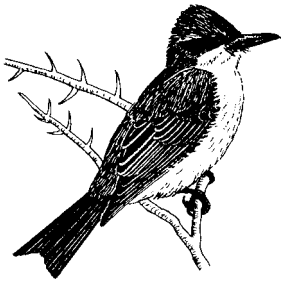

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CONTENTS

EL PITIRRE

THE BULLETIN OF THE SOCIETY OF CARIBBEAN ORNITHOLOGY
EL BOLETÍN INFORMATIVO DE LA SOCIEDAD CARIBEÑA DE ORNITOLOGÍA

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SOCIEDAD CARIBEÑA DE ORNITOLOGÍA

EL PITIRRE

SOCIETY OF CARIBBEAN ORNITHOLOGY

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AVIFAUNA ASOCIADA AL SECTOR COSTERO DE PLAYA CORINTHIA, HOLGUÍN, CUBA

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Resumen.—Se presenta un listado de 99 especies reportadas para el sector costero de Playa Corinthia en el norte de la provincia de Holguín, Cuba. De estas especies, 40 son residentes permanentes, 23 residentes permanentes de ocurrencia bimodal, 26 residentes de invierno, 6 residentes de verano y 4 transeúntes. *Calidris canutus, Calidris alpina* y *Sterna nilotica* son nuevos registros para la costa norte oriental de Cuba.

Abstract.— AVIFAUNA ASSOCIATED WITH THE COASTAL AREA OF PLAYA CORINTIA, HOLGUÍN, CUBA. A list of 99 bird species is presented for the Playa Corinthia area in the northern coast of Holguín province, Cuba. Of these species, 40 are permanent residents, 23 are residents with bimodal distributions, 26 are winter residents, 6 are summer residents and 4 are transients. *Calidris canutus, Calidris alpina,* and *Sterna nilotica* are new records for the northeastern coast of Cuba.

Key words: Avian community, Calidris alpina, Calidris canutus, *Cuba*, *endemic*, *status*, Sterna nilotica

EL SECTOR COSTERO de Playa Corinthia se encuentra ubicado al noreste de la provincia de Holguín, en el oriente de Cuba, limitado por el norte con la línea de costa, al sur con la carretera de Moa, a unos 4 km de distancia de la costa, por el este con el río Téneme y por el oeste con la entrada de la bahía de Cabonico. El territorio está formado por llanuras bajas (0-80 m de altura) de origen marino, lacuno-palustre, fluvial y denudativo que yacen sobre rocas sedimentarias fundamentalmente formadas por calizas y margas pertenecientes a las formaciones geológicas Jaimanitas y Júcaro. Climáticamente la región es seca, con un régimen de precipitaciones de 1986 mm como promedio anual y la temperatura media oscila entre los 24.4° C en el mes más frío y 28.4° C en el más cálido.

Desde el punto de vista fitogeográfico pertenece al sector Cuba Centro Oriental, subsector Guaimaricum, distrito Gibarense. La vegetación está compuesta por las siguientes formaciones: complejo de vegetación de costa arenosa, manglar, bosque siempreverde micrófilo, pequeñas manifestaciones de comunidades alófitas, bosque semideciduo, matorral xeromorfo costero y presencia de agroecosistemas. El litoral de Playa Corinthia corresponde al subdistrito zoogeográfico Sierra de Nipe-Cristal (Cuba Oriental) según la regionalización de Cruz (1989). Con excepción de dos trabajos sobre nuevos registros (Peña *et al*. 2000) y el presente listado, no existen otras referencias sobre la estructura y composición de las ornitocenosis de esta región zoogeográfica del extremo más oriental de la costa norte de la provincia de Holguín.

Los estudios ornitológicos en la costa norte de la provincia de Holguín se han desarrollado fundamentalmente en el sector costero asociado al subdistrito zoogeográfico Malageta–Banes (Cuba Centro Oriental) según la regionalización de Cruz (1989), con publicaciones sobre las especies observadas en el corredor migratorio de Gibara (Torres y Solana 1994), la composición y abundancia de las aves durante la migración otoñal en Gibara (Rodríguez *et al.* 1994), las especies observadas en el municipio Rafael Freyre (Torres y Solana 1989), nuevos registros de aves pa-

ra el corredor migratorio del litoral de Gibara (Torres *et al.* 1987) y la avifauna de dos ecosistemas costeros al norte de Holguín (Rodríguez *et al*. 1991). Resulta de especial interés la presencia en el territorio de una cadena de lagunas litorales de gran extensión ubicadas a lo largo de la línea de costa. Algunas de estas lagunas se encuentran permanentemente inundadas y otras se inundan estacionalmente, con características ecológicas muy favorables para la avifauna asociada a los humedales.

Se reportaron 99 especies de aves de las cuales 40 son residentes permanentes, 23 residentes permanentes bimodal, 26 residentes de invierno, 6 residentes de verano y 4 transeúntes (Tabla 1). Del total, 8 especies son endémicas a Cuba. *Calidris canutus, Calidris alpina* y *Sterna nilotica* aparecen como nuevos registros para la costa norte oriental. Se reporta la presencia de *Dendrocygna arborea* en las lagunas litorales más retiradas de la costa, endemismo regional considerado como vulnerable en las Antillas.

Debido a los planes económicos futuros para el desarrollo turístico en este subdistrito zoogeográfico, y la poca información que existe de esta área de estudio, consideramos de gran importancia éste y otros aportes que puedan contribuir al conocimiento y la conservación de los ecosistemas costeros y la avifauna asociada.

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Tabla 1. Listado de especies asociada al sector costero de Playa Corinthia, Holguín, Cuba. * = Especie endémica, RV = Residente de verano, RI = Residente de invierno, RP = Residente perenne, RPB = Residente perenne bimodal, Tr = Transeúnte.

Familia	Especies	Status
Podicipedidae	Zaramagullón Grande *Podilymbus podiceps*	RPB
Pelecanidae	Alcatraz *Pelecanus occidentalis*	RPB
Ardeidae	Garcilote *Ardea herodias*	RPB
	Garzón *Ardea alba*	RPB
	Garza Real *Egretta thula*	RPB
	Garza Azul *Egretta caerulea*	RPB
	Garza de Vientre Blanco *Egretta tricolor*	RPB
	Garcita Buellera *Bubulcus ibis*	RPB
	Aguaitacaimán *Butorides striatus*	RPB
	Guanabá de la Florida *Nycticorax nycticorax*	RPB
	Guanabá Real *Nyctanassa violacea*	RPB
Threskiornithidae	Sevilla *Ajaia ajaja*	RPB
Phoenicopteridae	Flamenco *Phoenicopterus ruber*	RPB
Anatidae	Yaguaza *Dendrocygna arborea*	RP
	Pato de la Florida *Anas discors*	RI
	Pato Cuchareta *Anas clypeata*	RI
	Pato Huyuyo *Aix sponsa*	RPB

Tabla 1. Listado de especies asociada al sector costero de Playa Corinthia, Holguín, Cuba (continued).

Familia	Especies	Status
Cathartidae	Aura Tiñosa *Cathartes aura*	RPB
Accipitridae	Guincho *Pandion haliaetus*	RPB
	Gavilancito *Accipiter striatus*	RPB
	Gavilán Colilargo *Accipiter gundlachi**	RP
	Gavilán de Monte *Buteo jamaicensis*	RP
Falconidae	Caraira *Caracara plancus*	RP
	Cernícalo *Falco sparverius*	RPB
	Halconcito *Falco columbarius*	RI
Phasianidae	Codorniz *Colinus virginianus*	RP
	Guinea *Numida meleagris*	RP
Rallidae	Gallareta de Pico Colorado *Gallinula chloropus*	RPB
Aramidae	Guareao *Aramus guarauna*	RP
Charadriidae	Pluvial *Pluvialis squatarola*	RI
	Titere Playero *Charadrius wilsonia*	RV
	Zarapico Sabanero *Charadrius vociferus*	RPB
Recurvirostridae	Cachiporra *Himantopus mexicanus*	RPB
Jacanidae	Gallito de Río *Jacana spinosa*	RP
Scolopacidae	Zarapico Patiamarillo Grande *Tringa melanoleuca*	RI
	Zarapico Patiamarillo Chico *Tringa flavipes*	RI
	Zarapico Solitario *Tringa solitaria*	RI
	Zarapico Manchado *Actitis macularia*	RI
	Revuelvepiedras *Arenaria interpres*	RI
	Zarapico Raro *Calidris canutus*	Tr
	Zarapiquito *Calidris minutilla*	RI
	Zarapico Moteado *Calidris melanotos*	Tr
	Zarapico Gris *Calidris alpina*	Tr/RI
	Gaviota de Pico Corto *Sterna nilotica*	RI
	Gaviotica *Sterna maxima*	RV
	Gaviota Real *Sterna antillarum*	RPB
Columbidae	Torcaza Cabeciblanca *Columba leucocephala*	RP
	Paloma Aliblanca *Zenaida asiatica*	RP
	Paloma Rabiche *Zenaida macroura*	RPB
	Tojosa *Columbina passerina*	RP
Cuculidae	Primavera *Saurothera merlini*	RV
	Arrierito *Coccyzus americanus*	RP
	Arriero *Coccyzus minor*	RP
	Judio *Crotophaga ani*	RP
Tytonidae	Lechuza *Tyto alba*	RP
Strigidae	Sijú Platanero *Glaucidium siju**	RP
	Cárabo *Asio flammeus*	RP
Caprimulgidae	Querequeté *Chordeiles gundlachii*	RV
	Guabairo *Caprimulgus cubanensis*	RP
Apodidae	Vencejito *Tachornis phoenicobia*	RP
Trochilidae	Zunzún *Chlorostilbon ricordii*	RP
Todidae	Cartacuba *Todus multicolor**	RP
Alcedinidae	Martín Pescador *Ceryle alcyon*	RI
Picidae	Carpintero de Paso *Sphyrapicus varius*	RP
	Carpintero Verde *Xiphidiopicus percussus**	RP
Tyrannidae	Bobito Chico *Contopus caribaeus*	RP
	Pitirre Abejero *Tyrannus dominicensis*	RP
Hirundinidae	Golondrina Cola de Tijera *Hirundo rustica*	Tr
Muscicapidae	Rabuita *Polioptila caerulea*	RI
	Zorzal Real *Turdus plumbeus*	RP

Tabla 1. Listado de especies asociada al sector costero de Playa Corinthia, Holguín, Cuba (continued).

Familia	Especies	Status
Mimidae	Sinsonte *Mimus polyglottos*	RP
Vireonidae	Juan Chiví *Vireo gundlachii**	RP
	Bien-te-veo *Vireo altiloquus*	RV
Parulidae	Bijirita Chica *Parula americana*	RI
	Canario de Manglar *Dendroica petechia*	Tr/RP
	Bijirita Atigrada *Dendroica tigrina*	RI
	Bijirita Azul de Garganta Negra *Dendroica caerulescens*	RI
	Bijirita de Garganta Negra *Dendroica virens*	RI
	Mariposa Galana *Dendroica discolor*	RI
	Bijirita Común *Dendroica palmarum*	RI
	Bijirita Trepadora *Mniotilta varia*	RI
	Candelita *Setophaga ruticilla*	RI
	Señorita de Monte *Seiurus aurocapillus*	RI
	Señorita de Río *Seiurus motacilla*	RI
	Señorita de Manglar *Seiurus noveboracensis*	RI
	Bijirita Gusanera *Helmitheros vermivorus*	RI
	Caretica *Geothlypis trichas*	RI
	Pechero *Teretistris fornsi**	RP
Thraupidae	Cabrero *Spindalis zena*	RP
Emberizidae	Negrito *Melopyrrha nigra*	RP
	Tomeguín de la Tierra *Tiaris olivacea*	RP
	Tomeguín del Pinar *Tiaris canora**	RP
Icteridae	Mayito *Agelaius humeralis*	RP
	Sabanero *Sturnella magna*	RP
	Totí *Dives atroviolacea**	RP
	Chichinguaco *Quiscalus niger*	RP
	Solibio *Icterus dominicensis*	RP
Passeridae	Gorrión *Passer domesticus*	RP

NOTICE

ROSEMARIE GNAM ACCEPTS NEW POSITION

Dr. Rosemarie S. Gnam, Treasurer of the Society of Caribbean Ornithology, has accepted the position of Assistant Director of Biodiversity at the American Museum of Natural History (New York). Dr. Gnam expects the new position will allow her more time to concentrate on Society matters. Her new e-mail address is rgnam@amnh.org

VARIACIONES EN LA CONDUCTA DE FORRAJEO Y EN LA DIETA DE ALGUNAS ESPECIES DE BIJIRITAS (AVES: EMBERIZIDAE) EN LA ALTIPLANICIE PINARES DE MAYARÍ, HOLGUÍN, CUBA

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Resumen.— Se reportan variaciones en la conducta de forrajeo y en la dieta de algunas especies de bijiritas migratorias en la Altiplanicie Pinares de Mayarí, provincia de Holguín, Cuba. Durante el período de la migración primaveral, insectívoros de follaje como *Dendroica caerulescens*, *D. palmarum* y *Setophaga ruticilla* explotaron el nicho de insectívoro de tronco cuando los insectívoros de tronco no se encontraban en la zona. Durante el período de la migración otoñal, *D. tigrina*, *D. caerulescens*, *D. discolor* y *S. ruticilla* fueron observados alimentándose de frutos.

Abstract.—VARIATION IN FORAGING BEHAVIOR AND DIET IN SOME WARBLERS (AVES: EMBERIZIDAE) IN THE ALTIPLANICIE PINARES DE MAYARÍ, HOLGUÍN, CUBA. Changes in foraging patterns and diet are reported for various migratory warbler species in the Altiplanicie Pinares de Mayarí area of Holguín province, Cuba. During spring migration, foliage insectivores like *Dendroica caerulescens*, *D. palmarum*, and *Setophaga ruticilla* exploited the trunk insectivore niche when trunk insectivores were not in the area. During fall migration, *D. tigrina*, *D. caerulescens*, *D. discolor*, and *S. ruticilla* were observed feeding on fruit.

Key words: Behavior, *Cuba*, Dendroica caerulescens, Dendroica discolor, Dendroica palmarum*, diet*, *diet change*, *ecology*, *foraging*, Setophaga ruticilla, *trophic niche*, *warbler*

EL USO DE ALIMENTOS es uno de los componentes primarios del nicho y constituye un elemento vital para determinar las interrelaciones ecológicas entre las aves migratorias (Rappole *et al*. 1993). La abundancia de los recursos alimentarios varía en el espacio y en tiempo (Price 1984) y la disponibilidad de ellos es más importante que su abundancia (Moore 1983, Wiens 1992).

Las especies de aves se agrupan en un gremio determinado, atendiendo al tipo de recurso que explotan (Root 1967). El tipo de alimento, el sitio donde se adquiere y la forma en que éste se obtiene son los tres componentes básicos del gremio (Wilson 1974). Comúnmente, las especies se ubican en un gremio teniendo en cuenta el tipo específico de alimento que consumen aunque se conoce que las aves pueden presentar variaciones estacionales en su dieta (Morton 1971).

Han sido varios los trabajos donde se ha abordado la temática de gremios en Cuba, entre los que se destacan los realizados por Acosta *et al*. (1984), Cubillas y Berovides (1987) y Acosta y Mugica (1990). Kirkconnell *et al.* (1992) abordan, además, aspectos de la forma en que las aves obtienen su alimento.

El trabajo de campo se desarrolló durante los períodos de residencia invernal (enero-febrero de 1997 y 1998), migración otoñal (octubre de 1996 y 1997) y primaveral (del 22 al 28 de abril de 1999), de las aves migratorias neárticas en la Altiplanicie Pinares de Mayarí, provincia de Holguín, como parte del proyecto "Estudio de las comunidades de aves residentes y migratorias en diferentes ecosistemas cubanos," correspondiente al Programa Nacional de Cambios Globales, del Ministerio de Ciencia, Tecnología y Medio Ambiente y financiado por Canadian Wildlife Service (CWS) y World Wildlife Fund (WWF).

Durante el período de migración primaveral se detectó una disminución de los valores de abundancia de las poblaciones de migrantes de invierno (Sánchez y Navarro 1999) en la mayoría de los hábitats muestreados (charrascal, bosque siempreverde, bosque pluvial) en relación con los otros períodos, excepto para el Pinar Mensura II, ubicado en 203.5X y 608.8Y. En esta localidad permanecieron efectivos poblacionales de aves migratorias insectívoras de follaje, siendo observados algunos individuos alimentándose en troncos de pinos, explotando el nicho de insectívoras de tronco que ya no se encontraban en el área.

Entre las especies que se observaron con esta variación de su patrón de forrajeo se encuentran: la Bijirita Azul de Garganta Negra (*Dendroica caerulescens*), la Bijirita Común (*D. palmarum*) y la Candelita (*Setophaga ruticilla*).

En el caso de *D. caerulescens* se corrobora lo planteado por Kirkconnell *et al*. (1992), quienes la ubican como insectívoro de tronco y follaje. Sin embargo, hay que señalar que esta conducta fue manifestada por individuos de esta especie sólo durante la migración primaveral y cuando no estaba presente *Mniotilta varia*, un insectívoro estricto de tronco, que utiliza ampliamente el pinar durante la residen-

cia invernal.

Las observaciones de las otras dos especies (*D. palmarum* y *S. ruticilla*), constituyen aportes a los cambios que pueden sufrir los patrones de forrajeo de las aves migratorias en Cuba, los cuales pueden variar teniendo en cuenta la abundancia y disponibilidad de alimentos, así como las condiciones del microhábitat o las estaciones, hecho que ha sido señalado por Alatalo (1982).

Por otra parte, durante el período de migración otoñal, se observaron en el matorral xeromorfo subespinoso (charrascal), ubicado entre 202X—203X y 612Y—613Y, varios individuos de especies migratorias (*D. tigrina*, *D. caerulescens*, *D. discolor* y *S. ruticilla*) alimentándose de frutos de *Trema lamarckiana*, lo que constituye un aporte al conocimiento de la alimentación de las aves migratorias para Cuba. Estas aves están especializadas morfológicamente para capturar insectos. Sin embargo, pueden utilizar una cantidad importante de frutos, fundamentalmente durante la migración, como ha sido reportado por Willis (1966), Karr (1976) y Herrera (1978), entre otros autores, para otras regiones.

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LAS AVES PRESENTES EN ÁREAS CON DIFERENTES GRADOS DE PERTURBACIÓN AMBIENTAL EN MOA, CUBA

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Resumen.—Se discute la ornitofauna observada en cuatro áreas con diferentes grados de perturbación ambiental en Moa, provincia de Holguín, Cuba. Las cuatro áreas comprenden: zonas altamente degradadas por la contaminación industrial, parches boscosos, zonas reforestadas y zonas montañosas. Se detectaron 42 especies de aves en total, representando 12 órdenes y 20 familias. La mayor diversidad de aves se registró en la zona montañosa (34 especies) y la más baja en la zona industrial altamente degradada (6 especies). Se pide información que facilite el análisis de metales pesados encontrados en algunas aves de la zona.

Abstract.—BIRDS PRESENT IN AREAS WITH DIFFERENT DEGREES OF ENVIRONMENTAL DISTURBANCE IN MOA, CUBA. The observed bird fauna in four areas with varying degrees of environmental disturbance near Moa, Holguín province, Cuba, is discussed. The four localities include highly degraded and contaminated industrial areas, remnant forest patches, reforested areas, and mountainous zones. Forty-two species were observed representing 12 orders and 20 families. Highest avian diversity was found in the mountainous area (34 species), whereas the lowest was found in the highly degraded industrial area (6 species). A request is made for information that could help in the analysis of heavy metals found in some birds in the area.

Key words: Cuba, distribution, diversity, ecology, habitat disturbance, heavy metals, status

LAS AVES SON, DENTRO de los ecosistemas boscosos, un grupo de vital importancia ya que constituyen la clase de vertebrados cubanos con mayor número de especies. Dada su abundancia, hábitos tróficos y biomasa, constituyen un eslabón importante en el funcionamiento de estos ecosistemas. Como parte del proyecto "Influencia de la contaminación industrial y de la actividad minera en la biodiversidad y los patrones de funcionamiento de los ecosistemas de bosques en Moa," se realizaron tres viajes de investigación (noviembre de 1996 y 1997 y junio de 1998) a dicha región situada en los 20°37´ de latitud N y 75°10´ de longitud W, al norte de la provincia de Holguín, en el oriente de Cuba. Se realizaron recorridos en horas de la mañana y la tarde, anotando las especies de aves presentes en cada una de las cuatro áreas seleccionadas con diferentes grados de afectación antrópica. Las áreas se describen a continuación:

ÁREA A. Situada a menos de 200 m al oeste de la Fábrica de Níquel Pedro Sotto Alba. Se encuentra altamente degradada por las emanaciones de gases y polvo industrial. La vegetación es escasa, apreciándose sólo algunos elementos herbáceos de *Paspalum miligranum* y *Andrograph bicornis* y aislados arbustos de Copey (*Clusia* cf. *callosa*) (X 221500 Y 697500).

ÁREA B. "Vista Alegre," situada aproximadamente a 2600 m al suroeste del yacimiento Zona A, al norte de la carretera actual que va a la Planta de Pulpa. Es una zona de bosque natural remanente, de aproximadamente 10 ha, y se encuentra rodeada de zonas altamente alteradas. El tipo de vegetación presente es el pinar (*Pinus cubensis*) y bosque de galería (X 219200 Y 696400).

ÁREA C. Se encuentra separada por una carretera del Área B. Fue utilizada para la extracción de minerales y hace aproximadamente diez años se reforestó con *Casuarina equisetifolia* y *Pinus cubensis* , por lo que está en fase de recultivación (X 218750 Y 696250).

ÁREA D. Región montañosa perteneciente a la cordillera Sagua-Baracoa en el macizo de Moa. Se recorrió la zona comprendida entre los ríos Yagrumaje y Cayo Guam. Las formaciones vegetales presentes son: bosque de galería, pinares y bosque pluvial submontano, predominando las áreas de pinares. La afectación fundamental observada en el área es la fragmentación de los bosques por extracción maderera y afectaciones por ruido producto de las maquinarias (X 218400 Y 705100).

Entre las cuatro zonas estudiadas, se detectaron 42 especies de aves, incluidas en 12 órdenes y 20 familias (Tabla 1). Del total, tres (7.14%) son residentes de verano y ocho (19.05%) son migratorias neárticas que permanecen gran parte del año en el país, retirándose a criar a Norteamérica. El resto, 31 (73.8%) son residentes permanentes y de éstas, 19 (61.3%) corresponden a formas endémicas de Cuba. Otras seis especies fueron detectadas en zonas urbanas de

Moa.

En el área A la diversidad fue pobre, observándose sólo seis especies de aves las cuales probablemente utilizan esta zona como vía de tránsito. De igual forma, el área C presentó una escasa ornitofauna motivado posiblemente por la baja complejidad del hábitat. En esta zona la especie dominante es el Tomeguín de la Tierra (*Tiaris olivacea*), que utiliza los pequeños pinos como sitios de anidamiento. También en esta área se observó el 3 junio de 1998 un nido de Querequeté (*Chordeiles gundlachii*) situado directamente sobre la corteza de intemperismo y aislado por barrancos y cárcavas; éste contenía un huevo (29.2 x 20.95 mm) con manchas pardo rojizas que armonizaban con el sustrato.

La zona B representa un remanente de lo que fue el bosque típico de esta zona y que actualmente ocupan las áreas utilizadas para la extracción minera. A pesar de encontrarse relativamente cerca de la Fábrica de Níquel P. S. Alba y estar rodeada de claros y trochas ocasionadas por el tránsito continuo de equipos pesados, esta zona presenta una alta diversidad biológica. Se detectaron en total 22 especies de aves, incluyendo la Siguapa (*Asio stygius*), subespecie endémica de Cuba considerada muy rara por Garrido y García (1975). Otra subespecie endémica presente en esta área es la Cotorra (*Amazona leucocephala*), antiguamente muy abundante en toda la región y actualmente restringida a pequeños parches boscosos. Además de las aves se observaron varias especies de lagartos anolinos y numerosas especies de invertebrados, destacándose por su abundancia y colorido *Parides gundlachianus*, mariposa diurna endémica de Cuba. Por otra parte, dada su elevada diversidad florística pudiera representar un banco genético para el restablecimiento y mantenimiento, tanto natural como antrópico, de zonas aledañas actualmente no utilizadas o desechadas por la minería, por lo que se debieran tomar las medidas para la conservación y protección de esta área.

La mayor riqueza de especies se presentó en la zona D, lo que está relacionado con su mayor área, conservación y diversidad paisajística. En total se detectaron 34 especies de aves, aunque dada la brevedad de los muestreos el número de especies pudiera ser mayor. La especie más abundante fue el Pechero (*Teretistris fornsi*), situación que se repite en otras regiones boscosas orientales como La Zoilita (García *et al*. 1989) y la Altiplanicie de Nipe. Otras especies destacadas por su abundancia fueron: la Bijirita Azul de Garganta Negra (*Dendroica caerulescens*); la Candelita (*Setophaga ruticilla*); el Tocororo (*Priotelus temnurus*) y el Zorzal Real (*Turdus plumbeus*). Según N. Navarro (com. pers.) se puede observar en el área el Zunzuncito (*Mellisuga helenae*), aunque no fue detectado durante la realización de este trabajo.

Las aves representan un grupo dominante en los ecosistemas boscosos de Moa. Muchas, a pesar de ser primariamente insectívoras, consumen frutos en algunas épocas del año. Se conoce que en el Neotrópico una parte de la dieta de las especies migratorias neárticas (ver Blake y Loiselle 1992) está constituida por frutos. Éstas, unidas a especies residentes, pueden representar importantes agentes dispersores de algunas plantas, incluyendo especies pioneras, por lo que movimientos locales entre las áreas de alimentación y zonas afectadas pudieran contribuir al restablecimiento natural de la vegetación en áreas devastadas por la actividad minera o recultivadas.

Es conocido el efecto de los contaminantes, como por ejemplo los pesticidas, sobre las poblaciones de aves, fundamentalmente acuáticas (ver Vermeer *et al.* 1974). Sin embargo, poco se conoce acerca del impacto de la industria minero-metalúrgica sobre las especies que habitan los bosques y el papel de ellas como bioindicadoras de la contaminación del medio, por lo que ésta sería un área apropiada para el desarrollo de este tipo de investigación en un futuro en Cuba.

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NOTA: Los autores de la presente comunicación determinaron contenidos de minerales pesados (Fe, Ni, Mn, Zn y Sr) en plumas y tarsos de algunas especies de Passeriformes colectadas en diferentes zonas de Moa. Agradeceríamos cualquier literatura o información de utilidad para el análisis de estos resultados.

Tabla 1. Relación de aves observadas (+) en cuatro áreas de Moa, con diferentes grados de perturbación ambiental. * = sub-especie endémica, ** = especie endémica, *** = género endémico. Estado de permanencia: RP = residente permanente, RV = residente de verano y RI = residente invernal.

Orden	Familia	Especie	Estado	Área				
				A	B	C	D	X[1]
Ciconiiformes	Ardeidae	Garza Real *Egretta thula*	RP	+				
		Garcita Bueyera *Bubulcus ibis*	RP					+
Pelecaniformes	Anhingidae	Marbella *Anhinga anhinga*	RP					+
Falconiformes	Cathartidae	Aura Tiñosa *Cathartes aura*	RP	+	+	+	+	
	Falconidae	Cernícalo *Falco sparverius**	RP		+		+	
	Accipitridae	Gavilán de Monte *Buteo jamaicensis*	RP				+	
Columbiformes	Columbidae	Boyero *Geotrygon montana*	RP				+	
		Paloma Aliblanca *Zenaida asiatica*	RP				+	
		Paloma Rabiche *Zenaida macroura*	RP					+
		Tojosa *Columbina passerina*	RP			+		
		Torcaza Cabeciblanca *Columba leucocephala*	RP				+	
Psittaciformes	Psittacidae	Cotorra *Amazona leucocephala**	RP		+		+	
Cuculiformes	Cuculidae	Arriero *Saurothera merlini**	RP		+		+	
		Judío *Crotophaga ani*	RP	+				
Strigiformes	Strigidae	Siguapa *Asio stygius**	RP		+			
		Sijú Platanero *Glaucidium siju***	RP				+	
Caprimulgiformes	Caprimulgidae	Querequeté *Chordeiles gundlachii*	RV			+		
Apodiformes	Trochilidae	Zunzún *Chlorostilbon ricordii**	RP	+	+	+	+	
Trogoniformes	Trogonidae	Tocororo *Priotelus temnurus***	RP				+	
Coraciiformes	Todidae	Cartacuba *Todus multicolor***	RP		+		+	
Piciformes	Picidae	Carpintero Jabado *Melanerpes superciliaris**	RP				+	
		Carpintero Verde *Xiphidiopicus percussus****	RP				+	
Passeriformes	Tyrannidae	Pitirre Abejero *Tyrannus dominicensis*	RV		+	+		
		Pitirre Guatíbere *Tyrannus caudifasciatus**	RP		+		+	
		Bobito Chico *Contopus caribaeus**	RP		+		+	
		Bobito Grande *Myiarchus sagrae*	RP		+		+	
	Vireonidae	Bien-te-veo *Vireo altiloquus*	RV				+	
		Juan Chiví *Vireo gundlachii***	RP				+	
	Corvidae	Cao Montero *Corvus nasicus*	RP					+
	Mimidae	Sinsonte *Mimus polyglottos*	RP	+				
		Zorzal Gato *Dumetella carolinensis*	RI				+	
	Turdidae	Ruiseñor *Myadestes elisabeth***	RP		+		+	
		Zorzal Real *Turdus plumbeus*	RP		+		+	
	Emberizidae	Bijirita Azul de Garganta Negra *Dendroica caerulescens*	RI		+		+	
		Bijirita Común *Dendroica palmarum*	RI	+	+	+	+	
		Bijirita de Garganta Amarilla *Dendroica dominica*	RI				+	
		Bijirita Galana *Dendroica discolor*	RI		+	+	+	
		Bijirita Trepadora *Mniotilta varia*	RI				+	
		Candelita *Setophaga ruticilla*	RI		+		+	
		Señorita de Monte *Seiurus aurocapillus*	RI				+	
		Pechero *Teretistris fornsi****	RP		+		+	
		Negrito *Melopyrrha nigra**	RP		+		+	
		Tomeguín de la Tierra *Tiaris olivacea*	RP		+	+	+	
		Tomeguín del Pinar *Tiaris canora***	RP				+	
		Cabrero *Spindalis zena**	RP		+		+	
		Totí *Dives atroviolacea***	RP		+	+		
		Solibio *Icterus dominicensis**	RP					+
		Chichinguaco *Quiscalus niger**	RP					+

X[1]: Especies observadas fuera de las áreas inventariadas. Todos los registros correspondieron a la zona urbana de Moa.

ALIMENTOS Y CONDUCTA ALIMENTARIA NO INFORMADAS EN EL MOZAMBIQUE (*QUISCALUS NIGER BRACHIPTERUS*) DE PUERTO RICO

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Resumen.—Se describen la conducta alimentaria y la dieta del Mozambique (*Quiscalus niger brachipterus*) en Puerto Rico.

Abstract.—NEW OBSERVATIONS OF DIET AND FEEDING BEHAVIOR OF THE GREATER ANTILLEAN GRACKLE (*QUISCALUS NIGER BRACHIPTERUS*) IN PUERTO RICO. Feeding behavior and diet are described for the Puerto Rico race of the Greater Antillean Grackle. The species' plasticity in diet is thought to be an important factor in the grackle's use of urban habitats in Puerto Rico.

Key words: *diet, ecology, foraging behavior, Greater Antillean Grackle, habitat, hurricane, Puerto Rico*, Quiscalus niger brachipterus

EL MOZAMBIQUE O CHANGO (*Quiscalus niger brachipterus*) es una de las especies más ampliamente distribuidas y abundantes de Puerto Rico. Aunque el ave puede encontrarse en habitats naturales (ej. manglares) es más bien típico de áreas abiertas alteradas, incluyendo la zona residencial. El Mozambique es sumamente común en las zonas costaneras y bajas de Puerto Rico. No obstante, puede observarse en grandes números inclusive en localidades del centro de Puerto Rico. Por ejemplo, Rivera Cianchini y Mojica Sandoz (1981) informan cientos de estas aves en un dormidero en la plaza de Adjuntas. El ave también parece tener cierta predilección por utilizar como dormidero sub-estaciones de energía eléctrica (Raffaele *et al*. 1998).

La dieta del Mozambique es sumamente amplia y variada. Wetmore (1916) examinó el contenido estomacal de 98 individuos y encontró insectos, arácnidos, moluscos, anfibios, reptiles, frutas y granos. Danforth (1936) y Biaggi (1974) informan además que el ave ingiere gusanos. En áreas urbanas, el Mozambique también depreda huevos de otras aves. He observado al ave ingerir huevos de Reinita (*Coereba flaveola*), Reina Mora (*Spindalis portoricensis*), Chamorro Prieto (*Tiaris bicolor*), Rolita (*Columbia passerina*) y hasta especies de mayor tamaño como la Tórtola Aliblanca (*Zenaida asiatica*) y Palomas Domésticas (*Columbia livia*). En el caso del Chamorro Prieto y la Reinita, los Mozambiques abren el nido por la parte superior para comerse su contenido. Sospecho que hayan ingerido pichones de Reinita cuyos nidos he encontrado rotos en la parte superior y en donde han desaparecido pichones sin emplumar. No obstante, no puedo descartar de esta acción al Zorzal Pardo (*Margarops fuscatus*) y al Zorzal de Patas Rojas (*Turdus plumbeus*) quienes también son comunes en zonas urbanas y rompen de igual manera los nidos de las dos aves mencionadas y se comen los pichones.

Luego del paso del huracán Georges tuve la oportunidad de tomar datos sobre cambios en la dieta de aves urbanas. En dos ocasiones al menos observé a individuos de Mozambique ingerir flores de cruz de Malta (*Ixora coccinea*). También durante este período observé a un macho partir un gongolí rojo (*Trigoniulus lombricinus*) e ingerir algunos de los pedazos.

Durante el mes de agosto y principios de septiembre de 1999 observé en dos ocasiones adicionales a hembras de Mozambique alimentar a sus pichones con pedazos de flores de cruz de Malta. También durante el mismo período observé otras hembras alimentando pichones con comida compactada de perro. Cuando los granos están muy duros he observado a estas aves llevar la comida al techo de casas donde hay agua acumulada y depositar el grano en el agua para que, aparentemente, éste se ablande y pueda ser ingerido. He observado el mismo patrón de conducta para poder ingerir pedazos de pan duro. Otra técnica poco usual para conseguir alimento es el sostenerse a vuelo para capturar artrópodos. En dos ocasiones en el mes de marzo de 2000 observé a hembras utilizar esta estrategia para capturar las arañitas que se encuentran en las esquinas de mi marquesina. No obstante, lo que ha llamado más mi atención son las observaciones que hice el 8 de septiembre de 1999. En esta ocasión se pasó la podadora sobre el césped de mi residencia. Las aspas de la podadora rompieron en pedazos las heces fecales de mi perro. En las mismas crecen unos gusanos blancos. Previamente, al igual que en esta ocasión, observé a los Mozambiques ingerir dichos gusanos. No obstan-

te, observé además a hembras diferentes (en dos ocasiones) alimentando a pichones con pedacitos de las heces fecales del perro. La dieta y conducta descrita es inusual para un ictérido. No obstante, no es totalmente sorprendente para el Mozambique. Lack (1976) ya había notado en Jamaica que el ave era sumamente oportunista en su conducta alimentaria y de forrajeo.

Raffaele *et al.* (1998) indican que en áreas urbanas, particularmente en alrededores de restaurantes, el ave ingiere sobras de alimento. En el Hyatt Resort (Dorado), los Mozambiques se han convertido en un problema en el área del restaurante, posándose sobre platos desatendidos. En dicha localidad he observado a estas aves ingerir pedazos de huevo revuelto, jamón, queso, frutas y pan.

La plasticidad en la dieta de estos animales parece ser uno de los principales factores en el éxito que ha tenido el Mozambique en la invasión y conquista de ambientes urbanos en Puerto Rico.

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ROSE-RINGED PARAKEET (*PSITTACULA KRAMERI*) RECORDED IN THE WEST INDIES

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Abstract.—Two Rose-ringed Parakeets (*Psittacula krameri*) were observed in the grounds of the Hotel Kohly, Playa, La Habana, Cuba on 2 and 16 April 2000. This is the first record of the parakeet in the West Indies.

Resumen.—*PSITTACULA KRAMERI* REGISTRÓ EN LAS ANTILLAS. El 2 y el 16 de abril del 2000 se observó una pareja de Periquitos Rosados *Psittacula krameri* en el Norte de La Habana. Este primer récord, sin embargo, no permite determinar si ambas aves escaparon de jaulas en Cuba, o si se trató de transeuntes procedentes de la Florida, USA.

Key words: Cuba, Psittacula krameri, *record*, *Rose-ringed Parakeet*, *status*

NO WEST INDIAN RECORDS EXIST for the Rose-ringed Parakeet *Psittacula krameri* (Raffaele *et al.* 1998), an Old World species occurring naturally in tropical Africa north of the moist forest zone and much of southern Asia. The parakeet has been widely introduced into Europe (Juniper and Parr 1998), and has become established in parts of Florida (since the 1960s) and Virginia (since 1973), USA (American Ornithologists' Union 1998). In addition, since 1996 a population has become established in the eastern part of Caracas, Venezuela (Nebot 1999), the first report from the Neotropical region.

On 2 and 16 April 2000, I observed a pair of this distinctive species in the grounds of the Hotel Kohly, Playa, La Habana, Cuba. They were easily identified by a combination of their attenuated shape, very long slender tail with bluer projecting central feathers, relatively large head, and overall pale grass green plumage (paler than the Cuba's native psittacids, *Aratinga euops* and *Amazona leucocephala*), with a relatively weak red bill, rose-colored narrow collar (in the male) and red orbital ring. Because of the relative brevity of both observations, I was unable to note the small black throat patch or bluish nape of the male. I am familiar with *Psittacula krameri* from observations of introduced and feral populations in the United Kingdom, Turkey, and Egypt, and native birds in the Indian subcontinent, as well as with *Aratinga euops* and *Amazona leucocephala* from many visits to Cuba.

The origin of the pair in La Habana is debatable, but they were presumably deliberately released in Cuba, vagrants from Florida, or escapees from nearby. For now, this matter can only be one for speculation, and only time will demonstrate whether the species can be considered part of the West Indian avifauna.

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RECENT SIGHT REPORTS OF LESSER BLACK-BACKED GULLS (*LARUS FUSCUS*) FROM CUBA

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Abstract.—We report the first observations of the Lesser Black-backed Gull (*Larus fuscus*) for Cuba. Both adults and immatures evidently of the race *L. f. graellsii* were seen along the northern coast of Camagüey Province during autumn 1998 and 1999. These sightings fit with the increasing appearance of this species in the southern United States and the eastern West Indies.

Resumen.—AVISTAMIENTOS RECIENTES DE LA GAVIOTA DE ESPALDA NEGRA MENOR (*LARUS FUSCUS*) EN CUBA. Se describen los primeros avistamientos de *Larus fuscus* en Cuba. Los avistamientos, en la costa norte de la provincia de Camagüey, son de aves adultas e inmaduros. Esta especie era de esperarse en Cuba ya que se había reportado en territorios circundantes.

Key words: Cuba, distribution, Larus fuscus, *Lesser Black-backed Gull*, *record, status*

ON 11 NOVEMBER 1999 we observed an adult and two first-winter Lesser Black-backed Gulls (*Larus fuscus*) at La Boca, a small fishing village in Camagüey Province along the northern coast of Cuba. This village is at Punta de Prácticos, on the eastern side of the passage to Nuevitas between Cayo Sabinal and the western end of Playa Santa Lucía, along the Canal Viejo de Bahamas.

We first noticed two brownish immature gulls, larger than nearby Laughing Gulls (*L. atricilla*), perched on the pilings of a former wharf. Then, near the road, we observed an adult Lesser Black-backed Gull roosting with several dozen Laughing Gulls. It was larger than the Laughing Gulls but not dramatically so, and had a dark ashy gray mantle with blacker wingtips, yellow legs, a white head slightly streaked on the nape and with a black blotch mainly behind the eye, yellow irides, and a yellow bill with a red spot near the gonydeal angle. Suspecting that the larger immature gulls might also be Lesser Black-backed, we flushed them and observed that they had dark outer secondary coverts and a heavily barred rump and upper tail contrasting with a very broad and dark subterminal band, all characters of that species (Grant 1982). The dark gray, not black, mantle of the adult suggested that it was of the southern race *L. f. graellsii*, as are the vast majority of North American reports and specimens of this species (Post and Lewis 1995).

A search of the literature by Jim Wiley, George Wallace, and ourselves failed to locate any previously published reports of Lesser Black-backed Gulls from Cuba. Arturo Kirkconnell of the Museo Nacional de Historia Natural in La Havana, however, advised (*in litt.*) that Paul Prior, Warden of the Long Point, Ontario, Canada, Bird Observatory, had submitted a report of a member of this species apparently molting into third-winter plumage, seen on 14 November 1998 near Playa Santa Lucía. Subsequent correspondence with Mr. Prior revealed that the Lesser Black-backed Gulls we saw in 1999 apparently were at or near the same location as the individual he saw in 1998, an area he was told was known locally as "Cocos Beach."

Since first reported at Key West in 1938, Lesser Black-backed Gulls have become fairly common visitors to Florida, primarily in winter (Stevenson and Anderson 1994). At least 19 were at various locations in the state during the winter of 1998-9 (West and Anderson 1999). In the northern Bahamas it is considered an "uncommon annual visitor" by White (1998). Records of the species have also been obtained throughout the eastern West Indies (Raffaele *et al.* 1998), so reports from Cuba are not unexpected.

We thank George Wallace and Jim Wiley for their help searching for previous reports of Lesser Black-backed Gulls in Cuba, and Arturo Kirkconnell and Paul Prior for providing information about the 1998 sighting as well as for commenting on earlier drafts of this note.

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PRESS RELEASE FROM BIRDLIFE JAMAICA

RED PARROT DISCOVERED IN JAMAICA

A research team from BirdLife Jamaica, the University of the West Indies and the University of Glasgow working in the upper Rio Grande Valley of Portland (Jamaica) has discovered a red Jamaican Parrot. Jamaica has two endemic parrot species, the Black-billed and Yellow-billed parrot, both of which are almost totally green in color.

The report which was recently published in the 2000 Bulletin of the British Ornithologists' Club, noted that the bird observed was "strikingly red – similar in intensity to that of the Scarlet Macaw (*Ara macao*)" of South America. The individual which was fortunately photographed, also had distinct patches of yellow and green in the wings and tail. Investigations by the research team led to the conclusion that the individual observed was a color morph (or variant) of the Jamaican Yellow-billed Parrot (*Amazona collaria*), which is relatively common in that area of the island. This was the first color morph of a Jamaican parrot ever recorded, and in reference to its combination of colors the photographed individual has been nicknamed "the Reggee Parrot."

Local citrus farmers in the Mill Bank area of Portland informed the team that they had from time to time seen red parrots flying around the area but that they were not common. Despite the fact that Jamaican parrots have been studied for the past four years by the Jamaican Parrot Project, the largest biodiversity project ever funded by the Environmental Foundation of Jamaica, there have never been any other encounters with parrots of this kind. The Yellow-billed Parrot population of eastern Jamaica therefore appears to have a rare color variant of which this has been the first record by the local and international scientific community. Further investigations are to be conducted to determine how pervasive is the color variation within the yellow-bills of Portland. Both of Jamaica's endemic parrots are globally threatened species.

BirdLife Jamaica would be interested hearing from other territories that have had any similar reports among Amazona parrots. Our e-mail address is <mailto:birdlifeja@yahoo.com>birdlifeja@yahoo.com. Mailing address: 2 Starlight Ave, Kingston 6, Jamaica W.I. Tel & fax (876) 927-8444 (home) (Catherine Levy, President) or (Leo Douglas, Media Relations Officer) e-mail: leodouglas@cwjamaica.com. Mailing address: 11A Lounsbury Avenue, Kingston 10, Jamaica, W.I. Tel: (876) 924-4203 (home).

For more details, see:

Davis, H., and B. Zonfrillo. 2000. An erythristic Yellow-billed Parrot *Amazona collaria.* Bulletin of the British Ornithological Club 120(1). — *Ed.*

SENEGAL PARROT, BLUE-CROWNED PARAKEET, OLIVE-THROATED PARAKEET, AND GREEN-WINGED MACAW: NEW PSITTACINE RECORDS FOR PUERTO RICO

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Abstract.—We report four new psittacine records for Puerto Rico: Senegal Parrot (*Poicephalus senegalus*), Blue-crowned Parakeet (*Aratinga acuticaudata*), Olive-throated Parakeet (*Aratinga nana*), and Green-winged Macaw (*Ara chloroptera*).

Resumen.—NUEVOS RÉCORDS DE PSITTACINE PARA PUERTO RICO. Nosotros reportamos cuatro nuevos récords de psittacine para Puerto Rico: Cotorra de Senegal (*Poicephalus senegalus*), Periquito de Cabeza Azul (*Aratinga acuticaudata*), Periquito de Garganta Verde-Olivo (*Aratinga nana*) y Papagayo de Alas Verdes (*Ara chloroptera*).

Key words: Ara chloroptera, Aratinga acuticaudata, Aratinga nana, *Blue-crowned Parakeet, exotic*, *Green-winged Macaw, introduced*, *Olive-throated Parakeet*, Poicephalus senegalus, *Puerto Rico*, *Senegal Parrot*, *status*

A TOTAL OF 31 SPECIES of Psittaciformes have been recorded from Puerto Rico (Pérez-Rivera and Vélez 1980, Pérez-Rivera 1992). Only two of these species were pre-Columbian, the Puerto Rican Parrot (*Amazona vittata*) and an endemic subspecies of the Hispaniolan Parakeet (*Aratinga chloroptera maugei*), of which, only the parrot is still present, but severely endangered (Forshaw 1977, Pérez-Rivera and Vélez 1980, Biaggi 1997, Raffaele *et al*. 1998). During the last four decades, hundreds of exotic psittacines were imported into Puerto Rico for the pet trade (Pérez-Rivera and Vélez, 1980; Pérez-Rivera, 1992, Raffaele and Kepler 1992). Many of these pet parrots escaped and became established around the island. Here we report four new psittacine records for Puerto Rico*:* Senegal Parrot (*Poicephalus senegalus*), Blue-crowned Parakeet (*Aratinga acuticaudata*), Olive-throated Parakeet (*Aratinga nana*), and Green-winged Macaw (*Ara chloroptera*).

On 17 September 1992, we observed and photographed a single adult Senegal Parrot, within the University of Puerto Rico's Río Piedras Campus. The parrot was frequently detected by its distinctive high-pitched whistling calls. It followed flocks of Monk Parakeets (*Myiopsitta monachus)* and Red-masked Parakeets (*Aratinga erythrogenys*), and was regularly seen alone until 10 October 1992. On that day, three other Senegal Parrots were present. We believe this group consisted of a pair with their two fledglings. Two birds were smaller in size, duller in color, playful, and showed little flight coordination. All four birds were seen sporadically for about a month after the initial observation, after which three disappeared. Until recently (March 2000), only one individual had been observed around the campus, but now it appears that a second Senegal parrot is in the area (J. Fumero, pers. comm.). We are not sure if this second bird is from the original group seen in 1992. The Senegal Parrots have been seen eating the fruits and seeds from casoa de Siam (*Cassia siamea* Lam. [Fabaceae]) and the juicy pulp of mango (*Mangifera indica* L. [Anacardiaceae]) fruit. The parrots roost within the Monk Parakeet colony on the highest branches of mahogany (*Swietenia mahogany* [L.] Jacq. and *Swietenia macrophylla* G. King [Meliaceae]) trees on the university campus. These sightings likely represent rare escapees from captivity. Their native range is central-western Africa (Forshaw 1977).

We observed three apparently different pairs of Blue-crowned Parakeets (*Aratinga acuticaudata*). Our first record was on 9 December 1989 in the Cupey area of San Juan, where a pair was seen flying. The pair was attracted to Salguero-Faría's pet parrots and seemed rather tame. They were seen for several days until they were trapped by a neighbor and traded to a local pet store. A second sighting occurred near Vacia Talega in the Piñones Forest Reserve on 11 November 1993. A pair of parakeets was perched on top of white mangrove (*Laguncularia racemosa* [Combretaceae]), where they remained for approximately 17 min. Blue-crowned Parakeets were seen for a third time near Lago Dos Bocas, Utuado on 20 March 1994. Here, a pair was seen confidently foraging on the ground on the opposite side of the road from some local food establishments. As we got closer, the pair went to a tree and after about 5 min flew into the nearby forest. Because of the birds' indifference towards human presence, we believe these were also escapees. The Blue-crowned Parakeet is

native to eastern Colombia, northern Venezuela (including Isla Margarita), south to Paraguay, Uruguay, and northern Argentina (Forshaw 1977).

The Olive-throated Parakeet is native to Jamaica and the Caribbean slope of southern Mexico and Central America (Forshaw 1977, Raffaele *et al*. 1998), and it was recently reported in the Dominican Republic (Raffaele *et al*. 1998). During late morning on 11 April 1993, a pair of *A. nana* was observed near the Natural Sciences building at the Río Piedras campus of the University of Puerto Rico. The pair landed on a casuarina (*Casuarina equisetifolia* J. R. & G. Forst. [Casuarinaceae]) tree and perched for a few minutes while softly chattering. Then they began to examine an arboreal termite nest for about 10 min, after which they flew off. In their native range, Olive-throated Parakeets breed from March to June (Forshaw 1977, Raffaele *et al*. 1998). The pair has not been seen thereafter and may have escaped from captivity.

Several species of exotic psittacines have been reported from the area of Tintillo, municipality of Guaynabo, including Blue-and-yellow Macaws (*Ara ararauna*), Umbrella Cockatoos (*Cacatua alba*), and Canary-winged Parakeets (*Brotogeris vesicolorus*) (Pérez-Rivera and Vélez 1980; Pérez-Rivera *et al*. 1985; Pérez-Rivera 1992, 1998). On one of our visits to the area (17 December 1997), we counted 23 macaws, one of which was a Green-winged Macaw (*Ara chloroptera*). We believe it was a male because of its rather massive head and bill. It had not pair-bonded with any Blue-and-Yellow Macaws and perched and flew alone at the edge of the flock. As of December 1999, the Green-winged Macaw was still alone and accompanying the Blue-and-Yellow Macaw flock, sometimes wandering as far as Trujillo Alto, east of Guaynabo. According to some Cupey residents, earlier unconfirmed sightings were made of a Green-winged Macaw from 1984 to 1986 (Mario L. Salguero, pers. comm.). Recently, a Green-winged Macaw was seen flying near Cupey on several occasions joined by several Blue-and-Yellow Macaws (Mario L. Salguero, pers. comm.). M. L. Salguero also saw both macaw species over Old San Juan. It is likely that all sightings are of the same individual, since the birds flew toward the Tintillo area just before sundown. These Green-winged Macaws are likely escaped pets. The native range of the Green-winged Macaw is from eastern Panama to northern Argentina, east of the Andes (Forshaw 1977).

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LISTADO DE LA AVIFAUNA ENDEMICA CUBANA EN LA RESERVA NATURAL, MONTE IBERIA, CUBA

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Resumen.—Se relaciona el listado de las aves endémicas que habitan las pluvisilvas de la Reserva Natural Monte Iberia, en Baracoa, Guantánamo, Cuba. Se destacan las principales categorías taxonómicas y la abundancia de cada especie.

Abstract.—LIST OF THE ENDEMIC CUBAN AVIFAUNA OF MONTE IBERIA NATURAL RESERVE, CUBA. A total of 12 species, representing 8 orders and 11 families, is reported from Monte Iberia Natural Reserve, Baracoa, Guantánamo, Cuba.

Key words: Abundance, *Cuba*, *endemic*, *status*

INTRODUCTION

LA AVIFAUNA CUBANA ha sido estudiada desde los siglos pasados por Gundlach, Bond, Barbour, Garrido, García y otros, teniendo en cuenta de forma particular nuestras especies endémicas cuyo período de formación data del Holoceno, según Vergara (1988). El conocimiento de las aves endémicas presentes en esta Reserva Natural, inserta en la Reserva de la Biosfera "Cuchillas del Toa" y zona núcleo del Parque Nacional "Alejandro de Humboldt," puede servir de base a especialistas para el desarrollo de investigaciones que lleven a la instrumentación de un Plan de Manejo que contribuya al mantenimiento del equilibrio de la avifauna presente en los ecosistemas estudiados. El objetivo de este trabajo es contribuir al conocimiento de la avifauna endémica de Monte Iberia.

ÁREA DE ESTUDIO Y METODOS

Monte Iberia (740 m.s.n.m.) es un área boscosa, con montañas formadas por un macisco de rocas ultrabásicas, cubierta por una espesa capa de lateritas donde afloran las serpentinitas, alberga una vegetación y flora sui generis, destacándose la pluvisilva submontana y el charrascal submontano (Reyes 1998), en sus laderas y mesetas crecen árboles como *Bonnetia cubensis* (manglillo), *Dipholis jubilla* (jubilla prieta), *Calophyllum utile* (ocuje colorado), *Tabebuia dubia* (roble negro) y otros.

Este trabajo es fruto de siete expediciones realizadas por el autor desde el año 1991 hasta el año 1999. Sirve de apoyo importante el inventario de aves realizado en 1998 por el especialísta de BIOECO Fredy Rodríguez Santana. Para la designación de las especies endémicas se siguió el criterio de (American Ornithologists' Union 1998).

RESULTADOS Y DISCUSIÓN

Los conteos realizados en el período comprendido entre Julio de 1991 y 1999 permitieron registrar en Monte Iberia un total de 39 especies de aves, de ellas 12 endémicas cubanas correspondiente a 8 órdenes y 9 familias (Tabla 1). Llama la atención que con un área tan reducida del territorio cubano se haga notable la presencia de 12 de los 21 taxones endémicos reconocidos para Cuba. Urge la necesidad de emprender estudios ecológicos que permitan profundizar en las características de esta comunidad de aves cubanas, que se desarrollan en un área no antropizada, considerando uno de los bosques más vírgenes de Cuba. Lo que sin duda redundará en la conservación de las riqueza avifaunística cubana.

AGRADECIMIENTOS

Quiero agradecer a los guardabosques de la Estación Ecológica "Bahía de Taco," quienes dieron el apoyo logístico necesario para la realización de los trabajos de campo, facilitando la labor en la confección de este listado.

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Tabla 1. Especies endémicas de aves observadas en Monte Iberia, Baracoa, Cuba, 1991-1999.

Orden y Familia	Nombre			Abundancia[1]
	Científico	Español	Inglés	
Falconiformes				
Accipitridae	*Accipiter gundlachi*	Gavilán Colilargo	Gundlach's Hawk	R
Psittaciformes				
Psittacidae	*Aratinga euops*	Catey	Cuban Parakeet	R
Strigiformes				
Strigidae	*Otus lawrencii*	Siju Catunto	Cuban Screech-Owl	R
	Glaucidium siju	Siju Platanero	Cuban Pygmy-Owl	R
Apodiformes				
Trochilidae	*Melisuga helenae*	Zunzuncito	Bee Hummingbird	R
Trogoniformes				
Trogonidae	*Priotelus temnurus*	Tocororo	Cuban Trogon	C
Coraciformes				
Todidae	*Todus multicolor*	Cartacuba	Cuban Tody	C
Piciformes				
Picidae	*Xiphidiopicus percussus*	Carpintero Verde	Cuban Green Woodpecker	C
	Colaptes fernandinae	Carpintero Churroso	Fernandina's Flicker	R
Passeriformes				
Turdidae	*Myadestes elisabeth*	Ruiseñor	Cuban Solitaire	C
Emberizidae	*Teretistris fornsi*	Pechero	Oriente Warbler	C
	Dives atroviolacea	Totí	Cuban Blackbird	C

[1]C = Común, R = Raro

FROM FLOYD HAYES

SOUTHEASTERN CARIBBEAN BIRD ALERT

The Southeastern Caribbean Bird Alert (SCBA), initiated in March 1998, is a weekly e-mail service whose goals are to promote birding and ornithology in the southeastern Caribbean (Lesser Antilles, Trinidad and Tobago) by fostering communication among resident and visiting birders regarding the study of birds in the region. Sponsored by the Trinidad and Tobago Field Naturalists' Club (T&TFNC), the SCBA and further information about the T&TFNC are accessible on the Internet at http://www.wow.net/ttfnc. The SCBA typically includes (1) reports of recent bird observations, (2) announcements of upcoming field trips, (3) ornithological information and (4) information about the Trinidad and Tobago Rare Bird Committee. All past alerts are archived at the SCBA website. Free e-mail subscriptions are available upon request to Carol Ramjohn at aequidens@trinidad.net Other regions of the Caribbean are encouraged to establish their own bird alerts.

REGISTRO DE LOCALIDADES PARA LA YAGUAZA ANTILLANA (*DENDROCYGNA ARBOREA)* EN LA REGION CENTRO-ORIENTAL DE CUBA

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Resumen.—Se presentan las localidades y sus características generales de hábitat para la Yaguaza Antillana (*Dendrocygna arborea*) en Cuba. Las presas, los arrozales y los manglares son los hábitats más frecuentados, representando el 75% de las 60 localidades reportadas. El número más elevado de localidades se haya en las provincias de relieve llano con abundantes cuerpos de agua interiores y arrozales, como Las Tunas y Granma, pero especialmente Camagüey (35% de todas las localidades).

Abstract.— RECORD OF LOCATIONS FOR THE WEST INDIAN WHISTLING-DUCK IN EASTERN AND CENTRAL CUBA. Locations and their general habitat characteristics are presented for the West Indian Whistling-Duck (*Dendrocygna arborea*) in Cuba. Reservoirs, rice fields, and mangroves are the most frequented habitats (75% of 60 reported localities). The highest number of localities is reported from lowland provinces with abundant interior waters and rice fields, such as Las Tunas and Granma, but especially Camagüey (35% of all localities).

Key words: Cuba, Dendrocygna arborea, *distribution, habitat, status, West Indian Whistling-Duck*

LAS POBLACIONES Y LOCALIDADES de la Yaguaza Antillana (*Dendrocygna arborea)*, especie exclusiva de las Antillas y que fue considerada en el pasado como abundante, han disminuido en todo su rango de distribución, siendo considerada como especie rara (IUCN Red Data Book), incluida en el apéndice II de la Convención sobre Tráfico Internacional de Especies Amenazadas de la Flora y la Fauna (CITES) y registrada como vulnerable en toda el área.

Debido al carácter montañoso de muchas islas de la región, la mayoría de las localidades se reportan para las zonas litorales. En Cuba el relieve se caracteriza por poseer un 75% de llanuras, 18% de montañas y un 4% de humedales. Estas condiciones morfológicas del relieve, así como la existencia de costas bajas hacia el sur, facilitan la presencia en el paisaje de lagunas interiores, humedales y el desarrollo de embalses artificiales así como el desarrollo de extensas zonas de manglares y ciénagas. Estos humedales ocupan el 26% de las reservas forestales del país y son entre los más extensos de la región del Caribe antillano, favoreciendo la existencia de áreas potenciales para el desarrollo de poblaciones de la Yaguaza Antillana en comparación con otras islas del área que se caracterizan por un relieve montañoso y, consecuentemente, un bajo porcentaje de aguas interiores.

La región de estudio comprende las provincias desde Camagüey hasta Guantánamo. Las mayores poblaciones de la especie se encuentran en regiones predominantemente llanas, con hábitats acuáticos (costeros e interiores) como manglares, arroceras, lagunas, lagunatos, presas, canales, zonas pantanosas y sabanas, entre otros. Las presas, arroceras y manglares constituyen los hábitats más frecuentados y comprenden el 75% del total de localidades registradas hasta el momento (N = 60). En muchos casos, varias localidades se reportan para una misma área extensa.

En las provincias más orientales con relieve montañoso, donde las aguas son drenadas hacia las costas sin una acumulación significante en tierra firme en la forma de humedales, las poblaciones de la Yaguaza son aisladas y numéricamente pequeñas. Las provincias con mayores concentraciones, consecuentemente, son aquéllas de relieve más llano y con tierras potencialmente utilizadas en el cultivo del arroz donde se han construido numerosos embalses y canales, como Camagüey, Las Tunas y Granma.

La provincia de Camagüey cuenta con el mayor número de localidades (35%) en toda la región (Tabla 1). En esta región se concentran las mayores producciones arroceras y abunda el relieve llano y la presencia de aguas interiores como embalses y canales.

Para completar la información se encuestaron a cazadores y campesinos con el apoyo de la Federación Cubana de Caza, obteniéndose información de 60 localidades.

Este trabajo es resultado del plan de estudio y conservación de las poblaciones de *Dendrocygna arborea* auspiciado por el Grupo de Trabajo de la Yaguaza Antillana (WIWD WG) de la Sociedad Ornitológica del Caribe.

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Tabla 1. Registro de localidades de la Yaguaza Antillana (*Dendrocygna arborea*) en la región centro-oriental de Cuba. A = arroceras, P = presas, M = manglares, C = canales, L = lagunas, R = ríos, Cñ = cañaverales, Ci = ciénagas, La = lagunatos, Ch = charcas.

Provincia	Municipio	Localidad	Hábitat
Camagüey		Perímetro de la ciudad de Camagüey	La
		Presa Duráno	P, Ch
	Vertientes	Laguna de Guano	L
		La Lima	A, P, M
		Sierra Maestra	A, P
		El Cenizo	A, P
		El Congo	A, P
	Florida	La Tomatera	A, P
		La Costa	M
	Sibanicú	La Barbacoa	Cñ, R, P
		Presa Cubano-Búlgara	P
		México	P
		Primelle	L
	Guaimaro	Cayo Confite	A, P, L, La
	Najasa	Najasa	P, A, La
	Santa Cruz del Sur	Santa Cruz del Sur	P, A
	Jimaguayú	Jimaguayú	P
	Nuevitas	Presa San Miguel	P
		Nuevitas	P
		Corojal	P
		El Carmen	P
		Santa Lucia	P
Las Tunas	Jobabo	Sábalo	A, P, M
		Birama (W)	M, A
		Dormitorio	A
		Presa de Emilia	A, M. P
	Puerto Padre	Costa	M
	Chaparra	Chaparra	M
		La Herradura	M, L
Granma	Cauto Cristo	Cauto Cristo	R, A, C
	Yara	Las Caobas	A, P
		La Sal	A, P
		Veguita	A, P

Table 1. Registro de localidades de la Yaguaza Antillana en la región centro-oriental de Cuba (continued).

Provincia	Municipio	Localidad	Hábitat
	Río Cauto	Río Cauto	A, La
		Birama (E)	Ci
		Cayo Grande	A
		Arrocera Fernando Echenique	A
		Babiney	A
		Puente Guillen	A
	Manzanillo	Manzanillo	M
		Cayo Grande	A, La, Ci
Holguín	San Germán	La Camilo	P, A, R
		Vio Paso	P, A, R
		Sainz	La
		Yaguabo	A, Cñ
		Veinte Rosas	A, R
		Granja Camilo Cienfuegos	A
	Cacocum	Limoncito	P, A, Cñ
	Rafael Freyre	Pesquero Nuevo	M
		Playa Blanca	M
		Bahía de Vita	M
	Gibara	Sierra de Cupeicillo	La
	Mayarí	Presa de Nipe	P
		Frank País	M, L
	Moa	Moa	M
Santiago de Cuba	Mella	Baraguá	P
	Contramaestre	Laguna Blanca	L
Guantánamo	Niceto Pérez	Niceto Pérez	P, L, M
		San Antonio del Sur	M
		Paragüay	M

SPECIAL REPORT

IMPACT OF AN UNDERGRADUATE COURSE IN ORNITHOLOGY ON THE ATTITUDES OF WEST INDIAN STUDENTS TOWARD BIRDS

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Abstract.—On six occasions from 1994-2000, I taught an undergraduate course in ornithology to 144 students (mostly West Indian nationals) at Caribbean Union College in Trinidad. During the last two courses I used a questionnaire to assess the attitudes of 34 students toward birds, both at the beginning and end of the course. Students were most interested in learning about the ecology and behavior of birds, and least interested in learning about their origin and evolution. Their interest in watching and learning about birds and their interest in studying birds as a hobby increased, though not significantly. Few students expressed an interest in studying birds for a career, though three have studied birds for a master's degree. Academic achievement in the course was significantly correlated with the overall attitude toward birds at the end of the course.

Resumen.—EL IMPACTO DE UN CURSO EN LA ORNITOLOGÍA EN LAS ACTITUDES DE ESTUDIANTES CARIBEÑOS HACIA LAS AVES. En seis ocasiones desde 1994-2000, he dado cursos de ornitología a 144 estudiantes (la mayoría caribeños) en el Caribbean Union College de Trinidad. Durante los últimos dos cursos yo utilicé un cuestionario para determinar el interés de 34 estudiantes hacia las aves, tanto al principio como al final del curso. Los estudiantes estuvieron más interesados en aprender sobre la ecología y el comportamiento de las aves, y menos interesados en conocer sobre su origen y evolución. Su interés en observar y aprender sobre las aves y su interés en estudiar las aves como pasatiempo se incrementó, pero no significativamente. Pocos estudiantes expresaron interés en estudiar aves como carrera, pero tres ya estudiaban aves para un obtener una maestría. El éxito académico en el curso estuvo relacionado con el interés general hacia las aves al final del curso.

Key words: attitude, education, ornithology, undergraduate course

INTRODUCTION

ALTHOUGH MANY EDUCATIONAL INSTITUTIONS in North America regularly offer an undergraduate course in ornithology (Burtt and Wilson 1999), to my knowledge only one educational institution within the English-speaking Caribbean has offered such a course (Hayes 1997). On six occasions from 1994-2000, I taught an undergraduate course in ornithology for four quarter credits to West Indian students studying for a Bachelor of Science degree in biology (from Andrews University, Michigan) at Caribbean Union College (CUC) in Maracas Valley, Trinidad.

To evaluate the impact of my course on the attitudes of students toward birds, I designed a questionnaire which I submitted to students taking my course during 1998 and 2000 (Appendix 1). In this paper I evaluate the responses of the students to the questionnaire and discuss the potential impact of an undergraduate ornithology course in recruiting bird enthusiasts and ornithologists within the region.

METHODS

Curriculum.—Although the curriculum of my course was briefly described earlier (Hayes 1997), the lecture topics and laboratory assignments of my most recent course are presented in Table 1. During the last two courses (1998 and 2000) the students participated in a greater variety of lab exercises than in previous years (Hayes 1997). In addition to a lab exercise devoted to capturing, processing and color

Table 1. Outline of lecture topics (some require two or more lecture periods; two midterm exams are also given) and laboratory exercises of my most recent courses (1998, 2000) in ornithology at Caribbean Union College.

LECTURE TOPICS: Introduction; Field methods: observing birds; Field methods: trapping and banding; Field methods: survey techniques; Origin and evolution of birds; Phylogeny; Classification: non-passerines; Classification: passerines; Feathers; Flight; Physiology and the environment; Feeding adaptations; Demography; Biogeography; Nervous system and visual communication; Vocalizations; Seasonal efforts, migration and navigation; Reproduction; Nests and incubation

LABORATORY EXERCISES: Field identification (campus); Mist-netting, morphometrics and banding; Mockingbird ecology and behavior (5 weeks; 1998 only); Independent research project (5 weeks; 2000 only); Field trip (all day); Analysis of results and writing of research report

banding birds, students spent just one lab rather than two identifying birds on the campus, did not conduct a population survey using point counts, and instead spent 2-3 lab exercises studying the biology of birds on the campus at their own convenience. In 1998, students were given structured projects for studying a color-banded population of the Tropical Mockingbird (*Mimus gilvus*) on the campus; in 2000, students selected their own research projects on other species while working alone or in groups of up to three. For the all-day field trip, we explored coastal sites where we saw a greater diversity of birds than we did during previous trips to the Asa Wright Nature Centre.

Student backgrounds.—The questionnaire (see Appendix 1) inquired whether each student: (1) was from a country in "the West Indies" or "outside the West Indies"; (2) was interested in pursuing a career in "medical sciences," "environmental sciences" or "primary or secondary school teaching"; and (3) had previously "participated in an ornithological research project" with me, either in Trinidad or Tobago.

Attitudes toward birds.—The questionnaire inquired whether each student was "most interested in learning about the": (1) "origin and evolution of birds"; (2) "anatomy and physiology of birds"; (3) "identification and classification of birds"; and (4) "ecology and behavior of birds." The questionnaire asked each student to rate the following statements on a scale of 1 (no) to 5 (yes): (1) "I like birds"; (2) "I enjoy watching and learning about birds"; (3) "I am interested in preserving the habitat of birds"; (4) "I am interested in studying birds as a hobby"; and (5) "I am interested in studying birds for a career." Overall attitudes for each student were computed by summing all five scores.

To assess changes in attitudes resulting from the course, the questionnaire was filled out by each student at the beginning of the course and a second time, without access to their previous responses, after the final exam was taken at the end of the course. At the end of the course in 2000, students were further asked whether they preferred "conducting an independent research project" or "conducting a structured, supervised research project"; overall attitude at the end of the course was compared between the two groups. To test whether academic achievement in the course was correlated with overall attitude toward birds, I compared the final percentage upon which grades were based for each student with overall attitude at the end of the course.

Statistical analysis.—Mann-Whitney *U* tests (*z* statistic; Zar 1984) were used to evaluate whether there were any significant differences in the responses of students before and after the course and to compare the overall attitudes of students preferring to conduct an independent or structured research project. A Spearman rank correlation coefficient (r_s statistic; Zar 1984) was computed to assess the relationship between academic achievement and overall attitude. The data were analyzed using Statistix 3.1 software (Anonymous 1990).

RESULTS

Student backgrounds.—From 1994-2000, 144 students took my course; all but one passed, though four with a "D" grade. Of 37 students enrolled in the course during 1998 and 2000, all of whom passed, 34 (91.9%) satisfactorily filled out both questionnaires. Of these, 30 (88.2%) were nationals from West Indian countries (three were from North America and one from Africa). Roughly two-thirds of the students (64.7%) expressed an interest in pursuing a career in the medical sciences; the remaining students expressed an interest in pursuing a career in the environmental sciences (20.6%), teaching primary or secondary school (5.9%), either medical or environmental sciences (2.9%), either environmental sciences or teaching primary or secondary school (2.9%), or none of the above (2.9%). Roughly a third of the students (32.4%) had previously assisted me with ornithological research (usually for credit in another course) in Trinidad or Tobago; the remaining students had no previous experience in ornithological research.

Attitudes toward birds.—Students were most interested in learning about the ecology and behavior of birds, followed by the identification and classification of birds (Table 2). The anatomy and physiology of birds was less appealing and students were least interested in learning about the origin and evolution of birds (Table 2). Because several students listed more than one subject that they were "most interested in learning about," especially before the course

Table 2. Frequency of responses by West Indian undergraduate students (N = 34) to the statement "I am most interested in learning about…." Note that several students listed more than one subject, especially before the course.

Subjects	Before	After
"Origin and evolution of birds"	2	2
"Anatomy and physiology of birds"	10	3
"Identification and classification of birds"	12	9
"Ecology and behavior of birds"	21	22

Table 3. Responses of West Indian undergraduate students (N = 34) on a scale of 1 (no) to 5 (yes) to statements before and after taking a course in ornithology.

Statement	Mean	SD	Range
"I like birds"[a]			
before	4.24	0.85	2-5
after	4.21	0.98	2-5
"I enjoy watching and learning about birds"[b]			
before	3.79	1.04	1-5
after	4.21	1.04	1-5
"I am interested in preserving the habitat of birds"[c]			
before	4.32	1.12	1-5
after	4.29	0.94	2-5
"I am interested in studying birds as a hobby"[d]			
before	2.91	1.33	1-5
after	3.35	1.23	1-5
"I am interested in studying birds as a career"[e]			
before	1.79	1.07	1-5
after	2.03	1.00	1-4
Overall attitude (sum of scores)[f]			
before	17.06	4.02	6-24
after	17.97	4.20	7-24

[a] $z = 0.07$, $P = 0.94$
[b] $z = 1.80$, $P = 0.07$
[c] $z = 0.49$, $P = 0.62$
[d] $z = 1.31$, $P = 0.19$
[e] $z = 1.12$, $P = 0.26$
[f] $z = 0.97$, $P = 0.33$

than afterward, I did not subject the data to statistical analysis. However, students appeared to have lost interest in the anatomy and physiology of birds (Table 2).

Students consistently responded that they liked birds and were strongly interested in preserving the habitat of birds; there were no significant changes in attitude either before or after the course (Table 3). By the end of the course, students enjoyed watching and learning about birds nearly significantly more than they did at the beginning of the course (Table 3). Students expressed a fair interest in studying birds as a hobby, which improved by the end of the course, though not quite significantly (Table 3). Relatively few students were interesting in studying birds as a career, though there was a slight but non-significant increase of interest by the end of the course (Table 3). Overall attitudes improved slightly but not significantly by the end of the course (Table 3).

Students completing the course in 2000 were equally divided over whether they preferred to conduct an independent research project (50%, n = 16) or a structured, supervised research project. Overall attitudes did not differ significantly between the two groups (z = 1.16, P = 0.25). Academic achievement in the course was significantly correlated with the overall attitude toward birds (r_s = 0.40, P = 0.02).

DISCUSSION

Burtt and Wilson (1999) analyzed the course content of undergraduate ornithology courses in North America and listed the most successful and least successful parts of courses based on comments provided by instructors. However, no direct feedback was provided by students in their study (though this should be incorporated by future studies). West Indian students were clearly more interested in learning about the ecological and behavioral adaptations of birds than their anatomy and physiology; this was consistent with the responses of North American instructors to the most successful and least successful parts of their course (Burtt and Wilson 1999). Burtt and Wilson (1999) also listed systematics among the least successful parts of ornithology courses. Although West Indian students expressed a relatively strong interest in "identification and classification of birds," based on my subjective observations they were far more interested in identification than classification. Student feedback should be important in

designing the content of an ornithology course, which could represent a tradeoff between what students find most interesting after completing the course and what the instructor feels is necessary to understand the subject.

In 1998, a multinational group of participants at a Society of Caribbean Ornithology workshop concluded that "environmental education and public outreach" should be the society's first avian conservation priority (Walker 1998). Furthermore, Walker (1998:77) stated that "The region is in need of more ornithologists and therefore courses in ornithology, conservation biology, and ecology should be considered in the curricula of West Indian universities." Courses in conservation biology and ecology have indeed been incorporated into the curricula of the University of the West Indies (UWI) campuses, but regrettably a course in ornithology has not (and is unlikely to be introduced any time soon). This study demonstrates that West Indian students generally have a strong appreciation of birds and a desire to preserve bird habitats, and that their interests in watching, studying and learning about birds can potentially be increased through an undergraduate course in ornithology.

Can an undergraduate course in ornithology recruit more bird enthusiasts and ornithologists within the region? Several of my students developed a serious interest in birds, though their interests were piqued in part by lab exercises in other courses, on-campus research projects, field trips and research expeditions to other parts of Trinidad and Tobago during their undergraduate tenure at CUC. A few students developed into fairly serious birders who have subsequently submitted reports of birds from St. Croix, Trinidad and Tobago to the weekly Southeastern Caribbean Bird Alert (Trinidad and Tobago Field Naturalists' Club 2000). Of 107 students who completed my course in ornithology from 1994-1997, at least three (2.8%) have studied birds for a master's degree in American universities. Comparative data from beyond the region are lacking. That these students chose to continue their studies outside the region suggests that West Indian universities need to become more competitive in attracting graduate students. It remains uncertain whether these students will ultimately return to the region.

That few West Indian students expressed a strong interest in studying birds for a career likely reflects the perceived lack of employment opportunities within the region. However, bird enthusiasts and ornithologists should benefit from increased opportunities for employment resulting from regional increases in ecotourism, the expansion of tertiary education (both new and established institutions), and the proliferation of environmental legislation requiring environmental impact assessments of development projects.

The major goals of an ornithology course should simply be to engender an appreciation of birds and to nurture an awareness of environmental issues. Clearly the more students receiving advanced training in ornithology the more allies we will have among the next generation of leaders in future political battles over environmental issues that ultimately will decide the fate of West Indian birds.

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APPENDIX 1. Questionnaire used for my ornithology course, modified slightly by excluding a list of environmental courses taken at Caribbean Union College (not analyzed in this paper).

The following questionnaire is designed to evaluate the impact of a tertiary level ornithology class on student attitudes toward the environment in general and birds in particular. The questionnaire will be given at the beginning and at the end of the course. The results of the questionnaire will be anonymous and will NOT influence your final grade. However, to compare scores before and after the class, you must provide your student number.

A. My student identification number is:

B. I am from a country in:
   1. ___ the West Indies
   2. ___ outside of the West Indies

C. I have participated in an ornithological research project under the supervision of a professor for the following amount of time:
   1. ___ never
   2. ___ 0-1 weeks
   3. ___ 1-2 weeks
   4. ___ more than 2 weeks

D. I am interested in pursuing a career in:
   1. ___ medical sciences
   2. ___ environmental sciences
   3. ___ primary or secondary school teaching

E. I am most interested in learning about the:
   1. ___ origin and evolution of birds
   2. ___ anatomy and physiology of birds
   3. ___ identification and classification of birds
   4. ___ ecology and behavior of birds

On a scale of 1-5, please circle the appropriate number for the statements below:

		NO----------				----------YES
F.	I like birds.	1	2	3	4	5
G.	I enjoy watching and learning about birds.	1	2	3	4	5
H.	I am interested in preserving the habitats of birds.	1	2	3	4	5
I.	I am interested in studying birds as a hobby.	1	2	3	4	5
J.	I am interested in studying birds for a career.	1	2	3	4	5

UPDATE ON THE "WEST INDIAN WHISTLING-DUCK (WIWD) AND WETLANDS CONSERVATION PROJECT" – REPORT FROM THE WIWD WORKING GROUP

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THE WEST INDIAN WHISTLING-DUCK WORKING GROUP (WIWD-WG) held its fourth meeting on 6 August 1999 at the Society of Caribbean Ornithology's annual meeting in Santo Domingo, Dominican Republic. For the past 4 years, the group has been working to reverse the decline of the endangered whistling-duck, a Caribbean endemic, and to make it a "flagship" for wetlands conservation in the region. As part of our region-wide Public Education and Awareness Program we have developed and distributed several educational tools on the duck and the importance of wetlands in general. We also conduct workshops for natural resource agencies and schoolteachers on the use of our materials and are now in the final stages of preparing a wetlands education workbook for schoolchildren of all ages. The WG also provides training to regional biologists in waterfowl population survey and monitoring techniques and has awarded funds to individuals in several islands for surveys of WIWD populations and identification of important wetland habitats for protection.

A second grant proposal submitted to the US Fish and Wildlife Service Western Hemisphere Program for continued support of the WIWD and Wetlands Conservation Project was awarded funding in the spring of 1999. These new funds have enabled us to continue making progress on our project objectives. We also gratefully acknowledge support we have received from Ducks Unlimited Canada, Conservation International Bahamas, and the American Bird Conservancy. Finally, we thank the Royal Society for the Protection of Birds (RSPB) for providing travel funds for all the UK Overseas Territories delegates (Anguilla, British Virgin Islands, Turks and Caicos Islands, Cayman Islands, and Montserrat) to attend the SCO meeting, as well as contributing to the WIWD and Wetlands Education Workshop.

Co-chairs Lisa Sorenson and Patricia Bradley gave updates at the Santo Domingo meeting on new materials that have been developed for the Public Education and Awareness Program, and WIWD-WG Island Representatives reported on progress in public education and monitoring of WIWDs in their countries. As evidenced from the Island Representative reports, several islands are doing a phenomenal job with our education program. Here, we provide a summary of the Working Group's activities and accomplishments in 1999 and our plans and objectives for 2000.

PUBLIC EDUCATION AND AWARENESS PROGRAM

"*Ducks of the West Indies" Hunter Identification Card*.—Using illustrations from *A guide to the birds of the West Indies* (Raffaele *et al.* 1998, Princeton Univ. Press), graphic artists at Ducks Unlimited's Oak Hammock Marsh assisted us in the design of this beautiful and durable plastic identification card for hunters and birders. The front side of the card shows 12 resident and migratory species on the water or in a standing posture; the back side shows them in flight. Sticky colored dots can be added to the card to indicate protected and threatened species on each island. Two thousand cards were published in August 1999 and an initial supply was provided to WIWD Working Group Island Representatives who are responsible for distributing them in their countries. The cards will be used in hunter education programs and distributed to hunting clubs and sporting good stores. Our hope is that use of the identification card by hunters will reduce accidental shooting of the WIWD and other protected duck species.

WIWD Conservation Button.—Both English and Spanish versions (1000 each) of a WIWD conservation button were produced in August 1999. Depicted on the button is an elegant WIWD with the following caption overlaid in yellow print: "Keep the Whistlers whistling!" (English version) and "Yo (heart symbol) Yaguaza!" (Spanish version). These buttons are being distributed as part of our Public Education and Awareness Program and are especially popular with schoolchildren.

Wondrous Wetlands of the West Indies.—A second draft of our wetlands education resource book for teachers and educators has been completed by Martin Keeley in the Cayman Islands and the workbook has undergone initial editing and review by a professional editor. A team of WG members and teachers is now conducting a thorough review of the workbook's contents and making final revisions. When completed, the workbook will be sent to the Royal Society for the Protection of Birds (RSPB) in the UK for assistance with design, layout, and final editing. USFWS Partners-in-Flight Program will fund the translation into Spanish and contribute towards publication costs of the Spanish version of the workbook.

The goals of the workbook are to teach schoolchildren of all ages about Caribbean wetland ecology and the many values and functions of local wetlands, and to instill in them a strong wetland conservation ethic. The workbook emphasizes learning about Caribbean wetlands both in the classroom and in the field and is divided into six chapters with the following titles: (1) Wet and Muddy: What and Where are the Wetlands?, (2) Wild and Wet: What Lives in Wetlands?, (3) Wetlands, not Wastelands: Why are Wetlands Important?, (4) Going, Going, Gone: What is Happening to Wetlands?, (5) Save the Wetlands—Save the World: What You Can Do, (6) Seeing for Yourself: How to Organize a Wetland Field Trip. Each chapter contains background information and many classroom activities designed to reinforce learning of the concepts presented in the chapter.

Other materials available.—Other educational tools we have available include a slide show for the general public, hunters, and secondary-age students; a puppet show ("Wetlands are Wild") and WIWD coloring book for primary-age students; and color posters promoting the conservation of the WIWD (for more information on these materials see *El Pitirre* 11[1]:19-22 and *El Pitirre* 11[3]:126-131). We conduct workshops for natural resource agencies and schoolteachers on the use of our materials. Please contact Lisa Sorenson or Patricia Bradley for information on holding a workshop in your country or to receive copies of our materials.

WIWD and Wetlands Education Workshop.—The WIWD Working Group sponsored a WIWD and Wetlands Education Workshop at ZooDom, Parque Zoologico Nacional in Santo Domingo on 29 July 1999. The Workshop was attended by 45 people, including local educators and representatives from several islands. The workshop was successful in raising local awareness about the WIWD and the importance of wetlands conservation. Kate Wallace arranged for the writing and performance (at the Workshop) by professional puppeteers of an artistic and dramatic "Dominican" version of our "Wetlands are Wild" Puppet Show. Martin Keeley led the participants in several hands-on demonstrations and activities (from our workbook), all designed to teach students about some aspect of wetlands. All attendees participated with great enthusiasm and interest. One highlight occurred towards the end of the day when the group split up and had the opportunity to show off their talents and creativity both in art and music. Within about 45 minutes time, a beautiful wetland mural was created and several songs about the WIWD and wetlands conservation were composed and performed. We include the lyrics to one of the songs here; they are not copyrighted so feel free to use them in your own education programs!

WETLAND RAP SONG
("spoken" with a strong rap beat)
Composed by Ijahnya Christian, Suzanne Davies, Ethlyn Gibbs-Williams, Jim Stevenson, and Lisa Sorenson

Verse 1: *They call me a swamp*
'Cause I'm wet and I'm damp
But I'm food, clothes and shelter
And I make life better
For without me and my mangrove tree
I really don't know where this island would be

Chorus: *I protect the land*
And I protect the sea
I'm a wetland
I'm a wetland

Verse 2: *Black, white, buttonwood,*
Walking roots red
Don' build that hotel or we'll all be dead
I'm a very special tree 'cause I grow in the sea
The West Indian Whistling-Duck depends on me (chorus)

Verse 3: *He's the home of the birds*
Let me tell you
If you don't know their names
Then here are a few
Scar-let I-bis, Flamingo too
Frigate "Man-o'-War:
(I'm not talkin' 'bout the zoo)
There's the Pelican
And the Whistling-Duck
And the Tropic Bird
You can see them all with luck! (chorus)

Verse 4: *Wetlands are good*
We're the home of the duck
We protect you from storms when you run out of luck

Groupers, crabs, snail, mosquitoes, and the heron,
If you take away our homes, your lives will be barren (chorus)

Verse 5: *The osprey eat the fish*
The fish eat the crab
The crab eat the snail
And the snail eat the mud
It's a food chain
It's a food chain (chorus)

WIWD AND WETLANDS EDUCATION ISLAND REPORTS

Bahamas.—Thanks to the hard work of Lynn Gape, Monique Clark, and other staff of the Bahamas National Trust (BNT), over 5000 schoolchildren and residents throughout the Bahamas (New Providence, Grand Bahama, Inagua, Eleuthera and Abaco) have seen our WIWD slide show and *Wetlands are Wild* Puppet Show in presentations at schools, public meetings, and teacher workshops. The WIWD Project has also been well-publicized in local newspapers, with articles featuring student essays about wetlands, written after they had seen the puppet show or slide show. Lynn and her staff have also been responsible for putting together and shipping the puppet show kits. To date, 25 kits have been distributed to 11 countries. The BNT staff and several local schoolteachers have worked closely with us on the writing of the wetlands workbook and kindly hosted a workshop for the principal authors in April 1999 at the Trust headquarters in Nassau.

Cayman Islands.—Wetlands educator, Martin Keeley, has been coordinating the Public Education and Awareness Program in the Cayman Islands with great energy and success. He has traveled to all three islands to give presentations on WIWD and wetlands conservation to schools, youth groups, church groups, and service organizations. He has also held teacher workshops on the use of our materials. Virtually all citizens on Cayman Brac have been exposed to the WIWD and wetland programs and Martin has received approval from the Ministry of Education Science Coordinator to integrate our WIWD and wetlands education material into the school curriculum. Together with Martin, the youth of the Cayman Islands Junior National Trust built a WIWD puppet theater and have given several performances of the puppet show. Other activities included an article on the WIWD project in the popular press and a TV show featuring a restored wetland on a local farm, home to several hundred WIWDs and our first Watchable Wildlife Pond.

The Watchable Wildlife Pond at Malportas Pond has been completed; contractors donated the building materials and a viewing area was constructed and landscaped by Rotary International, which also provided labor. The West Pond is frequently viewed by tourists, local people, and school and tour groups. An interpretive sign will also be added. Up to 600 ducks are often present along with up to 400 Blue-winged Teal and 15 species of waterbirds (ducks, rails, herons and waders).

Patricia Bradley presented a poster about our WIWD and Wetlands Conservation Project at the 2000 American Ornithologists' Union meeting in Nova Scotia. She reports that it generated a lot of interest and positive feedback. She also gave a presentation on our project at the UK Overseas Territory meeting in Gibralter (funded by RSPB).

Turks and Caicos Islands.—Ethlyn Gibbs-Williams of the National Trust for Turks and Caicos Islands has initiated an excellent education program in the Turks and Caicos Islands (TCI). She reported that WIWD materials had been incorporated into a nation-wide environmental education and awareness campaign called "Our land, our sea, our people." Ethlyn distributed 75 WIWD posters to businesses, schools, and public places on the main island. She made WIWD slide presentations to four schools and one community group including 392 adults and children. Ethlyn noted that the campaign has undoubtedly made an impact on the population. The Trust has received numerous requests from businesses, offices, individuals, and schools for more WIWD posters and coloring books. Headteachers and staff have requested school visits featuring the WIWD slide show and other TCI birds. A press release, issued to request information on WIWD sightings, generated many responses. Finally, the Education Department has incorporated questions about the WIWD in the General Paper Country 1999 Primary Schools Grade 6 Achievement Test. The Trust is gearing up for more public awareness activities in cooperation with the Coastal Resources Management Project National Parks Office and is planning to hire additional staff to assist with the campaign.

Cuba.—A network of collaborators and institutions in six provinces has been doing an amazing job of implementing our education program (see Mugica *et al.* 1999, "Implementation of an environmental plan for the WIWD in Cuban schools," *El Pitirre* 12 [3]:113). Participating institutions include the Museo de Historia Natural "Felipe Poey", Universidad de La Habana (Leader), Zoologico de La Habana, Facultad de Biología (Universidad de La Habana), Museo Nacional de Historia de Ciencia de Cuba (La

Habana), Institute of Tropical Geography (La Habana), Empresa Nacional para la Conservación de la Fauna y la Flora (Granma and Villia Clara), Museo de Historia Natural "Carlos de la Torre" (Holguin), Pedagogical Institute "Carlos de la Torre (Santiago de Cuba), and CITMA (Ciénaga de Zapata, Matanzas). Lourdes Mugica reported that the program started with two training workshops on the use of the materials, one at the Havana Zoo with biologists (24 persons) from the Protected Areas all over the country and educators (3) from the Zoologico de La Habana; and the other at the Universidad de La Habana for professionals and undergraduate students working on the campaign in La Habana. Once trained, these collaborators gave talks and slide shows to Cuban schoolchildren, the general public, educators, museums, zoos, hunting groups, and natural resource personnel throughout the country. In total, the package has been used with 159 audiences and 4485 people. A highlight of the program was the dedication of the month of March at the Zoo to the WIWD and aquatic birds. Activities included slide shows; talks; and contests of painting, poetry, songs, ceramics, and stories related to the WIWD; and culminated with a one-day festival with many different activities for the children and an exhibition of the best works. Lourdes found that environmental awareness was indeed raised through the program; statistical analysis of a questionnaire given to the students both before and after the presentation showed that children knew substantially more about the WIWD and importance of wetlands following their exposure to the materials.

Nidia García Sarmiento of the Pedagogical University led the program in Santiago de Cuba province. The University worked in 65 primary and secondary schools in two municipalities. The program started with a course on environmental education given to 25 and 28 educators in each municipality. These educators then organized the activities in their local schools. Activities included: slide shows, workshops (3) on the biodiversity and environmental problems of each locality and the relations between the community and school, a festival for the protection of the WIWD in each school, and a final festival at the municipality with the best results on display from each school. About 2000 children were involved in the program and the results were presented at an international symposium (Pedagogia '99). The slide show was also presented to several community groups and conferences.

Orestes Martínez is working in the Ciénaga de Zapata area (Matanzas) which is surrounded by 12 communities. Formerly, no environmental education programs existed in this area. Orestes presented the slide show to each community and found that it was very well received. The International Crane Foundation funds an annual crane festival in the area and has produced a publication. He would like to plan a similar festival for WIWDs.

Jamaica.—Suzanne Davis reported that although she and Leo Douglas (educators with Birdlife Jamaica) had been studying abroad during much of the past year, they did manage to promote WIWD and wetlands conservation through several activities. These included publication of an article on the WIWD in collaboration with the Natural History Society of Jamaica in a children's newspaper, *Children's' Own*, a presentation to 33 people at a summer youth camp, and presentation of five posters to the Natural History Society of Jamaica. Slide packages were given to the Jamaica Conservation and Development Trust and St. Thomas Environmental Protection Agency. Ann Sutton has been a major contributor to our wetlands workbook project; her writing skills and creativity have been a tremendous asset as we complete this project.

Dominican Republic.—Because of the demands of planning for the SCO conference and WIWD and Wetlands Workshop at the Zoo, Kate Wallace was not able carry out many WIWD education activities. She did arrange for the development of the "Dominican" puppet show that was performed at the Workshop; the text is available in Spanish. She also reports that Domingo Siri found a pond that could be developed as a Watchable Wildlife Pond in Santo Domingo.

SURVEY AND MONITORING OF WIWDS

ISLAND REPORTS

Jamaica.—Ann Sutton has continued her research into the distribution and status of WIWDs in the Black River Morass, the most important and most accessible habitats for WIWDs in Jamaica. She has completed a final report of her findings for the WIWD-WG. She estimates a population of around 100 individuals in the Upper Morass and 15-20 individuals in the Lower Morass. The habitat data suggest that ducks occur where there is a combination of open water, trees, and herbaceous marsh (preferably including reed beds). Threats to the Black River habitat include conversion of wetlands for agriculture, pest control operations at fish farms, and development of housing and resorts in the Parottee area. Another potential threat is the opening of a hunting season for migratory ducks, for which Jamaican hunters continue to lobby. Working with the Game Bird Research Committee, Ann (together with Dr.

Peter Vogel) has attempted to ensure that the decision about whether to hunt was made based on the best possible information and she advocated more research on status of the resource and habitat use before a decision was made. Not all actual or potential WIWD habitats have been zoned and the extent to which existing no-hunting areas cover WIWD habitats in the Black River is not known. Ann states that shooting in any part of the Black River area would likely be detrimental to WIWDs.

Ann has also focussed on mapping and zoning of habitat in the Upper Morass, using aerial photographs obtained from the Natural Resources Conservation Authority (NRCA). These have been incorporated into a Draft Management Plan for the Black River Managed Resource Protected Area, St. Elizabeth, Jamaica, a report prepared by A. Massa and A. Haynes-Sutton (1999) for the NRCA. Included in this plan were: a species action sheet for WIWDs, recommendations for management and rehabilitation of key habitats, including swamp forests, freshwater wetlands and mangroves, recommendations for monitoring and research, and management recommendations for specific areas of importance for WIWDs. The recent nomination and acceptance of Black River Lower Morass as a Ramsar site (effective 7 February 1998) highlights the need for active conservation of the threatened and endangered waterfowl of the area.

Turks and Caicos Islands.—Ethlyn Gibbs-Williams (TCI National Trust) and Geoff Hilton (RSPB) reported on a major survey of WIWDs funded by RSPB and the Wildfowl and Wetlands Trust as part of their support of the TCI National Trust and WIWD-WG. A three-man team (including Geoff) from the UK conducted the survey over a 6 week period (23 February – 5 April 1999) with the objective of determining whether WIWDs are resident there. Literature research had revealed only one published breeding record for the WIWD in the TCI. The 1992 Red Data Book-Threatened Birds of the Americas lists five other records of flocks of WIWD on the TCI. Later records of sightings include Middle Caicos Bird List compiled 2-8 December 1997 by Marsha Walsh-McGehee (Island Conservation Effort) and UK Overseas Territories Conservation Forum scientists, 27 and 30 October 1998 (several broods sighted by P. Bradley).

A secondary objective was to assess survey methods. The team used a variety of methods, including casual visits, interviews with local residents, playback, watching flight patterns, aerial surveys, transects through potential roosting sites, and standing on potential flight lines at dusk. A press release to the media gave information about the threatened duck and appealed for support and cooperation from the public. Flyers and remaining posters of the WIWD were placed in public places.

The team visited coastal wetlands and inland ponds and lakes on Providenciales, Middle, North, and West Caicos. A systematic and repeatable survey method was adopted. Each survey site was visited once to determine where access was best for three people to oversee as much of the site as possible. The site was then visited for at least two hours either at dawn or dusk. A tape recording of WIWD calls was played to encourage any ducks present to respond. At all sites a detailed count was made of wetland birds seen and any other birds of conservation interest. Transects through potential roosting sites were also attempted but this was slow because of the dense scrub and mangrove vegetation and it was impossible to cover enough ground with this method. In the absence of suggestions about possible flight lines at dusk, it was difficult to determine where to stand to observe ducks. Because of an unusually intense drought during the survey period (rains are usually February–April), many of the ponds were dry. Other ponds and lagoons fed by underground spring were inaccessible because local guides were unable to recall accurate directions.

Over 43 sites were visited. In addition, a two-hour aerial survey by light aircraft of Middle and East Caicos to ascertain whether ducks could be identified from air was undertaken before ground visits. The aerial survey showed an abundance of apparently suitable habitat, but no birds were seen. Geoff noted that aerial surveys to find and count WIWDs were useful only if they were conducted in daylight and the birds were on open water (not a likely situation because WIWDs are nocturnal and typically roost in dense vegetation during daylight hours). A limited amount of time was spent in boats surveying mangrove swamps on North and Middle Caicos. Only one site, Jacksonville Pond on East Caicos, revealed any WIWDs. Four individuals were counted on two lagoons. Observations were made at dawn and dusk, and the team found that the birds did respond to the taped WIWD calls.

The team concluded that more WIWDs may use TCI's wetlands, but had perhaps moved elsewhere because of the drought. They recommended the surveys be repeated when conditions were more favorable. L. Sorenson commented that White-cheeked Pintails move around depending on wetland conditions and can be difficult to see during periods of

drought. When the rains come, a sudden increase in the production of aquatic invertebrates occurs and the birds take advantage of this to breed. WIWDs might behave in a similar way.

A subsequent observation well after the survey confirmed the importance of good wetland conditions to WIWD breeding and habitat use. Ethlyn reported that on 22 July 1999 (following heavy rains), a local volunteer observed and took video footage of a group of two adults and 12-14 duckling WIWDs on Village pond on Middle Caicos.

A wide variety of other wetland birds was recorded during the surveys, including 11 species of heron, 7 duck species, 4 rail species, 23 shorebird species, Sandhill Crane, Greater Flamingo, Belted Kingfisher, Brown Pelican, White-cheeked Pintail, Blue-winged Teal, Pied-billed and Least Grebes, American Coot, Double-crested Cormorant, Neotropic Cormorant, Mangrove Cuckoo, and Piping Plovers.

Following the survey, a workshop was held to present findings and establish groundwork for future surveys and monitoring of wetland birds. Workshop participants included personnel from the government Department of Environment and Coastal Resources, National Trust staff and volunteers, and interested residents. Activities included two field courses demonstrating field techniques at wetlands on Providenciales.

Cuba.—Cuban biologists have put together a team of five individuals to collaborate on field work of WIWDs and they are making excellent progress in getting estimates of population size, distribution, habitat characteristics, feeding, and local movements (see Mugica *et al.* 1999, "Preliminary results of a survey of the distribution of the WIWD in Cuba," El Pitirre 12[2]:58-59; Peña *et al.* 2000, ""Registro de localidades para la Yaguaza Antillana [*Dendrocygna arborea*] en la region centro-oriental de Cuba," El Pitirre 13[2]:49-51).

Lourdes and colleagues have been working in a 30 km^2 wetland in Viramas Swamp. The area is remote and accessible only by boat. They have no engine, so surveys are slow and incomplete. An aerial survey is essential to identify the best prospective habitats. Flocks of up to 40 birds were seen. Only one abandoned nest was found.

Northwest: Carlos Peña has made two visits to a major swamp, where he estimated more than 5000 WIWDs may exist.

Carlos Peña and colleagues have carried out surveys in the Cayo Confiti area in Camagüey and found about 5000 individuals in the study area, which included three dams. The Rola Dam was 95% covered with floating and emergent vegetation of 21 species, dominated by bulrush (*Typha dominigensis*). He found WIWDs at 60 localities, 27% of which were in rice plantations and 20% in mangroves. These localities corresponded with the historic distribution of the species. Only one nest was found. The main cause of mortality is hunting.

Peña concluded that the species is not rare in Cuba, but locally common in appropriate habitat. The relative abundance of WIWDs in Cuba compared to other islands is probably the result of more abundant habitat, as Cuba is 75% flat, with many large wetlands. The population in Cuba appears to have greatly increased. These results suggest the need to revise the status of the species, at least in Cuba.

Bahamas.—Montserrat Carbonell (Ducks Unlimited, Inc.) organized a monitoring workshop at the BNT headquarters in April 2000 for ornithologists and natural resource personnel from the Bahamas, Cuba, Puerto Rico, Jamaica, and the Dominican Republic. The objectives of the workshop were to help the Bahamas develop a survey program for migratory ducks and to discuss methodologies and the possibility of working together on surveys at the regional level. A similar workshop is planned for the Dominican Republic in October 2000.

Cayman Islands.—Patricia Bradley reported that there had been no surveys over the last 12 months. Breeding habitats have not been reduced. A Ramsar site has been declared on Little Cayman Island. WIWDs are breeding on Cayman Brac. The total population of the three islands is estimated at from 800 to 1200 individuals and it appears to be stable.

Dominican Republic.—Kate Wallace informed the meeting that after Hurricane George and with many downed trees, the stream in the Botanical Garden in Santo Domingo contained many more pools, resulting in excellent habitat that attracted WIWDs. Broods of about 10 new ducklings were found in every month from January to July. The juveniles seem to stay in the area (especially in the grassy areas and wetlands) for at least two months before dispersing. WIWDs were sighted in the Cabo Rojo wetland in July and September 1998.

Antigua and Barbuda.—Kevel Lindsay explained that a proposed survey, an addition to an on-going wetlands survey and monitoring project by the Environmental Awareness Group (EAG), was funded by United Nations Development Program (UNDP), Barbados. It included a two-week survey of the two is-

lands. Ann Sutton is presently (August 2000) in Barbuda conducting this survey in cooperation with EAG in Antigua. As far as Kevel knew, no loss of habitat has occurred, but the repercussions of the now cancelled Asian Development Project were still being felt. The expatriate owners of an island (on which 80 resident WIWDs roosted, and were being fed) were ousted. The ducks had scattered and some were still seen on other islands in small groups. They probably breed on offshore islands. Several nests were seen in June 1999, following unseasonable rains. The population in Antigua is probably about 500. Since the 1970s, intermittent reports have been made of large flocks in Barbuda, but the present status is unknown, hence the proposed survey.

Puerto Rico.—Francisco Vilella reports that there is no formal monitoring of WIWD in Puerto Rico. The Department of Natural and Environmental Resources (DNER), however, conducts waterfowl surveys of the main island and its satellites (Vieques and Culebra), a Federal Aid funded project headed by David Ramos of DNER. The survey is aimed at wintering duck populations, but David's crew counts all ducks seen.

Francisco Vilella's project (funded by DNER) to rehabilitate Humacao has great potential, because this is possibly the most important area for WIWDs in Puerto Rico (population estimate of 100). Francisco has two graduate students working in restoration aspects and survival and habitat use of White-cheeked Pintail and WIWD. The students are capturing and radio-marking hens and broods of both species.

British Virgin Islands.—Nancy Woodfield (BVI National Parks Trust) said that no WIWDs have been recorded on BVI, but suitable habitat occurs on Anegada. She expressed an interest in doing surveys. A. Sutton promised to send a tape and some forms.

Anguilla.—Ijahnya Christian (Anguilla National Trust) reported that Dave Prichard did not record any WIWDs in his 1990 survey. Anguilla has no wetlands or salt ponds.

SUMMARY.—The main population of WIWDs appears to be in Cuba, where the population may be more than 10,000 birds. Elsewhere populations are small and fragmented. An urgent need exists for wetland protection throughout the region.

DIRECTIONS FOR THE FUTURE

Our primary objective in the coming months is to complete and publish our wetlands education workbook, *Wondrous Wetlands of the West Indies*. The WG is also planning to publish a *Fauna and Flora of the Wetlands* field guide through a USFWS small field guide project. The guide will serve as a reference for the workbook but will also stand alone. Once published, we will distribute these books to our target islands and hold Teacher Training Workshops in each island to demonstrate use of the workbook and our other materials. Our long-range goal is to see that a Wetlands Education Unit (comprised of the materials we have developed) becomes a permanent part of every school's science curriculum in each of our target islands. Island Representatives of the WIWD-WG will work with Education Department personnel in their countries to reach this goal.

Our second objective for 2000 is to continue assisting local biologists with surveys and monitoring of WIWD populations and in the establishment of a long-term monitoring program in two countries. Knowledge of WIWD population levels and habitat use are crucial in making management plans, setting priorities for habitat conservation, and ensuring that areas providing the WIWD with quality habitat year-round are protected.

STATUS AND CONSERVATION OF WEST INDIAN SEABIRDS

EDITED BY E. A. SCHREIBER AND DAVID S. LEE

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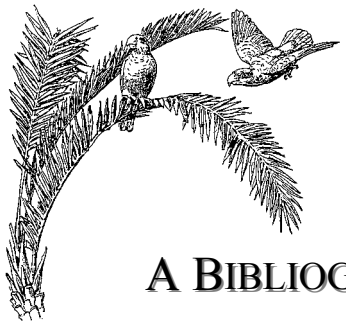

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