i> )	
Pilitit	Common Tody-Flycatcher ( <i>Todirostrum cinereum</i> )	44
Police chi'ich	Crimson-collared Tanager ( <i>Ramphocelus sanguinolentus</i> )	22
Pom	Slaty-breasted Tinamou ( <i>Crypturellus boucardi</i> ), Thicket Tinamou ( <i>Crypturellus cinnamomeus</i> )	
Pou hoi	Common Nighthawk ( <i>Chordeiles minor</i> ), Lesser Nighthawk ( <i>Chordeiles acutipennis</i> )	
Puiyero	Common Pauraque ( <i>Nyctidromus albicollis</i> )	
Pun	Keel-billed Toucan ( <i>Ramphastos sulfuratus</i> )	5, 31
Puru wok	Ruddy Ground-Dove ( <i>Columbina talpacoti</i> )	34
Re'ish	Gray Catbird ( <i>Dumetella carolinensis</i> )	13
Sh'lul	Little Tinamou ( <i>Crypturellus soui</i> )	
Silon	Brown-hooded Parrot ( <i>Pionopsitta haematotis</i> )	
Suc muhan	White Hawk ( <i>Leucopternis albicollis</i> )	46
Suc pol	White-crowned Parrot ( <i>Pionus senilis</i> )	
Sur ko cho	Masked Tityra ( <i>Tityra semifasciata</i> )	21
Ta'an ho ho	Little Blue Heron ( <i>Egretta caerulea</i> )	
Ta'an tzin tzo'	Grayish Saltator ( <i>Saltator coerulescens</i> )	
Tihera nej	Swallow-tailed Kite ( <i>Elanoides forficatus</i> )	
To ko we	Barred Antshrike ( <i>Thamnophilus doliatus</i> )	38
Ton ton	Central American Pygmy-Owl ( <i>Glaucidium griseiceps</i> )	
Tuk tuk cheh	Ivory-billed Woodcreeper ( <i>Xiphorhynchus flavigaster</i> ), Northern Barred-Woodcreeper ( <i>Dendrocolaptes sanctithomae</i> ), Olivaceous Woodcreeper ( <i>Sittasomus griseicapillus</i> ), Ruddy Woodcreeper ( <i>Dendrocincla homochroa</i> ), Streak-headed Woodcreeper ( <i>Lepidocolaptes souleyetii</i> ), Tawny-winged Woodcreeper ( <i>Dendrocincla anabatina</i> ), Wedge-billed Woodcreeper ( <i>Glyphorhynchus spirurus</i> )	46, 47
Tulin	House Wren ( <i>Troglodytes aedon</i> ), Spot-breasted Wren ( <i>Thryothorus maculipectus</i> ), White-breasted Wood-Wren ( <i>Henicorhina leucosticta</i> )	65, 44
Tulin nuhe'	Black-faced Anthrush [ <i>Formicarius analis (moniliger)</i> ]	65
Tut	Blue Ground-Dove ( <i>Claravis pretiosa</i> ), White-fronted Parrot ( <i>Amazona albifrons</i> ), Yellow-lored Parrot ( <i>Amazona xantholora</i> )	37
Tzala te'	Vermilion Flycatcher ( <i>Pyrocephalus rubinus</i> )	31
Tzi tzui	Gray-chested Dove ( <i>Leptotila cassini</i> ), Gray-fronted Dove [ <i>Leptotila rufaxilla (plumbeiceps)</i> ], White-tipped Dove ( <i>Leptotila verreauxi</i> )	46



MOPAN MAYAN NAME	ENGLISH NAME AND SCIENTIFIC NAME OF SPECIES	PHOTO ON PAGE
Tz'ic bul	Groove-billed Ani ( <i>Crotophaga sulcirostris</i> )	
Tzi'ki puur	Orange-billed Sparrow ( <i>Arremon aurantiostris</i> )	
Tzin tzo'	Black-headed Saltator ( <i>Saltator atriceps</i> ), Buff-throated Saltator ( <i>Saltator maximus</i> )	
T zunon	Canivet's Emerald ( <i>Chlorostilbon canivetii</i> ), Green-breasted Mango ( <i>Anthracothorax prevostii</i> ), Long-billed Hermit ( <i>Phaethornis longirostris</i> ), Purple-crowned Fairy ( <i>Heliathryx barroti</i> ), Rufous-tailed Hummingbird ( <i>Amazilia tzacatl</i> ), Scaly-breasted Hummingbird ( <i>Phaeochroa cuvieri</i> ), Stripe-throated Hermit ( <i>Phaethornis striigularis</i> ), Wedge-tailed Sabrewing ( <i>Campylopterus curvipennis</i> ), White-bellied Emerald ( <i>Amazilia candida</i> ), White-necked Jacobin ( <i>Florisuga mellivora</i> )	5, 16
Ukul chi'kan	Louisiana Waterthrush ( <i>Seiurus motacilla</i> ), Northern Waterthrush ( <i>Seiurus noveboracensis</i> )	37
Ussi	King Vulture ( <i>Sarcoramphus papa</i> )	
Wortis coh poo	Short-billed Pigeon ( <i>Patagioenas nigrirostris</i> )	
Ya	Yellow-bellied Elaenia ( <i>Elaenia flavogaster</i> )	
Ya'ax pun	Emerald Toucanet ( <i>Aulacorhynchus prasinus</i> )	65
Ya'ax tut	Mealy Parrot ( <i>Amazona farinosa</i> )	

## APPENDIX 1G. ARCHAIC AND COLLOQUIAL NAMES (IN ALPHABETICAL ORDER, FROM JONES 2003)

ARCHAIC OR COLLOQUIAL NAME	ENGLISH NAME AND SCIENTIFIC NAME OF SPECIES	PHOTO ON PAGE
American Egret	Great Egret ( <i>Ardea alba</i> )	32
American Finfoot	Sungrebe ( <i>Heliornis fulica</i> )	
Banded Cactus Wren	Band-backed Wren ( <i>Campylorhynchus zonatus</i> )	
Bare-throated Tiger-Bittern	Bare-throated Tiger-Heron ( <i>Tigrisoma mexicanum</i> )	
Barred Woodhewer	Northern Barred-Woodcreeper ( <i>Dendrocolaptes sanctithomae</i> )	
Barrot's Fairy	Purple-crowned Fairy ( <i>Heliathryx barroti</i> )	
Beardless Flycatcher	Northern Beardless-Tyrannulet ( <i>Camptostoma imberbe</i> )	
Bent-billed Flycatcher	Northern Bentbill ( <i>Oncostoma cinereigulare</i> )	
Bishop Grosbeak	Black-faced Grosbeak ( <i>Caryothraustes poliogaster</i> )	
Black Eagle-Hawk	Black Hawk-Eagle ( <i>Spizaetus tyrannus</i> )	
Black Seedeater	Variable Seedeater ( <i>Sporophila americana</i> )	
Black-and-blue Jay	Yucatan Jay ( <i>Cyanocorax yucatanicus</i> )	
Black-bellied Tree-Duck	Black-bellied Whistling-Duck ( <i>Dendrocygna autumnalis</i> )	
Black-capped Tityra	Black-crowned Tityra ( <i>Tityra inquisitor</i> )	
Black-chinned Jacamar	Rufous-tailed Jacamar ( <i>Galbula ruficauda</i> )	37
Black-striped Sparrow	Green-backed Sparrow ( <i>Arremonops chloronotus</i> )	34
Blue Honeycreeper	Red-legged Honeycreeper ( <i>Cyanerpes cyaneus</i> )	13
Blue Tanager	Blue-gray Tanager ( <i>Thraupis episcopus</i> )	13
Blue-crowned Parrot	Mealy Parrot ( <i>Amazona farinosa</i> )	
Booming Nighthawk	Common Nighthawk ( <i>Chordeiles minor</i> )	
Boucard's Hermit	Stripe-throated Hermit ( <i>Phaethornis striigularis</i> )	16
Boucard's Tinamou	Slaty-breasted Tinamou ( <i>Crypturellus boucardi</i> )	
Brown-capped Leptopogon	Sepia-capped Flycatcher ( <i>Leptopogon amaurocephalus</i> )	38
Buzzard (colloquial)	Black Vulture ( <i>Coragyps atratus</i> ), Turkey Vulture ( <i>Cathartes aura</i> )	4, 35
Cande's Manakin	White-collared Manakin ( <i>Manacus candei</i> )	47
Cassin's Dove	Gray-chested Dove ( <i>Leptotila cassini</i> )	46
Cayenne Kite	Gray-headed Kite ( <i>Leptodon cayannensis</i> )	
Cayenne Swift	Lesser Swallow-tailed Swift ( <i>Panyptila cayannensis</i> )	
Common Egret	Great Egret ( <i>Ardea alba</i> )	32
Common Meadowlark	Eastern Meadowlark ( <i>Sturnella magna</i> )	
Crested Eagle-Hawk	Ornate Hawk-Eagle ( <i>Spizaetus ornatus</i> )	
Crested Flycatcher	Great Crested Flycatcher ( <i>Myiarchus crinitus</i> )	
Cuvier's Hummingbird	Scaly-breasted Hummingbird ( <i>Phaeochroa cuvieri</i> )	

ARCHAIC OR COLLOQUIAL NAMES	ENGLISH NAME AND SCIENTIFIC NAME OF SPECIES	PHOTO ON PAGE
Darter	Anhinga ( <i>Anhinga anhinga</i> )	
Derby Flycatcher	Great Kiskadee ( <i>Pitangus sulphuratus</i> )	44
Dusky-backed Swift	Vaux's Swift ( <i>Chaetura vauxi</i> )	
Dusky-tailed Ant-Tanager	Red-throated Ant-Tanager ( <i>Habia fuscicauda</i> )	4
Eastern Chachalaca	Plain Chachalaca ( <i>Ortalis vetula</i> )	17
Everglade Kite	Snail Kite ( <i>Rostrhamus sociabilis</i> )	
Fawn-breasted Hummingbird	Buff-bellied Hummingbird ( <i>Amazilia yucatanensis</i> )	
Fishing Buzzard	Black-collared Hawk ( <i>Busarellus nigricollis</i> )	
Flint-billed Woodpecker	Pale-billed Woodpecker ( <i>Campephilus guatemalensis</i> )	65
Gould's Euphonia	Olive-backed Euphonia ( <i>Euphonia gouldi</i> )	
Gray-headed Greenlet	Lesser Greenlet ( <i>Hylophilus decurtatus</i> )	
Gray-headed Hylophilus	Lesser Greenlet ( <i>Hylophilus decurtatus</i> )	
Gray's Robin	Clay-colored Robin ( <i>Turdus grayi</i> )	14
Gray's Thrush	Clay-colored Robin ( <i>Turdus grayi</i> )	14
Great Shrike-Tanager	Black-throated Shrike-Tanager ( <i>Lanio aurantius</i> )	
Ground-Chat	Gray-crowned Yellowthroat ( <i>Geothlypis poliocephala</i> )	
Guatemalan Amazon	Yellow-headed Parrot ( <i>Amazona oratrix</i> )	35
Guatemalan Ivory-bill	Pale-billed Woodpecker ( <i>Campephilus guatemalensis</i> )	65
Guatemalan Leafscrapper	Scaly-throated Leaf-tosser ( <i>Sclerurus guatemalensis</i> )	
Guatemalan Parrot	Yellow-headed Parrot ( <i>Amazona oratrix</i> )	35
House Bird (colloquial)	House Wren ( <i>Troglodytes aedon</i> )	65
Inca Jay	Green Jay ( <i>Cyanocorax yncas</i> )	
Ivory-billed Woodhewer	Ivory-billed Woodcreeper ( <i>Xiphorhynchus flavigaster</i> )	46
Kiskadee Flycatcher	Great Kiskadee ( <i>Pitangus sulphuratus</i> )	44
Lesser Black-Hawk	Common Black-Hawk ( <i>Buteogallus anthracinus</i> )	
Lesser Rice Grosbeak	Thick-billed Seed-Finch ( <i>Oryzoborus funereus</i> )	
Lesson Oriole	Black-cowled Oriole ( <i>Icterus prosthemelas</i> )	13
Little Green Heron	Green Heron ( <i>Butorides virescens</i> )	
Little Xenops	Plain Xenops ( <i>Xenops minutus</i> )	
Long-tailed Chat	Gray-crowned Yellowthroat ( <i>Geothlypis poliocephala</i> )	
Lowland Wood-Wren	White-breasted Wood-Wren ( <i>Henicorhina leucosticta</i> )	
Mangrove Amazon	Red-ored Parrot ( <i>Amazona autumnalis</i> )	13
Mangrove Parrot	Red-ored Parrot ( <i>Amazona autumnalis</i> )	13
Man-o'-War Bird	Magnificent Frigatebird ( <i>Fregata magnificens</i> )	62
Massena Trogon	Slaty-tailed Trogon ( <i>Trogon massena</i> )	
Mexican Peppershrike	Rufous-browed Peppershrike ( <i>Cyclarhis gujanensis</i> )	
Morrelet Seedeater	White-collared Seedeater ( <i>Sporophila torqueola</i> )	34
Mottled Wood-Owl	Mottled Owl ( <i>Ciccaba virgata</i> )	
Night Heron	Black-crowned Night Heron ( <i>Nycticorax nycticorax</i> )	
Northern Catbird	Gray Catbird ( <i>Dumetella carolinensis</i> )	13
Northern Tody-Flycatcher	Common Tody-Flycatcher ( <i>Todirostrum cinereum</i> )	44
Oleaginous Pipromorpha	Ochre-bellied Flycatcher ( <i>Mionectes oleagineus</i> )	16
Olivaceous Cormorant	Neotropic Cormorant ( <i>Phalacrocorax brasilianus</i> )	
Olivaceous Flycatcher	Dusky-capped Flycatcher ( <i>Myiarchus tuberculifer</i> )	
Olivaceous Woodhewer	Olivaceous Woodcreeper ( <i>Sittasomus griseicapillus</i> )	
Olive-backed Thrush	Swainson's Thrush ( <i>Catharus ustulatus</i> )	
Ornate Eagle-Hawk	Ornate Hawk-Eagle ( <i>Spizaetus ornatus</i> )	
Parula Warbler	Northern Parula ( <i>Parula americana</i> )	
Pato Careto	Blue-winged Teal ( <i>Anas discors</i> )	
Polymorphic Attila	Bright-rumped Attila ( <i>Attila spadiceus</i> )	21
Prevost's Cacique	Yellow-billed Cacique ( <i>Amblycercus holosericeus</i> )	17
Prevost's Mango	Green-breasted Mango ( <i>Anthracothorax prevostii</i> )	
Pucheran's Woodpecker	Black-cheeked Woodpecker ( <i>Melanerpes pucherani</i> )	
Red Cardinal	Northern Cardinal ( <i>Cardinalis cardinalis</i> )	46

ARCHAIC OR COLLOQUIAL NAMES	ENGLISH NAME AND SCIENTIFIC NAME OF SPECIES	PHOTO ON PAGE
Red Rail	Ruddy Crake ( <i>Laterallus ruber</i> )	
Red-billed Azurecrown	Azure-crowned Hummingbird ( <i>Amazilia cyanocephala</i> )	
Red-eared Parrot	Brown-hooded Parrot ( <i>Pionopsitta haematotis</i> )	
Rieffer's Hummingbird	Rufous-tailed Hummingbird ( <i>Amazilia tzacatl</i> )	5, 16
Ruddy Woodhewer	Ruddy Woodcreeper ( <i>Dendrocincla homochroa</i> )	
Rufescent Tinamou	Thicket Tinamou ( <i>Crypturellus cinnamomeus</i> )	
Rufous Pigeon	Pale-vented Pigeon ( <i>Patagioenas cayennensis</i> )	14
Savanna Vulture	Lesser Yellow-headed Vulture ( <i>Cathartes burrovianus</i> )	
Scaly-throated Leafscrapper	Scaly-throated Leaf-tosser ( <i>Sclerurus guatemalensis</i> )	
Sennett's White-tailed Hawk	White-tailed Hawk ( <i>Buteo albicaudatus</i> )	
Sharpe's Seedeater	White-collared Seedeater ( <i>Sporophila torqueola</i> )	34
Singing Blackbird	Melodious Blackbird ( <i>Dives dives</i> )	
Sparrow Hawk	American Kestrel ( <i>Falco sparverius</i> )	
Sulphury Flatbill	Yellow-olive Flycatcher ( <i>Tolmomyias sulphurescens</i> )	
Tawny-crowned Hylophilus	Tawny-crowned Greenlet ( <i>Hylophilus ochraceiceps</i> )	
Tawny-winged Woodhewer	Tawny-winged Woodcreeper ( <i>Dendrocincla anabatina</i> )	
Texas Nighthawk	Lesser Nighthawk ( <i>Chordeiles acutipennis</i> )	
Thin-billed Woodhewer	Streak-headed Woodcreeper ( <i>Lepidocolaptes souleyetii</i> )	
Trilling Nighthawk	Lesser Nighthawk ( <i>Chordeiles acutipennis</i> )	
Tropical House-Wren	House Wren ( <i>Troglodytes aedon</i> )	65
Tuxtla Sabrewing	Wedge-tailed Sabrewing ( <i>Campylopterus curvipennis</i> )	
Tyrannine Antbird	Dusky Antbird ( <i>Cercomacra tyrannina</i> )	38
Tyrant Hawk-Eagle	Black Hawk-Eagle ( <i>Spizaetus tyrannus</i> )	
Vermilion-crowned Flycatcher	Social Flycatcher ( <i>Myiozetetes similis</i> )	44
Water Turkey	Anhinga ( <i>Anhinga anhinga</i> )	
Wedge-bill	Wedge-billed Woodcreeper ( <i>Glyphorynchus spirurus</i> )	47
Wedge-billed Woodhewer	Wedge-billed Woodcreeper ( <i>Glyphorynchus spirurus</i> )	47
White-capped Parrot	White-crowned Parrot ( <i>Pionus senilis</i> )	
White-eyed Flycatcher	Yellow-olive Flycatcher ( <i>Tolmomyias sulphurescens</i> )	
White-fronted Dove	White-tipped Dove ( <i>Leptotila verreauxi</i> )	
Wied's Crested Flycatcher	Brown-crested Flycatcher ( <i>Myiarchus tyrannulus</i> )	65
Wing-barred Seedeater	Variable Seedeater ( <i>Sporophila americana</i> )	
Wood Ibis	Wood Stork ( <i>Mycteria americana</i> )	67
Yellow-thighed Manakin	Red-capped Manakin ( <i>Pipra mentalis</i> )	15
Yucatán Hummingbird	Buff-bellied Hummingbird ( <i>Amazilia yucatanensis</i> )	

## APPENDIX 1H. ALTERNATIVE AND COMBINED FORM NAMES (IN ALPHABETICAL ORDER, FROM JONES 2003)

ALTERNATIVE AND COMBINED FORM NAMES	ENGLISH NAME AND SCIENTIFIC NAME OF SPECIES	PHOTO ON PAGE
American Jacana	Northern Jacana ( <i>Jacana spinosa</i> )	67
American Mourning Dove	Mourning Dove ( <i>Zenaida macroura</i> )	
American Purple-Gallinule	Purple Gallinule ( <i>Porphyrio martinica</i> )	67
American White Ibis	White Ibis ( <i>Eudocimus albus</i> )	
Aztec Parakeet	Olive-throated Parakeet ( <i>Aratinga nana</i> )	
Barred Woodcreeper	Northern Barred-Woodcreeper ( <i>Dendrocolaptes sanctithomae</i> )	
Black-hooded Grosbeak	Rose-breasted Grosbeak ( <i>Pheucticus ludovicianus</i> )	
Black-shouldered Kite	White-tailed Kite ( <i>Elanus leucurus</i> )	
Blue-tailed Emerald	Canivet's Emerald ( <i>Chlorostilbon canivetii</i> )	
Boat-tailed Grackle	Great-tailed Grackle ( <i>Quiscalus mexicanus</i> )	30
Buff-backed Heron	Cattle Egret ( <i>Bubulcus ibis</i> )	
Chestnut-bellied Heron	Agami Heron ( <i>Agamia agami</i> )	
Citreoline Trogon	Black-headed Trogon ( <i>Trogon melanocephalus</i> )	15
Clay-colored Thrush	Clay-colored Robin ( <i>Turdus grayi</i> )	14
Common Bobwhite	Black-throated Bobwhite ( <i>Colinus nigrogularis</i> )	



ALTERNATIVE AND COMBINED FORM NAMES	ENGLISH NAME AND SCIENTIFIC NAME OF SPECIES	PHOTO ON PAGE
Common Potoo	Northern Potoo ( <i>Nyctibius jamaicensis</i> )	
Cozumel Bananaquit	Bananaquit ( <i>Coereba flaveola</i> )	
Eastern Pewee	Eastern Wood-Pewee ( <i>Contopus virens</i> )	
Fork-tailed Emerald	Canivet's Emerald ( <i>Chlorostilbon canivetii</i> )	
Golden-fronted Woodpecker	Red-vented Woodpecker ( <i>Melanerpes pygmaeus</i> )	
Gray-headed Dove	Gray-fronted Dove [ <i>Leptotila rufaxilla (plumbeiceps)</i> ]	
Great White Egret	Great Egret ( <i>Ardea alba</i> )	32
Green-backed Heron	Green Heron ( <i>Butorides virescens</i> )	
Guatemalan Screech-Owl	Vermiculated Screech-Owl ( <i>Megascops guatemalae</i> )	
Jamaican Potoo	Northern Potoo ( <i>Nyctibius jamaicensis</i> )	
Least Pygmy-Owl	Central American Pygmy-Owl ( <i>Glaucidium griseiceps</i> )	
Lesser Seed-Finch	Thick-billed Seed-Finch ( <i>Oryzoborus funereus</i> )	
Little Hermit	Stripe-throated Hermit ( <i>Phaethornis striigularis</i> )	16
Long-tailed Hermit	Long-billed Hermit ( <i>Phaethornis longirostris</i> )	16
Mealy Amazon	Mealy Parrot ( <i>Amazona farinosa</i> )	
Mexican Anthrush	Black-faced Anthrush [ <i>Formicarius analis (moniliger)</i> ]	65
Mexican Bananaquit	Bananaquit ( <i>Coereba flaveola</i> )	
Middle-American Screech-Owl	Vermiculated Screech-Owl ( <i>Megascops guatemalae</i> )	
Myrtle Warbler	Yellow-rumped Warbler ( <i>Dendroica coronata</i> )	
Northern Oriole	Baltimore Oriole ( <i>Icterus galbula</i> )	13
Northern Rough-winged Swallow	Ridgeway Rough-winged Swallow	65
Northern Royal-Flycatcher	Royal Flycatcher ( <i>Onychorhynchus coronatus</i> )	38
Olive-throated Conure	Olive-throated Parakeet ( <i>Aratinga nana</i> )	
Pauraque	Common Pauraque ( <i>Nyctidromus albicollis</i> )	
Petén Vireo	Mangrove Vireo [ <i>Vireo pallens (semiflavus)</i> ]	34
Pygmy Kingfisher	American Pygmy Kingfisher ( <i>Chloroceryle aenea</i> )	67
Red-crowned Woodpecker	Red-vented Woodpecker ( <i>Melanerpes pygmaeus</i> )	
Red-eyed Cowbird	Bronzed Cowbird ( <i>Molothrus aeneus</i> )	
Red-eyed Vireo	Yellow-green Vireo ( <i>Vireo flavoviridis</i> )	
Red-lored Amazon	Red-lored Parrot ( <i>Amazona autumnalis</i> )	13
Ridgway's Pygmy-Owl	Ferruginous Pygmy-Owl ( <i>Glaucidium brasilianum</i> )	65
Rough-winged Swallow	Northern Rough-winged Swallow ( <i>Stelgidopteryx serripennis</i> )	65
Salvin's Nightjar	Yucatan Nightjar ( <i>Caprimulgus badius</i> )	
Scarlet-rumped Tanager	Passerini's Tanager ( <i>Ramphocelus passerinii</i> )	
Southern House-Wren	House Wren ( <i>Troglodytes aedon</i> )	65
Swallow	Barn Swallow ( <i>Hirundo rustica</i> )	
Tawny-collared Nightjar	Yucatan Nightjar ( <i>Caprimulgus badius</i> )	
Thrush-like Manakin	Thrush-like Schiffornis ( <i>Schiffornis turdina</i> )	
Thrush-like Mourner	Thrush-like Schiffornis ( <i>Schiffornis turdina</i> )	
Tropical Kingbird	Couch's Kingbird ( <i>Tyrannus couchii</i> )	
Variable Screech-Owl	Vermiculated Screech-Owl ( <i>Megascops guatemalae</i> )	
Western Long-tailed Hermit	Long-billed Hermit ( <i>Phaethornis longirostris</i> )	16
White-browed Wren	Carolina Wren ( <i>Thryothorus ludovicianus</i> )	
White-fronted Amazon	White-fronted Parrot ( <i>Amazona albifrons</i> )	
White-throated Spadebill	Stub-tailed Spadebill ( <i>Platyrinchus cancrominus</i> )	
White-throated Thrush	White-throated Robin ( <i>Turdus assimilis</i> )	
Yellow-cheeked Amazon	Red-lored Parrot ( <i>Amazona autumnalis</i> )	13
Yellow-cheeked Parrot	Red-lored Parrot ( <i>Amazona autumnalis</i> )	13
Yellow-crowned Amazon	Yellow-headed Parrot ( <i>Amazona oratrix</i> )	35
Yellow-headed Amazon	Yellow-headed Parrot ( <i>Amazona oratrix</i> )	35
Yellow-lored Amazon	Yellow-lored Parrot ( <i>Amazona xantholora</i> )	
Yucatán Amazon	Yellow-lored Parrot ( <i>Amazona xantholora</i> )	
Yucatán Bobwhite	Black-throated Bobwhite ( <i>Colinus nigrogularis</i> )	
Yucatán Parrot	Yellow-lored Parrot ( <i>Amazona xantholora</i> )	
Yucatán Woodpecker	Red-vented Woodpecker ( <i>Melanerpes pygmaeus</i> )	

## **APPENDIX 2. BIRDS WITHOUT BORDERS – AVES SIN FRONTERAS®**

### **BELIZE PARTNERS AND COLLABORATORS**

BWB-ASF thanks the many partners and collaborators listed below. (Note: Some of these organizations accept volunteers. If you would like to volunteer to help one of these organizations conserve birds and other wildlife, please contact the organization directly.)

- The Government of Belize Ministry of Natural Resources, the Environment and Industry, the Forestry Department and Conservation Division
- The Government of Belize Ministry of Agriculture and Belize Agricultural Health Authority
- The Belize Zoo and Tropical Education Center (Sharon Matola, Director)
- The Chaa Creek Nature Reserve (Mick & Lucy Fleming)
- Chial Farms
- The other Belize landowners (Louis Sylvester and family, Salvador Espot and family, James and Debbie Scott and Tracy and Mark Langan)
- The United States Fish and Wildlife Service Division of Bird Habitat Conservation
- The Belize Association of Private Protected Areas (BAPPA)
- Toledo Institute for Development and Environment (TIDE)
- The Belize Institute of Archeology
- The Belize Botanical Gardens
- The Belize Audubon Society
- Programme for Belize
- Bruce and Carolyn Miller, Wildlife Conservation Society, Administrators of Belize Biodiversity Information System
- Carol Farneti-Foster and Richard Foster, Wildlife Photographers
- Sibun Watershed Association
- Belize Friends for Conservation and Development
- Society for the Promotion of Eco-cultural Tourism and the Environment
- The Mesoamerican Society for Biology and Conservation
- Monkey Bay Wildlife Sanctuary
- United Nations Development Program/Global Environmental Facility Small Grants Programme, Philip Balderamos, National Coordinator
- Jan Meerman, Tineke Boemsa and the Green Hills Farm
- Cheers Restaurant (Anita and Christie Tupper)
- Mesoamerican Biological Corridor
- Protected Areas Conservation Trust

### APPENDIX 3. SPECIAL ACKNOWLEDGMENTS

Birds Without Borders – *Aves Sin Fronteras*® would not have been possible without the support and assistance of the following individuals and organizations. We would like to express our sincere thanks to:

- Gil Boese, Ph.D., president emeritus of the Zoological Society of Milwaukee and president of the Foundation for Wildlife Conservation, Inc., for his vision, for founding the Birds Without Borders – *Aves Sin Fronteras*® project and for his continuous support of the project.
- The Foundation for Wildlife Conservation, Inc., and the Zoological Society of Milwaukee for funding and support of the BWB-ASF project.
- The 16 Belizean BWB-ASF staff members whose names do not appear as authors of this manual. These dedicated men and women worked very hard to improve their bird-identification skills, to learn to conduct the field research, and to use computers to enter and summarize the data. They willingly worked many long hours under often challenging conditions. After the fieldwork was completed, they worked additional hours to compile and organize the data collected. Their hard work and perseverance helped to make possible this manual and the Publications and Presentations listed on pages 102-103.
- The private landowners who generously allowed us to use their land for this research.
- Our families, whose patience, support and understanding of our long working hours helped us make the project the success it is today.
- Sharon Matola, director of the Belize Zoo and Tropical Education Center, and Tony Garel, former manager of the Tropical Education Center, for their support throughout the project.
- Mick and Lucy Fleming of Chaa Creek for their support at the Chaa Creek study site.
- The many BWB-ASF Wisconsin staff members who helped train the Belize staff, especially Gene Albanese, Trung Tieu, Michelle Jacobi, Kerry Scanlan and Brian Francois.
- The U.S. Fish and Wildlife Service for funding through the Neotropical Migratory Bird Conservation Act that supported the data analysis and preparation of portions of this document.
- Marsha Mather of Laacke & Joys (sporting-goods store in Milwaukee, Wisconsin) for providing high-quality field equipment to carry out our research.
- The Antonia Foundation and Krispy Kreme for providing funding for the research and data analysis.
- Aurora Sambolin for preparing the Spanish translation.
- Anna Rahn and Jessica Mac Gregor for their assistance with data entry and photo preparation.
- Marcia Sinner of the Zoological Society of Milwaukee Creative Department, for her design of this publication, and the Zoological Society's publications coordinator, Paula Brookmire, for her editing.
- Elizabeth Mallory of Manomet Center for Conservation Sciences for providing us with her protocols and for many helpful discussions at the start of our research in Belize.
- Chandler Robbins of the USGS Patuxent Wildlife Research Center for helpful discussions on our point counts at the start of our research in Belize.
- Photographers who generously allowed us to use their beautiful bird photographs in this publication:

Nick Stephens	John McQuillan	David Winkler
Carol Farneti-Foster	Larry Hopwood	Kevin Bronson
Gordon Macdonald	Richard Brodzeller	Lynn Miller
Jack Bartholmai	Gene Albanese	Timothy Fenske
Carolyn Miller	Kelley Hopwood	Jan Meerman
James and Dorothy Beveridge	VIREO	Kevin Schafer



## APPENDIX 4. RESEARCH TECHNIQUES USED TO STUDY BIRDS AND THEIR HABITATS

Since the start of BWB-ASF we established collaborations so that our research findings could become part of larger databases. BWB-ASF research protocols are based on standardized scientific protocols. At the start of the project, we contacted many scientists who worked in Belize so that we could use their protocols and be able to compare our research results to theirs. Following are the research techniques we used to study Belize's birds and their habitats.

### BIRD BANDING

RICHARD BRODZELLER



BWB-ASF international coordinator Vicki Piaskowski bands a bird while Andrew Bacon records data. The band is made of lightweight aluminum and fits loosely on the bird's leg.

Bird banding involves capturing birds in special nets called mist nets, carefully removing them, placing a numbered aluminum band on their lower leg, examining and taking measurements, and then releasing the birds. Bird banding requires specialized training and a permit from the U.S. and Belize governments.

Banding does not harm the birds in any way. Banding provides valuable information on the condition, age and sex of the birds captured. It also allows researchers to determine the species and numbers of birds present in a given location as well as whether the bird is breeding in the area. The information on migratory birds banded is submitted to the Bird Banding Laboratory of the U.S. Geological Survey, where it is computerized. Banding provides valuable information on migration routes and timing, species that are increasing or decreasing over time, breeding and non-breeding populations, site fidelity to breeding and wintering (non-breeding) areas, and longevity of individuals.

If you find a banded bird, contact the BWB-ASF office (822-0236 or [bwbasf@btl.net](mailto:bwbasf@btl.net)) or the Bird Banding Laboratory (<http://www.pwrc.usgs.gov/bbl> or 1-800-327-2263). You also may write to: Bird Banding Laboratory, USGS Patuxent Wildlife Research Center, 2100 Beech Forest Rd., Laurel, MD 20708-4037, U.S.A. You will need to report the band number, location and date the bird was found, how you got the band and your name and address. After

reporting the band, you will receive a Certificate of Appreciation that has information about when and where the bird was originally banded.

BWB-ASF bird banding was conducted according to the methods of Weise (1988 and pers. comm.) and McCracken et al. (1994 and 1999). Breeding condition of banded birds was determined through the methods of Burton and DeSante (1998). Aging and sexing of North American migrants was based on Pyle (1997). Aging and sexing of residents was based on Stiles and Skutch (1989), Howell and Webb (1995) and Pyle (1997).



RICHARD BRODZELLER

A bird is captured in a mist net.



RICHARD BRODZELLER

A bird being banded.



RICHARD BRODZELLER

A researcher holds up a bird's leg to show the band.



RICHARD BRODZELLER

A bird that has been banded is ready for release.

### COUNTING BIRDS

To count the bird species and numbers present in a given area, we used point counts (Lynch 1995, Mallory 1997, Robbins et al. 1997 and Howe et al. 1997) and censusing (McCracken et al. 1993). Point counts involve standing at a series of points for 3-10 minutes and counting all of the birds seen or heard. Censusing involves walking slowly on an established route and counting all of the birds seen or heard. We also conducted bird surveys by canoe along the Sibun and Macal Rivers.

## RESEARCH TECHNIQUES (CONTINUED)

### NEST SEARCHING AND MONITORING

The most accurate way of determining if a bird's nesting attempt is successful is to locate the nest and monitor it until the young are old enough to leave the nest (fledge). Nests are monitored (the number of eggs or young present are counted) when found, then every 3-4 days until the young fledge or the nest fails due to predation or other causes (Martin et al. 1997). To minimize disturbance to the birds and not increase the risk of predation, nests are monitored from a distance when possible, and as quickly

GENE ALBANESE



Mario Teul, BWB-ASF Belize national coordinator, uses a pole with a mirror attached to observe the contents of a nest.

as possible. Prior to approaching the nest, researchers search the area for any sign of possible predators, particularly avian predators such as Brown Jays (*Cyanocorax morio*, Piam-piam) or hawks. Care is taken not to leave a dead-end trail to the nest that mammalian predators could follow. If vegetation obscures the nest contents, a stick is used to move aside the vegetation so that no human scent is left at the nest site. If the nest is beyond reach, a pole with a mirror attached is used to view the nest contents.

### VEGETATION MEASUREMENTS

To describe the habitats important to birds, we did detailed measurements of the vegetation present in the areas where we banded birds, conducted nest searching and monitoring, and conducted point counts. We made these vegetation measurements based on the methods of Mueller-Dombois and Ellenberg (1974), Ralph et al. (1993), Howe et al. (1997), Mallory (1997) and Martin et al. (1997).

VICKI PIASKOWSKI



Mario Teul, BWB-ASF Belize national coordinator, measures a tree diameter during vegetation measurements.

VICKI PIASKOWSKI



Reynold Cal, BWB-ASF Runaway Creek Nature Preserve manager, uses a pole to measure vegetation density in the tree canopy.

## APPENDIX 5. BIRDS WITHOUT BORDERS – AVES SIN FRONTERAS®

### STAFF PRESENTATIONS AND PUBLICATIONS

(ABSTRACTS OR FULL TEXT AVAILABLE AS PDFS AT:

[HTTP://WWW.ZOOSOCIETY.ORG/CONSERVATION/BWB-ASF/LIST.PHP](http://www.zoosociety.org/conservation/BWB-ASF/LIST.PHP)

OR CONTACT THE BWB-ASF OFFICE AT 822-0236 OR BWBASF@BTL.NET FOR A COPY.)

STAFF MEMBER(S)	TITLE	PUBLICATION/CONFERENCE
Piaskowski, V. and O. A. Figueroa	Modification of point counts to enhance species detectability during the non-breeding season in Belize, Central America	1998 N. American. Ornithological Conference, St. Louis, MO, U.S.A.
Albanese, G. and V. Piaskowski	An inexpensive elevated mist net apparatus	1999 <i>N. Amer. Bird Bander</i> 24: 129-134
Figueroa, O. A., W. Martinez, M. Teul and V. Piaskowski	Birds of the Sibun riverine forest, Runaway Creek Nature Preserve, Belize	2001 Mesoamerican Society for Biology and Conservation Congress, San Salvador, El Salvador (Spanish)
Piaskowski, V. and G. Albanese	Resource sampling of arthropods in all vegetation strata and correlation with arthropods identified in fecal samples of insectivorous warblers at a spring migration stopover site	2001 American Ornithologists' Union Meeting, Seattle, WA, U.S.A.
Piaskowski, V. and O. A. Figueroa	Cooperative work among scientists of two worlds (Roundtable discussion)	2002 Smithsonian Institution Birds of Two Worlds Symposium, Shepardstown, WV, U.S.A.
Piaskowski, V.	Conservation contributions of the Birds Without Borders – <i>Aves Sin Fronteras</i> ® project	2002 Wisconsin Society for Ornithology Meeting, Ripon, WI, U.S.A.
Figueroa, O. A., V. D. Piaskowski, W. E. Martinez and M. Teul	Demographics of resident and migratory bird species in central Belize	2002 Belize and the Wider Caribbean Conference, San Ignacio, Belize
Piaskowski, V., O. A. Figueroa, M. Teul and W. Martinez	Breeding season bird banding in pine savanna habitats in Belize	2002 Mesoamerican Society for Biology and Conservation Congress, San Jose, Costa Rica (Spanish)
Figueroa, O. A., V. Piaskowski and R. Cal	Conservation of the jabiru stork ( <i>Jabiru mycteria</i> ) in Belize	2002 Mesoamerican Society for Biology and Conservation Congress, San Jose, Costa Rica (Spanish)
Teul, M., V. Piaskowski, O. A. Figueroa and W. Martinez	The breeding biology of the Fork-tailed flycatcher ( <i>Tyrannus savana</i> ) in lowland pine savanna habitats in Belize	2002 Mesoamerican Society for Biology and Conservation Congress, San Jose, Costa Rica (Spanish)
Martinez, W., V. Piaskowski, O. A. Figueroa and M. Teul	The breeding biology of the Gray-crowned yellowthroat ( <i>Geothlypis poliocephala palpebralis</i> ) in lowland pine savanna habitats in Belize	2002 Mesoamerican Society for Biology and Conservation Congress, San Jose, Costa Rica (Spanish)
Figueroa, O. A. and G. Albanese	Nest and eggs of the Mangrove (Maya) Vireo ( <i>Vireo pallens semiflavus</i> )	2003 <i>Ornitol. Neotrop.</i> 13: 437-439
Figueroa, O. A., W. Martinez, M. Teul, G. Albanese and V. D. Piaskowski	Additional notes on eight bird species from Belize	2004 <i>Cotinga.</i> 21: 31-33.
Piaskowski, V. D., M. Teul, R. N. Cal, K. M. Williams and W. E. Martinez	The birds of central Belize	2003 <i>Caribbean Geography</i> 13: 69-87
Piaskowski, V., O. A. Figueroa, W. Martinez and M. Teul	Breeding season bird banding in pine savanna habitats in Belize	2003 American Ornithologists' Union Meeting, Champaign-Urbana, IL, U.S.A.
Martinez, W., V. Piaskowski and M. Teul	Reproductive biology of the Gray-crowned yellowthroat ( <i>Geothlypis poliocephala palpebralis</i> ) in central Belize	2004 <i>Ornitol. Neotrop.</i> 15: 155-162.
Teul, M., V. D. Piaskowski, W. E. Martinez and K. M. Williams	The biodiversity of central Belize's Runaway Creek Nature Preserve	2003 Mesoamerican Society for Biology and Conservation Congress, Tuxtla, Chiapas, Mexico (Spanish)
Piaskowski, V. D., M. Teul, K. M. Williams and R. N. Cal	Habitat associations of Neotropical migrants in Belize during the non-breeding season.	Wisconsin Society for Ornithology/Wisconsin Bird Conservation Initiative Symposium 2005, Neotropical Migrants: Insuring their return, Wisconsin Rapids, WI., U.S.A.
Piaskowski, V. D., M. Teul, R. N. Cal and K. M. Williams	The Zoological Society of Milwaukee's conservation efforts in Belize.	Wisconsin Society for Ornithology/Wisconsin Bird Conservation Initiative Symposium 2005, Neotropical Migrants: Insuring their return, Wisconsin Rapids, WI., U.S.A.



## STAFF PRESENTATIONS AND PUBLICATIONS (CONTINUED)

STAFF MEMBER(S)	TITLE	PUBLICATION/CONFERENCE
Piaskowski, V. D., M. Teul, K. M. Williams, and R. N. Cal.	Habitat associations of Neotropical migrants in Belize, Central America during the non-breeding season.	2005 <i>Passenger Pigeon</i> 67(1): 61-76.
Piaskowski, V. D., M. Teul, K. M. Williams, and R. N. Cal.	The birds of the Sibun riverine forest, Belize.	2006 <i>Ornitol. Neotrop.</i> 17: 333-352.
Teul, M., V. D. Piaskowski, and K. M. Williams	The breeding biology of the Fork-Tailed Flycatcher ( <i>Tyrannus savana</i> ) in lowland pine savanna habitats in Belize.	In press. <i>Ornitol. Neotrop.</i>

## LITERATURE CITED

- American Bird Conservancy. 2005. WEB: <http://www.abcbirds.org/cats/brochure/brochure.htm> and [http://www.abcbirds.org/birdconservationalliance/members/window\\_paper.PDF](http://www.abcbirds.org/birdconservationalliance/members/window_paper.PDF)
- AOU (American Ornithologists' Union). 2005. Check-list of North American birds. WEB: <http://www.aou.org/checklist/index.php3>
- Avery, M. L., D. E. Daneke, D. G. Decker, P. W. Lefebvre, R. E. Matteson, and C. O. Nelms. 1988. Flight pen evaluation of eyespot balloons to protect citrus from bird depredations. Pp 277-280 in Crabb, A. C. and R. E. Marsh, (eds.). *Proceedings of the 13th Vertebrate Pest Conference*. University of California-Davis, California.
- Balick, M. J., M. H. Nee, and D. E. Atha. 2000. *Checklist of the Vascular Plants of Belize*. New York Botanical Garden Press, New York, New York.
- Bird Conservation Network. 2005. WEB: <http://www.bcnbirds.org/window.html>
- Booth, T. W. 1994. Bird dispersal techniques. Pp E19-E23 in Hygnstrom, S. E., R. M. Timm and G. E. Larson (eds.). *Protection and Control of Wildlife Damage*. USDA, University of Nebraska-Lincoln, Nebraska.
- Burton, K. M. and D. F. DeSante. 1998. *Instructions for the establishment and operation of stations as part of the Monitoring Avian Productivity and Survivorship (MAPS) Program*. Institute for Bird Populations, Point Reyes Station, California.
- Christ, S., S. Matus, and V. Palacio. 2001. *National Tour Guide Training Program. Trainers Manual*. Genesis Arts, Belize City, Belize.
- Coleman, J. S. and S. A. Temple. 1993. Rural residents' free-ranging domestic cats: a survey. *Wildlife Society Bulletin* 21: 381-390.
- Coleman, J. S. and S. A. Temple. 1996. On the prowl. *Wisconsin Natural Resources* 20(6): 4-8.
- CONABIO. 2005. Comision Nacional Para el Conocimiento y uso de la Biodiversidad. WEB. [www.conabio.gob.mx](http://www.conabio.gob.mx).
- CONAP. 2000. Consejo Nacional de Áreas Protegidas: Listado de Especies de Fauna Silvestre Amenazadas de Extinción (Lista Roja de Fauna). Guatemala City, Guatemala.
- CREI and NARMAP. 1996. *Bird Damage to Citrus: Identification and Monitoring*. Citrus Research and Education Institute, Natural Resources Management and Protection Project, Dangriga, Belize.
- del Hoyo, J., A. Elliott, and J. Sargatal (eds.). 1992. *Handbook of the Birds of the World*, Vol. 1. Lynx Edicions, Barcelona, Spain.

- Dorr, B. and J. D. Taylor II. 2003. Wading bird management and research on North American Aquaculture Facilities. Pp. 52-61 in Fagerstone, K. A. and G. W. Witmer (eds.). *Proceedings of the 10th Wildlife Damage Management Conference*. Fort Collins, Colorado.
- Ehrlich, P. R., D. S. Dobkin, and D. Wheye. 1988. *The Birder's Handbook. A Field Guide to the Natural History of North American Birds*. Simon & Schuster, Inc., New York, New York.
- Fatal Light Awareness Program. 2005. WEB: <http://www.flap.org>
- Figueroa, O. A. and G. Albanese. 2003. Nest and eggs of the Mangrove (Maya) Vireo (*Vireo pallens semiflavus*). *Ornitologia Neotropical* 13: 437-439.
- Gill, F. B. 1994. *Ornithology*, 2nd ed. W. H. Freeman and Company, New York, New York.
- Glahn, J. F., B. Dorr, J. B. Harrel, and L. Khoo. 2002. Foraging ecology and depredation management of Great Blue Herons at Mississippi catfish farms. *Journal of Wildlife Management* 66: 194-201.
- Gorenzel, W. P., F. S. Conte, and T. P. Salmon. 1994. Bird damage at aquaculture facilities. Pp E5-E18 in Hygnstrom, S. E., R. M. Timm, and G. E. Larson (eds.). *Protection and Control of Wildlife Damage*. USDA, University of Nebraska-Lincoln, Nebraska.
- Howe, R. W., G. J. Niemi, S. J. Lewis, and D. A. Welsh. 1997. A standard method for monitoring songbird populations in the Great Lakes region. *Passenger Pigeon* 59: 183-194.
- Howell, S. N. G. and S. Webb. 1995. *A Guide to the Birds of Mexico and Northern Central America*. Oxford University Press, New York, New York.
- Humane Society of the United States. 2005.  
WEB: [http://www.hsus.org/pets/pet\\_care/cat\\_care/keep\\_your\\_cat\\_safe\\_at\\_home\\_hsus\\_safe\\_cats\\_campaign/](http://www.hsus.org/pets/pet_care/cat_care/keep_your_cat_safe_at_home_hsus_safe_cats_campaign/)
- Jones, H. L. 2003. *Birds of Belize*. University of Texas Press, Austin, Texas.
- Jones, H. L. and A. C. Vallely. 2001. *Annotated Checklist of the Birds of Belize*. Lynx Edicions, Barcelona, Spain.
- Kushlan, J. A., M. J. Steinkamp, K. C. Parsons, J. Capp, M. Acosta Cruz, M. Coulter, I. Davidson, L. Dickson, N. Edelson, R. Elliot, R. M. Erwin, S. Hatch, S. Kress, R. Milko, S. Miller, K. Mills, R. Paul, R. Phillips, J. E. Saliva, B. Sydeman, J. Trapp, J. Wheeler, and K. Wohl. 2002. *Waterbird Conservation for the Americas: the North American Waterbird Conservation Plan*, version 1. Waterbird Conservation for the Americas, Washington, D.C.
- Kricher, J. C. 1997. *A Neotropical Companion: an introduction to the animals, plants, and ecosystems of the New World Tropics*, 2nd ed. Princeton University Press, Princeton, New Jersey.
- Littauer, G. 1990. *Avian Predators: Frightening techniques for reducing bird damage at aquaculture facilities*. Southern Regional Aquatic Center Publication No. 401, Uvalde, Texas.
- Lynch, J. F. 1995. Effects of point count duration, time-of-day, and aural stimuli on detectability of migratory and resident bird species in Quintana Roo, Mexico. Pp. 1-6 in Ralph, C. J., J. R. Sauer, and S. Droege (eds.). *Monitoring Bird Populations by Point Counts*. USDA Forest Service, Pacific Southwest Research Station, Albany, California. Gen. Tech. Rep. PSW-GTR-149.
- Mallory, E. P. 1997. *Rio Bravo Conservation Area monitoring*. Unpublished protocol provided by the author.

- Martin, T. E., C. Paine, J. C. Conway, W. M. Hochachka, P. Allen, and W. Jenkins. 1997. *The Breeding Biology Research and Monitoring Database (BBIRD) Field Protocol*. Montana Cooperative Wildlife Unit, Missoula, Montana.
- McCracken, J. D., D. J. T. Hussell, and E. H. Dunn. 1993. *A Manual for Monitoring Bird Migration*. Long Point Bird Observatory, Port Rowan, Ontario.
- McCracken, J., L. Enright, D. Shepherd, J. Cappleman, and E. Dunn. 1994. *The Canadian Bander's Study Guide*. Long Point Bird Observatory, Port Rowan, Ontario, Canada.
- McCracken, J., L. Enright, D. Shepherd, J. Cappelman, and E. Dunn. 1999. *The Canadian Bird Bander's Training Manual*. Canadian Wildlife Service. Technical report 275. Quebec, Canada.
- Meerman, J. C. and W. Sabido. 2001. *Central American Ecosystems Map: Belize*. Volumes I and II. Programme for Belize, Belize City, Belize.
- Miller, B. W. and C. M. Miller. 1997. *An Avian Risk Assessment: Bird Species of Conservation Concern in Belize*. Report prepared for the Programme for Belize and the Nature Conservancy. Gallon Jug, Belize.
- Mueller-Dombois, D. and H. Ellenberg. 1974. *Aims and Methods of Vegetation Ecology*. John Wiley and Sons, Inc., New York, New York.
- National Audubon Society. 2004. WEB: <http://www.lightsout.audubon.org>
- Pyle, P. 1997. *Identification Guide to North American Birds*. Slate Creek Press, Bolinas, California.
- Ralph, C. J., G. R. Geupel, P. Pyle, T. E. Martin, and D. F. DeSante. 1993. *Handbook of Field Methods for Monitoring Landbirds*. USDA Forest Service, Pacific Southwest Research Station, Albany, California. Gen. Tech. Rep. PSW-GTR-144.
- Rich, T. D., C. J. Beardmore, H. Berlanga, P. J. Blancher, M. S. W. Bradstreet, G. S. Butcher, D. W. Demarest, E. H. Dunn, W. C. Hunter, E. E. Iñigo-Elias, J. A. Kennedy, A. M. Martell, A. O. Panjabi, D. N. Pashley, K. V. Rosenberg, C. M. Rustay, J. S. Wendt, and T. C. Will. 2004. *Partners in Flight North American Landbird Conservation Plan*. Cornell Lab of Ornithology, Ithaca, New York.
- Robbins, C. S., B. A. Dowell, J. Bucklin, and I. Arias. 1997. *Modified BBS and off-road counts for landscape planning in Guatemala*. Abstract, 115th Stated Meeting of the American Ornithologists' Union, Minneapolis, Minnesota.
- Robbins, C. S., J. R. Sauer, R. S. Greenberg, and S. Droege. 1989. Population declines in North American birds that migrate to the Neotropics. *Proceedings of the National Academy of Sciences* 86: 7658-7662.
- Speicher, J. and R. Greenberg. 1991. *Checklist of the Neotropical Migrants*. Smithsonian Migratory Bird Program, Washington, D.C.
- Stiles, F. G. and A. F. Skutch. 1989. *A Guide to the Birds of Costa Rica*. Cornell University Press, Ithaca, New York.
- Taylor II, J. D. and B. S. Dorr. 2003. Double-Crested Cormorant impacts to commercial and natural resources. Pp. 43-51 in Fagerstone, K. A. and G. W. Witmer (eds). *Proceedings of the 10th Wildlife Damage Management Conference*. Fort Collins, Colorado.



- Thomas, B. T. 1985. Coexistence and behavior differences among the three western hemisphere storks. Pp. 921-931 in Buckley, P. A., M. S. Foster, E. S. Morton, R. S. Ridgely, and F. G. Buckley (eds). *Ornithological Monographs No. 36, Neotropical Ornithology*. Allen Press, Lawrence, Kansas.
- Tipton, A. R., J. H. Rappole, A. H. Kane, R. H. Flores, D. B. Johnson, J. Hobbs, P. Schulz, S. L. Beasom, and J. Palacios. 1989. Use of monofilament line, reflective tape, beach-balls, and pyrotechnics for controlling grackle damage to citrus. Pp. 126-128 in Bjugstad, A. J., D. W. Uresk, and R. H. Hamre (eds.). *Proceedings of the 9th Great Plains Wildlife Damage Control Workshop*. Fort Collins, Colorado.
- Tobin, M. E. 1998. Research and management of bird depredations at catfish farms. Pp. 67-70 in Baker, R. O. and A. C. Crabb (eds). *Proceedings of the 18<sup>th</sup> Vertebrate Pest Conference*. University of California-Davis, California.
- U.S. Fish and Wildlife Service and Partners in Flight. 2005.  
WEB: <http://www.fws.gov/birds/documents/Collisions.pdf>
- Vreugdenhil, D., J. Meerman, A. Meyrat, L. Diego Gómez, and D. J. Graham. 2002. *Map of the Ecosystems of Central America: Final Report*. World Bank, Washington, D.C.
- Weise, C. M. 1988. Long-term population trends in songbirds: evidence from a general netting program. *University of Wisconsin-Milwaukee Field Station Bulletin* 21: 1-9.
- Werner, S. J., M. E. Tobin, and P. B. Fioranelli. 2001. Great Egret preference for catfish size classes. *Waterbirds* 24: 381-385.

Questionnaire to be completed by **Farmers** receiving the  
Birds Without Borders - *Aves Sin Fronteras*® Recommendations for Landowners:  
How to Manage Your Land to Help Birds

Please help Birds Without Borders - *Aves Sin Fronteras*® improve our future outreach by completing this brief two-page survey about the manual you received. **To thank you for your time, you will receive a free Birds Without Borders - *Aves Sin Fronteras*® cap.**

*Please check the most appropriate answer. You may check more than one answer.*

**1. How did you receive the manual?**

- Workshop given by Birds Without Borders - *Aves Sin Fronteras*® staff
  - District Agricultural Coordinator
  - Extension officers
  - Mail
  - Other - please describe: \_\_\_\_\_
- 

**2. What is your method of farming?**

- Slash-and-burn system
- Mechanized farming
- Both slash-and-burn and mechanized farming
- Organic farming

**3. What category is the land you work on?**

- Personal lease land
  - Personal property with land titles
  - Government land
  - Other - please describe: \_\_\_\_\_
- 

**4. What kind of farming do you do?**

- Subsistence (for own use only)
  - Vegetable
  - Livestock
  - Aquaculture
  - Fruit
    - i. Citrus
    - ii. Papaya
    - iii. Mango
    - iv. Other - please describe: \_\_\_\_\_
- 

**5. Was this manual useful for your method of farming?**

- Very useful
- Slightly useful
- Not useful

**6. Birds play an important role in the environment. Do you agree or disagree?**

- Agree
- Disagree

**7. Do you think that “birds and birding” bring tourism and financial benefits both to your community and to Belize?**

- Birds and birding bring many benefits
- Birds and birding bring few benefits
- Birds and birding bring no benefits





Questionnaire to be completed by **Farmers** receiving the  
Birds Without Borders - *Aves Sin Fronteras*® Recommendations for Landowners:  
How to Manage Your Land to Help Birds (continued)

8. Please check the sections of the manual that were the most helpful to you.

- Why are birds important?
- A summary: What you can do to help birds
- Plants that provide food for birds
- Places in Belize that sell plants used as food by birds and other Belize native/agricultural plants
- Preventing birds from damaging crops
- Birds and aquaculture
- Pine savannas are important to birds
- Forests found along Belize's rivers are important to many birds
- Birds found at the Birds Without Borders - *Aves Sin Fronteras*® Belize study sites
- Belize habitats that are preferred by resident and migratory birds
- Neotropical migrants fly more than 1,500 miles to return to Belize each year
- Other Belize habitats that are important to birds
- Helping Jabirus
- Helping birds that nest in holes or cavities
- Naturally occurring water can benefit birds
- Collisions with glass windows can cause bird deaths
- Your outdoor cat kills many birds
- Other things that you can do to protect birds and enhance bird populations
- Another link between Belize and Wisconsin
- Lists of bird names in different languages

9. After reading this manual do you:

- Support bird conservation
- Have no opinion on bird conservation
- Don't believe in bird conservation

10. As a result of reading this manual, have you changed your farming practices? Are you planning to make changes to your farming practices? Please describe these changes below. (If you need more room, please write on the back of this page.)

---

---

---

---

---

---

---

---

11. If you could provide us with additional recommendations on how to work in harmony with birds and farming, please list your ideas. (If you need more room, please write on the back of this page.)

---

---

---

---

---

---

---

---



Questionnaire to be completed by **Residents or Landowners** receiving the  
Birds Without Borders - *Aves Sin Fronteras*® Recommendations for Landowners:  
How to Manage Your Land to Help Birds

Please help Birds Without Borders - *Aves Sin Fronteras*® improve our future outreach by completing this brief two-page survey about the manual you received. **To thank you for your time, you will receive a free Birds Without Borders - *Aves Sin Fronteras*® cap.**

*Please check the most appropriate answer. You may check more than one answer.*

**1. I am completing this survey as a:**

- Landowner
- Resident who does not own land
- Business (for profit)
- Business (non-profit)
- Tourism-related business (tour guide, resort)
- Non-governmental organization (NGO)
- Environmental group
- Government department/agency

**2. If you are completing the survey as a landowner or a resident, regarding the land on which you live:**

- I own the land
- I rent the land

**3. The land I own or rent is located:**

- In a town or city
- In a rural area

**4. If you also own land that you do not live on, is this land located:**

- In a town or city
- In a rural area

**5. If you are completing the survey as a business, NGO, environmental group, government department/agency that manages land, is the land located:**

- In a town or city
- In a rural or other area

**6. Was this manual useful for managing your land?**

- Very useful
- Slightly useful
- Not useful

**7. Please check the sections of the manual that were the most helpful to you.**

- Why are birds important?
- A summary: What you can do to help birds
- Plants that provide food for birds
- Places in Belize that sell plants used as food by birds and other Belize native/agricultural plants
- Preventing birds from damaging crops
- Birds and aquaculture
- Pine savannas are important to birds
- Forests found along Belize's rivers are important to many birds
- Birds found at the Birds Without Borders - *Aves Sin Fronteras*® Belize study sites
- Belize habitats that are preferred by resident and migratory birds
- Neotropical migrants fly more than 1,500 miles to return to Belize each year
- Belize habitats that are important to birds
- Helping Jabirus
- Helping birds that nest in holes or cavities
- Naturally occurring water can benefit birds
- Collisions with glass windows can cause bird deaths
- Your outdoor cat kills many birds
- Other things that you can do to protect birds and enhance bird populations
- Another link between Belize and Wisconsin
- Lists of bird names in different languages











Questionnaire to be completed by **Schools** receiving the  
Birds Without Borders - *Aves Sin Fronteras*® Recommendations for Landowners:  
How to Manage Your Land to Help Birds

Please help Birds Without Borders - *Aves Sin Fronteras*® improve our future outreach by completing this brief survey about the manual you received. **To thank you for your time, your school will receive an incentive gift from Birds Without Borders - *Aves Sin Fronteras*®.**

*Please check the most appropriate answer. You may check more than one answer.*

1. Type of school:

- Primary
- High school
- Junior college
- College/University
- Technical
- Other (please describe)

2. Are you a:

- Teacher
- Principal
- Other (please describe)

3. What subject(s) do you teach? \_\_\_\_\_

4. Was this manual useful for your teaching?

- Very useful
- Slightly useful
- Not useful

5. Birds play an important role in the environment. Do you agree or disagree?

- Agree
- Disagree

6. Do you think that "birds and birding" bring tourism and financial benefits both to your community and to Belize?

- Birds and birding bring many benefits
- Birds and birding bring few benefits
- Birds and birding bring no benefits

7. After reading this manual do you:

- Support bird conservation
- Have no opinion on bird conservation
- Don't believe in bird conservation

8. Please check the sections of the manual that were the most helpful to you.

- |  |   |
|--|---|
| <input type="checkbox"/> Why are birds important?  | <input type="checkbox"/> Neotropical migrants fly more than 1,500 miles to return to Belize each year |
| <input type="checkbox"/> A summary: What you can do to help birds  | <input type="checkbox"/> Other Belize habitats that are important to birds                            |
| <input type="checkbox"/> Plants that provide food for birds  | <input type="checkbox"/> Helping Jabirus  |
| <input type="checkbox"/> Places in Belize that sell plants used as food by birds and other Belize native/agricultural plants | <input type="checkbox"/> Helping birds that nest in holes or cavities                                 |
| <input type="checkbox"/> Preventing birds from damaging crops  | <input type="checkbox"/> Naturally occurring water can benefit birds                                  |
| <input type="checkbox"/> Birds and aquaculture   | <input type="checkbox"/> Collisions with glass windows can cause bird deaths                          |
| <input type="checkbox"/> Pine savannas are important to birds  | <input type="checkbox"/> Your outdoor cat kills many birds  |
| <input type="checkbox"/> Forests found along Belize's rivers are important to many birds                                     | <input type="checkbox"/> Other things that you can do to protect birds and enhance bird populations   |
| <input type="checkbox"/> Birds found at the Birds Without Borders - <i>Aves Sin Fronteras</i> ® Belize study sites           | <input type="checkbox"/> Another link between Belize and Wisconsin                                    |
| <input type="checkbox"/> Belize habitats that are preferred by resident and migratory birds                                  | <input type="checkbox"/> Lists of bird names in different languages                                   |

9. How will you use this manual in your teaching? \_\_\_\_\_

---

---