

The Central American Waterbird Census

EC Contract No. 3000631213



Deliverable 2: Final report of the Central American Waterbird Census

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WHSRN Executive Office - Manomet

Introduction

The Central American Waterbird Census (CAWC) was launched in 2011 by the Waterbird Conservation Council in coordination with Wetlands International and BirdLife International. The census forms part of the International Waterbird Census (IWC), a program of Wetlands International that was first established in Europe in 1967 and since the 1990s has also covered Africa, Asia and South America. The goals of the IWC are to monitor changes in waterbird numbers and distribution; to improve knowledge of little-known waterbird species and wetland sites; to identify and monitor sites that qualify as Wetlands of International Importance under the Ramsar Convention on Wetlands; to provide information on the conservation status of waterbird species; and to increase awareness of the importance of waterbirds and their wetland habitats at local, national and international levels.

Ever since the initiation of the CAWC in 2011, the census has gradually been growing in significance, both in terms of the sites and species surveyed, and the number of volunteer participants across the seven countries. Regional coordination was initially led by BirdLife International, but most recently by the Fundación Ecológica SalvaNATURA (El Salvador). In the current year, the WHSRN Executive Office assumed regional coordination.

This report presents a summary of the results of the Central American Waterbird Census conducted in February-March 2017.

Methodology

The CAWC has been implemented following the methodology of the Neotropical Waterbird Census. Lead organizations in each Central American country were contracted to coordinate and undertake the census, and were asked to define key sites for the census and encourage census participants to undertake at least one waterbird census at a key wetland site. Key wetland sites are considered to be Ramsar site, wetland Important Bird Areas (IBAs), wetlands Protected Areas or WHSRN.

Data were collected on slightly modified versions of the two standard t NWC forms, and three options were provided for submitting the data: via the national coordinating organizations, to the e-mail address censo.avesacuaticas.ca@gmail.com, or via eBird <http://ebird.org/content/ebird> (in which case participants were asked to add “Central American waterbird census” to the note section).

Participation

National Coordination

The following organizations were sub-contracted by the WHSRN Executive Office as national census coordinators:

Belize - Belize Audubon Society

Costa Rica - Unión de Ornitólogos de Costa Rica (UOCR)

El Salvador – Fundación Ecológica SalvaNATURA

Guatemala - Fundación para el Ecodesarrollo y la Conservación (Fundaeo)

Honduras - Asociación Hondureña de Ornitología

Nicaragua – Quetzalli Nicaragua S.A.

Panama - Sociedad Audubon de Panamá

Participating organizations

In most of the participating countries, other organizations also took part in the waterbird census. In Costa Rica, the UOCR teamed up with the National Museum of Costa Rica, which, in the past, has coordinated the waterbird census in Costa Rica. In El Salvador several local and national authorities joined the census, including the Municipalities of San Dionisio, Usulután and the Bahía de Jiquilísco; the National Police; the Environmental Division of the Armed Forces; and the Ministry of Environment and Natural Resources. FUNDAECO in Guatemala carried out the census with help from the Avitourism Association and Belize Audubon Belize Audubon was assisted by members of the Scarlet Six-biomonitoring team. In Honduras several bird observation clubs participated in the census, including Club Zorzales, Club Cotinga and Club Chlorofonias.

Participants

A total of 150 people participated in the census, with most participants in Panamá, Nicaragua, Honduras and El Salvador (Table 1).

Table 1: Number of volunteers and institutions participating in each country

Country	No. participants
Belize	15
Costa Rica	12
El Salvador	26
Guatemala	7
Honduras	30
Nicaragua	30
Panamá	30
Total	150

Results

A total of 152 sites and sub-sites were visited in the seven participating countries of Central America. A total of 111 waterbird species were recorded and 229,241 individuals counted. The country with the highest numbers, both regarding number of species and total individuals, was El Salvador where a total of 73,606 waterbirds of 78 different species were recorded. Also, high counts of waterbirds were observed in Costa Rica (52,801 individuals; 71 species) and Panama (50,375 individuals; 54 species). Table 2 presents a summary on the basic results per country.

Table 2: Summary of the Central American Waterbird Census results per country

Country	No. Sites	No. Species	No. Individuals
Belize	17	64	3055
Costa Rica	25	71	52801
El Salvador	45	78	73606
Guatemala	23	70	7436
Honduras	9	64	8648
Nicaragua	28	77	33327
Panamá	5	54	50375
Totals	132	111	253,568

Of the 152 sites visited during the waterbird census, 21 have been declared as Important Bird Areas (IBAs), 11 are Ramsar sites and two sites are part of the Western Hemisphere Shorebird Reserve Network. Nine of these sites are recognized as both a Ramsar site and IBA, while the Upper Bay of Panamá is a WHSRN site and an IBA and Ramsar site.

Comments on sites

Most sites were surveyed in El Salvador, where a total of 45 were visited for the waterbird census (Table 3). Of these 45 sites, most waterbird were counted at Laguna de Olomega (15,505 individuals) and Laguna El Jocotal (13,347 individuals), both IBAs. The site where most waterbirds was recorded was Zona de Reserva Marino-Costera los Manglares de Panamá Viejo in Panama where a total of 26,999 waterbird were counted. Another site with a count over 20,000 waterbirds was Embalse Sandillal in Costa Rica where 26,807 waterbird were counted. Other noteworthy sites with high counts of waterbirds included the Delta Estero Real in Nicaragua (18,430 individuals) and Costa del Este in Panama (Upper Bay of Panama, 18,998 individuals).

Sites with a high diversity of species included Finca Tamashan-Guamuchal in Guatemala and Delta Estero Real in Nicaragua with 45 and 44 species respectively. High numbers of species were also recorded at Cerrón Grande (El Salvador), El Paredón (Guatemala) and Playa San Carlos (El Salvador) with 37, 36 and 35 species respectively. A summary of the counts for each site is presented in Table 3.

Table 3: Summary of species and individuals recorded at each site during 2017 CAWC

Country	Site	Site status	Total species	Total count
Belize	Gra Gra Lagoon (Wetlands and Beach) - Dangriga Town	IBA (BZ004 - Belize Coastal and near shore islands)	34	320
	Dangriga Beach North - Dangriga Town	IBA (BZ004 - Belize Coastal and near shore islands)	15	96
	Dangriga Beach South - Dangriga Town	IBA (BZ004 - Belize Coastal and near shore islands)	23	167
	Hopkins Wetlands - Hopkins Village	IBA (BZ004 - Belize Coastal and near shore islands)	30	586
	Hopkins Beach North - Hopkins Village	IBA (BZ004 - Belize Coastal and near shore islands)	6	70
	Hopkins Beach South - Hopkins Village	IBA (BZ004 - Belize Coastal and near shore islands)	4	14
	Stones Pond on Access Road - Spanish Lookout		2	3
	Center Road Reservoir - Spanish Lookout		9	50
	Countryside Park - Spanish Lookout		10	129
	Aguacate Lagoon - Spanish Lookout		3	9

	Rice Farms - Spanish Lookout		16	81
	Bird's Eye View Lodge - Crooked Tree Wildlife Sanctuary	Ramsar/ IBA (BZ003 - Crooked Tree and associated wetlands)	18	203
	Black Creek - Crooked Tree Wildlife Sanctuary	Ramsar/ IBA (BZ003 - Crooked Tree and associated wetlands)	29	429
	Mexico & Jones Lagoon - Crooked Tree Wildlife Sanctuary	Ramsar/ IBA (BZ003 - Crooked Tree and associated wetlands)	14	343
	Southern Lagoon - Crooked Tree Wildlife Sanctuary	Ramsar/ IBA (BZ003 - Crooked Tree and associated wetlands)	8	22
	Alligator Pond - Crooked Tree Wildlife Sanctuary	Ramsar/ IBA (BZ003 - Crooked Tree and associated wetlands)	20	354
	Western Lagoon - Crooked Tree Wildlife Sanctuary	Ramsar/ IBA (BZ003 - Crooked Tree and associated wetlands)	15	179
Costa Rica	Casa Turire		15	105
	Finca La Liliana		17	47
	Laguna Doña Ana		8	69
	Monumento al Desarme		2	26
	Playa Bajamar		3	18
	Punta Piuta		1	1
	Represa Chucas		13	59
	Chomes		15	272
	Punta Morales		13	1319
	Colegio		13	1024
	Santos		12	2395
	Punta de Piedra		19	4463
	Ensenada Lodge		23	663
	Embalse Sandillal		2	26807
	Paquera Salinas		18	845
	Bahía Paquera		15	1121
	Islas Pájaros	Ramsar/ IBA (CR003 - Palo Verde Wetlands)	2	440
	Isla Guayabo		4	1040
	La Penca, Lepanto		17	106
	Camaroneras y Salinas Rocha		23	3974
	Camaronera El Pital, Jicaral		17	345
	PN Palo Verde	Ramsar/ IBA (CR003 - Palo Verde Wetlands)	21	3010
	Lagunas San Sebastian y Guabal		28	3515
	Mata de Limón		4	350

	Playa Azul y desembocadura del Rio Grande de Tarcoles	IBA (CR010 - Tárcoles, Carara and La Cangreja)	23	787
El Salvador	Bola de Monte		20	171
	Garita Palmera		25	374
	Bocana San Juan		20	388
	Barra de Santiago	Ramsar/ IBA (SV001 - Barra de Santiago)	27	1371
	Bocana El Saite		7	11
	Lago de Guija	IBA (SV005 - San Diego and La Barra)	26	3461
	Laguna de Metapán	IBA (SV005 - San Diego and La Barra)	17	706
	Cerrón Grande	Ramsar/ IBA (SV010 - Cerrón Grande)	37	6723
	Laguna Chanmico		10	698
	Estero San Diego	IBA (SV005 - San Diego and La Barra)	16	182
	Estero Toluca		12	27
	Los Pinos		14	147
	Las Bocanitas		14	54
	Lago de Ilopango		24	1940
	Bocana Río Jiboa	IBA (SV014 - Jiquilisco and Jaltepeque)	30	1437
	Estero de Jaltepeque	Ramsar/ IBA (SV014 - Jiquilisco and Jaltepeque)	25	995
	La Puntilla	Ramsar/ IBA (SV014 - Jiquilisco and Jaltepeque)	8	314
	Laguna de Nahualapa		14	451
	El Aguaje-Guadalupe La Zorra	Ramsar/ IBA (SV014 - Jiquilisco and Jaltepeque)	19	505
	Camaronera Las Animas	Ramsar/ IBA (SV014 - Jiquilisco and Jaltepeque)	18	310
Salinera Handal	Ramsar/ IBA (SV014 - Jiquilisco and Jaltepeque)	16	558	
Punta San Juan del Gozo	Ramsar/ IBA (SV014 - Jiquilisco and Jaltepeque)	19	122	

	Recorrido Puerto Grande a Chepona	Ramsar/ IBA (SV014 - Jiquilisco and Jaltepeque)	13	85
	Isla Pájaro	Ramsar/ IBA (SV014 - Jiquilisco and Jaltepeque)	23	1853
	Isla San Sebastian	Ramsar/ IBA (SV014 - Jiquilisco and Jaltepeque)	25	377
	Poza Los Conacastes El Transito San Miguel		21	2368
	Laguna El Jocotal	IBA (SV015 - Volcán de San Miguel/Laguna El Jocotal)	25	13347
	Laguna de Olomega	IBA (SV018 - Laguna de Olomega)	20	15505
	Bahia de la Unión	IBA (SV019 - Bahía de Unión)	34	2549
	El Tamarindo		34	1037
	ET Salinera La Bolsa		22	295
	ET Salinera El Puente		19	213
	ET Salinera Los Piñalitos		15	168
	ET Salinera Los Rivera		22	245
	ET Salinera Rank		31	1382
	ET Salinera Maculis		26	496
	Playa Maculis		21	1185
	Bocana Las Tunas		9	1127
	Las Tunas-Playas Negras		13	791
	Playa San Carlos		35	1598
	Salinera San Ramon		16	121
	Salinera Isla del Rico		27	1998
	Salinera Ramadita		14	687
	Salinera El Conchal		21	4885
	SO Bahía La Unión	IBA (SV019 - Bahía de Unión)	12	349
Guatemala	Embarcadero Viejo, Sipacate 1		11	119
	Embarcadero Viejo, Sipacate 2		7	43
	Camino a Laguna del Nance, Sipacate		18	95
	Laguna del Nance, Sipacate		9	241
	Playa La Laguna (La Empalizada)		10	176
	Camino a Laguna Puente Grande, Monterrico	IBA (GT021 - Monterrico-Rio La Paz)	24	516

	Laguna Puente Grande, Monterrico	IBA (GT021 - Monterrico-Rio La Paz)	28	2093
	Embarcadero a Barra del Jiote		5	19
	Frente a Playón, en Hotel Quilombo		7	69
	Playón frente a Hotel Quilombo, Barra del Jiote		20	246
	Playa de Hotel Quilombo, Barra del Jiote		11	25
	Estero Lagarto, Punta de Manabique	Ramsar/ IBA (GT011 - Guatemalan Caribbean Slope)	10	67
	Playa frente a Hotel de Estero Lagarto, Punta de Manabique	Ramsar/ IBA (GT011 - Guatemalan Caribbean Slope)	2	2
	Laguna Santa Isabel, Punta de Manabique	Ramsar/ IBA (GT011 - Guatemalan Caribbean Slope)	4	9
	Playa Pública de Santo Tomás de Castilla	Ramsar/ IBA (GT011 - Guatemalan Caribbean Slope)	10	23
	Playa de Punta de Palma	Ramsar/ IBA (GT011 - Guatemalan Caribbean Slope)	18	283
	Motagua Viejo 1	Ramsar/ IBA (GT011 - Guatemalan Caribbean Slope)	9	85
	Barra del Motagua 1	Ramsar/ IBA (GT011 - Guatemalan Caribbean Slope)	12	53
	Barra del Motagua 2	Ramsar/ IBA (GT011 - Guatemalan Caribbean Slope)	15	158
	El Paredón		36	979
	Finca Tamashan-Guamuchal	IBA (GT020 - Manchon-Guamuchal)	45	1806
	Cabo tres puntas, Laguna Chichoj, San Cristobal Verapaz		13	266
	Petencito, Laguna Chichoj, San Cristobal Verapaz		10	63
Honduras	Parque Nacional Cuyamel	Ramsar	33	270
	RVS Cuero y Salado	Ramsar/ IBA (HN004 - Cuero y Salado)	29	334
	PN Jeanette Kawas	IBA (HN003 - Jeannette Kawas)	21	205

	Lago Yojoa Sector Sur	Ramsar	33	3233
	Lago Yojoa Sector Norte	Ramsar	25	3295
	Salinera Los Puentes		21	413
	Salinera Santa Alejandra		9	31
	Salinera La Ostia		17	341
	Salinera Montoya		21	526
Nicaragua	Finca Santa Elena (Salinas Grande)		15	455
	Finca San Miguel (Salinas Grande)		14	208
	Bocana de Salinas grande (Salinas Grande)		0	0
	Bocana de Salamina (Salamina)		19	133
	Rio Soledad (Salamina)		11	59
	Rio Istiam		25	354
	RVS Los Guatuzos		24	1844
	Laguana Piquin Guerrero		21	314
	Muelle de los Lirios		28	955
	Mirador de Mateares		11	563
	Bocana de las Peñitas (Las Peñitas)		16	509
	Reserva Natural Isla Juan Venado (Las Peñitas)		23	320
	Laguna de Tisma	Ramsar/ IBA (NI009 - Tisma Lagoon)	13	419
	Laguna de Tecomapa		4	34
	Laguna de Pueblo Nuevo		18	741
	Laguna de Moyua	Ramsar	13	606
	Estero de Paso Caballo (Paso Caballo)		14	106
	Pilas Camaroneras de Paso Caballo (Paso Caballo)		20	759
	Estero y Comunidad Wawa		18	120
	Estero y Comunidad Karata		5	21
	Estero Real Tamarindo		26	1181
	El Guayabo		12	191
	Bocana de Potosí	Ramsar/ IBA (NI003 - Estero Real Delta and Apacunca Plains)	12	933
	Punta Arena	Ramsar/ IBA (NI003 - Estero Real Delta and Apacunca Plains)	18	1367
	Islotes del Golfo	Ramsar/ IBA (NI003 - Estero Real Delta and Apacunca Plains)	21	353
	Delta Estero Real (6)	Ramsar/ IBA (NI003 - Estero Real Delta and Apacunca Plains)	44	18430

	Rio Torrecilla (2)	Ramsar/ IBA (NI003 - Estero Real Delta and Apacunca Plains)	19	305
	Buena Vista (2)		25	2047
Panama	Zona de Reserva Marino-Costera los Manglares de Panamá Viejo		28	26999
	Costa del Este	Ramsar/WHSRN/ IBA (PA041 - Upper Bay of Panamá)	26	18998
	Ciénega de las Macanas		24	2541
	Playa El Retén	IBA (PA25 - Parita Bay)	18	1506
	Refugio de Vida Silvestre Sistemas de Humedales de Matusagaratí (3)		25	331

Comments on species

The total of 111 species recorded in the seven countries (see Table 4) included 38 resident species, 56 Nearctic migrants, 14 species with both resident and migratory populations, one considered a vagrant (*Podiceps nigricollis*) in the region and one of uncertain status (*Laterallus jamaicensis*).

Nearctic Migrants

Of the Nearctic migrants, excluding shorebirds, the most abundant was *Anas discors* with a total of 42,146 individuals recorded, the majority (27,533) in Costa Rica. Another Nearctic migrant to Central America recorded in high numbers was *Thalasseus sandvicensis*. A total of 18,379 individuals were counted, mostly in Panama (17,428 individuals). Other species recorded in high numbers included *Aythya affinis* (8504 individuals), *Leucophaeus atricilla* (9289 individuals) and *Fulica americana* (6399 individuals)

A total of 29 species of Nearctic shorebirds were recorded, totaling 48,565 individuals. An additional 26,723 individuals were recorded but not identified, including 26,609 *Calidris* sp. and 114 *Limnodromus* sp. Combined, a total of 75,288 Nearctic shorebirds were counted in the region during the census, representing 33% of all waterbirds counted.

The most common species of shorebird were *Calidris mauri* (12,479 individuals), *Calidris pusilla* (9693 individuals), *Tringa semipalmata* (5652), *Charadrius semipalmatus* (4104 individuals), *Calidris minutilla* (3648 individuals), *Pluvialis squatarola* (2572 individuals) and *Limnodromus griseus* (2260 individuals).

Resident Waterbirds

The number of resident waterbirds and waterbirds with both resident and migratory populations recorded region was lower than that of Nearctic migrants. A total of 27,094 individuals considered resident and 21,380 considered resident and migratory were counted. Of the resident species the most abundant were *Dendrocygna autumnalis* and *Phalacrocorax brasilianus*, with 10,057 and 8041 individuals respectively. Of the species with both migratory and resident populations the most common were *Himantopus mexicanus* (5874 individuals) and *Charadrius wilsonia* (3995 individuals).

Table 4: Waterbird species recorded during the 2017 Central American Waterbird Census. (Status: R= resident; M= Nearctic Migrant; ? = status unclear)

Scientific name	Species	Total	No. countries	Status
<i>Dendrocygna autumnalis</i>	Black-bellied Whistling-Duck	10.057	7	R
<i>Dendrocygna bicolor</i>	Fulvous Whistling-Duck	1.116	4	R
<i>Cairina moschata</i>	Muscovy Duck	74	5	R
<i>Anas americana</i>	American Wigeon	3.918	5	M
<i>Anas discors</i>	Blue-winged Teal	42.146	7	M
<i>Anas cyanoptera</i>	Cinnamon Teal	1	1	M
<i>Anas clypeata</i>	Northern Shoveler	4.410	5	M
<i>Anas acuta</i>	Northern Pintail	245	3	M
<i>Anas crecca</i>	Green-winged Teal	2	1	M
<i>Aythya collaris</i>	Ring-necked Duck	49	3	M
<i>Aythya affinis</i>	Lesser Scaup	8.504	7	M
<i>Oxyura jamaicensis</i>	Ruddy Duck	34	2	M
<i>Tachybaptus dominicus</i>	Least Grebe	106	4	R
<i>Podilymbus podiceps</i>	Pied-billed Grebe	67	4	R
<i>Podiceps nigricollis</i>	Eared Grebe	11	2	V
<i>Laterallus ruber</i>	Ruddy Crake	16	3	R
<i>Laterallus albigularis</i>	White-throated Crake	11	2	R
<i>Laterallus exilis</i>	Gray-breasted Crake	3	1	R
<i>Laterallus jamaicensis</i>	Black Rail	2	1	?
<i>Rallus crepitans</i>	Clapper Rail	3	1	R
<i>Aramides albiventris</i>	Russet-naped Wood-Rail	14	5	R
<i>Aramides cajaneus</i>	Gray-cowled Wood-Rail	2	2	R
<i>Porzana carolina</i>	Sora	5	2	M
<i>Hapalocrex flaviventer</i>	Yellow-breasted Crake	2	1	R
<i>Pardirallus maculatus</i>	Spotted Rail	1	1	R
<i>Porphyrio martinicus</i>	Purple Gallinule	151	6	R
<i>Gallinula galeata</i>	Common Gallinule	257	4	R
<i>Fulica americana</i>	American Coot	6.399	6	M
<i>Heliornis fulica</i>	Sungrebe	2	2	R
<i>Aramus guarauna</i>	Limpkin	110	6	R
<i>Burhinus bistriatus</i>	Double-striped Thick-knee	27	2	R
<i>Himantopus mexicanus</i>	Black-necked Stilt	5.874	6	R & M
<i>Recurvirostra americana</i>	American Avocet	100	3	M
<i>Haematopus palliatus</i>	American Oystercatcher	155	4	
<i>Vanellus chilensis</i>	Southern Lapwing	126	4	R & M
<i>Pluvialis squatarola</i>	Black-bellied Plover	2.572	7	M
<i>Charadrius collaris</i>	Collared Plover	58	5	R
<i>Charadrius nivosus</i>	Snowy Plover	5	2	M
<i>Charadrius wilsonia</i>	Wilson's Plover	3.995	6	R & M
<i>Charadrius semipalmatus</i>	Semipalmated Plover	4.104	7	M

<i>Charadrius vociferus</i>	Killdeer	102	6	M
<i>Jacana spinosa</i>	Northern Jacana	954	6	R
<i>Jacana jacana</i>	Wattled Jacana	530	1	R
<i>Bartramia longicauda</i>	Upland Sandpiper	12	1	M
<i>Numenius phaeopus</i>	Whimbrel	1.954	7	M
<i>Numenius americanus</i>	Long-billed Curlew	42	4	M
<i>Limosa fedoa</i>	Marbled Godwit	1.087	5	M
<i>Arenaria interpres</i>	Ruddy Turnstone	1.764	7	M
<i>Calidris canutus</i>	Red Knot	48	3	M
<i>Calidris virgata</i>	Surfbird	327	2	M
<i>Calidris himantopus</i>	Stilt Sandpiper	200	5	M
<i>Calidris alba</i>	Sanderling	1.124	7	M
<i>Calidris alpina</i>	Dunlin	3	1	M
<i>Calidris bairdii</i>	Baird's Sandpiper	2	1	M
<i>Calidris minutilla</i>	Least Sandpiper	3.648	7	M
<i>Calidris melanotos</i>	Pectoral Sandpiper	10	1	M
<i>Calidris pusilla</i>	Semipalmated Sandpiper	9.693	6	M
<i>Calidris mauri</i>	Western Sandpiper	12.479	7	M
<i>Limnodromus griseus</i>	Short-billed Dowitcher	2.260	6	M
<i>Limnodromus scolopaceus</i>	Long-billed Dowitcher	95	2	M
<i>Gallinago delicata</i>	Wilson's Snipe	7	2	M
<i>Actitis macularius</i>	Spotted Sandpiper	699	7	M
<i>Tringa solitaria</i>	Solitary Sandpiper	15	5	M
<i>Tringa melanoleuca</i>	Greater Yellowlegs	179	7	M
<i>Tringa semipalmata</i>	Willet	5.652	7	M
<i>Tringa flavipes</i>	Lesser Yellowlegs	379	6	M
<i>Phalaropus tricolor</i>	Wilson's Phalarope	3	2	M
<i>Stercorarius parasiticus</i>	Parasitic Jaeger	4	2	M
<i>Leucophaeus atricilla</i>	Laughing Gull	9.289	7	M
<i>Leucophaeus pipixcan</i>	Franklin's Gull	28	2	M
<i>Larus argentatus</i>	Herring Gull	4	2	M
<i>Sternula antillarum</i>	Least Tern	51	2	R & M
<i>Gelochelidon nilotica</i>	Gull-billed Tern	328	5	M
<i>Hydroprogne caspia</i>	Caspian Tern	2.015	6	M
<i>Chlidonias niger</i>	Black Tern	234	2	M
<i>Sterna hirundo</i>	Common Tern	48	2	M
<i>Thalasseus maximus</i>	Royal Tern	5.567	7	M
<i>Thalasseus sandvicensis</i>	Sandwich Tern	18.379	7	M
<i>Thalasseus elegans</i>	Elegant Tern	99	4	M
<i>Rynchops niger</i>	Black Skimmer	2.509	4	R & M
<i>Jabiru mycteria</i>	Jabiru	7	2	R & M
<i>Mycteria americana</i>	Wood Stork	985	7	R
<i>Fregata magnificens</i>	Magnificent Frigatebird	865	7	R & M
<i>Sula nebouxii</i>	Blue-footed Booby	14	1	R

<i>Sula leucogaster</i>	Brown Booby	108	3	R
<i>Phalacrocorax brasilianus</i>	Neotropic Cormorant	8.041	7	R
<i>Phalacrocorax auritus</i>	Double-crested Cormorant	12	1	M
<i>Anhinga anhinga</i>	Anhinga	145	7	R
<i>Pelecanus erythrorhynchos</i>	American White Pelican	1.290	5	M
<i>Pelecanus occidentalis</i>	Brown Pelican	2.326	7	R & M
<i>Botaurus pinnatus</i>	Pinnated Bittern	4	1	R
<i>Ixobrychus exilis</i>	Least Bittern	4	2	R & M
<i>Tigrisoma mexicanum</i>	Bare-throated Tiger-Heron	80	7	R
<i>Ardea herodias</i>	Great Blue Heron	460	7	M
<i>Ardea cocoi</i>	Cocoi Heron	4	1	R
<i>Ardea alba</i>	Great Egret	2.390	7	R & M
<i>Egretta thula</i>	Snowy Egret	2.006	7	R & M
<i>Egretta caerulea</i>	Little Blue Heron	1.254	7	M
<i>Egretta tricolor</i>	Tricolored Heron	537	7	R & M
<i>Egretta rufescens</i>	Reddish Egret	57	5	R & M
<i>Bubulcus ibis</i>	Cattle Egret	956	7	R
<i>Butorides virescens</i>	Green Heron	365	7	R & M
<i>Butorides striata</i>	Striated Heron	10	2	R
<i>Agamia agami</i>	Agami Heron	3	3	R
<i>Nycticorax nycticorax</i>	Black-crowned Night-Heron	80	7	R & M
<i>Nyctanassa violacea</i>	Yellow-crowned Night-Heron	321	7	R & M
<i>Cochlearius cochlearius</i>	Boat-billed Heron	51	4	R
<i>Eudocimus albus</i>	White Ibis	2.351	7	R
<i>Plegadis falcinellus</i>	Glossy Ibis	221	5	M
<i>Mesembrinibis cayennensis</i>	Green Ibis	10	2	R
<i>Platalea ajaja</i>	Roseate Spoonbill	638	7	R

Final comments

This year's results show that the Central American Waterbird Census is becoming a well-established program, with a growing number of participants and expanding coverage of sites.

The large number of Nearctic migrants recorded emphasizes the importance of the census as a tool for monitoring their populations.

Appendix 1. Species totals per country during the 2017 Central America Waterbird Census

Scientific name	Belize	Guatemala	El Salvador	Honduras	Nicaragua	Costa Rica	Panamá	Total
<i>Dendrocygna autumnalis</i>	153	15	4739	23	993	2829	1305	10057
<i>Dendrocygna bicolor</i>			893	140	77		6	1116
<i>Cairina moschata</i>	3	3		4	7	57		74
<i>Anas americana</i>	2	300	2601	981	34			3918
<i>Anas discors</i>	310	1182	10794	947	1043	27533	337	42146
<i>Anas cyanoptera</i>		1						1
<i>Anas clypeata</i>		130	4109	67	102	2		4410
<i>Anas acuta</i>		2	223		20			245
<i>Anas crecca</i>		2						2
<i>Aythya collaris</i>	10		19	20				49
<i>Aythya affinis</i>	22	34	7034	1402	5	6	1	8504
<i>Oxyura jamaicensis</i>		13	21					34
<i>Tachybaptus dominicus</i>	1		26	52		27		106
<i>Podilymbus podiceps</i>	15	1	15	36				67
<i>Podiceps nigricollis</i>		1	10					11
<i>Laterallus ruber</i>	6	5		5				16
<i>Laterallus albigularis</i>					6	5		11
<i>Laterallus exilis</i>				3				3
<i>Laterallus jamaicensis</i>	2							2
<i>Rallus crepitans</i>	3							3
<i>Aramides albiventris</i>	2	1		3	5	3		14
<i>Aramides cajaneus</i>	1					1		2
<i>Porzana carolina</i>		1		4				5
<i>Hapalocrex flaviventer</i>				2				2
<i>Pardirallus maculatus</i>				1				1
<i>Porphyrio martinicus</i>	2		54	12	10	29	44	151
<i>Gallinula galeata</i>			95	114	1	47		257
<i>Fulica americana</i>	59	818	3376	2094	45	7		6399
<i>Heliornis fulica</i>				1		1		2
<i>Aramus guarauna</i>	62	3	12	8	4	21		110
<i>Burhinus bistriatus</i>					25	2		27

<i>Himantopus mexicanus</i>		238	3303	467	800	1047	19	5874
<i>Recurvirostra americana</i>		75	24			1		100
<i>Haematopus palliatus</i>	2		31		90		32	155
<i>Vanellus chilensis</i>			2		10	4	110	126
<i>Pluvialis squatarola</i>	6	67	764	25	794	393	523	2572
<i>Charadrius collaris</i>		18	23	3	4	10		58
<i>Charadrius nivosus</i>			4			1		5
<i>Charadrius wilsonia</i>		58	883	53	2414	564	23	3995
<i>Charadrius semipalmatus</i>	32	41	1020	46	1698	864	403	4104
<i>Charadrius vociferus</i>	24		43	4	18	4	9	102
<i>Jacana spinosa</i>	70	42	212	148	153	329		954
<i>Jacana jacana</i>							530	530
<i>Bartramia longicauda</i>						12		12
<i>Numenius phaeopus</i>	2	64	714	23	394	707	50	1954
<i>Numenius americanus</i>		1	3		37	1		42
<i>Limosa fedoa</i>		56	561		13	401	56	1087
<i>Arenaria interpres</i>	5	1	157	17	1543	38	3	1764
<i>Calidris canutus</i>			6		2		40	48
<i>Calidris virgata</i>			15		312			327
<i>Calidris himantopus</i>	1	60	82		27	30		200
<i>Calidris alba</i>	33	17	583	103	273	113	2	1124
<i>Calidris alpina</i>	3							3
<i>Calidris bairdii</i>						2		2
<i>Calidris minutilla</i>	245	92	1505	394	1158	243	11	3648
<i>Calidris melanotos</i>					10			10
<i>Calidris pusilla</i>		40	1664	90	4427	3419	53	9693
<i>Calidris mauri</i>	22	33	7003	193	4443	553	232	12479
<i>Limnodromus griseus</i>	13	66	872	9		275	1025	2260
<i>Limnodromus scolopaceus</i>		12	83					95
<i>Gallinago delicata</i>	1				6			7
<i>Actitis macularius</i>	42	66	186	1	187	128	89	699
<i>Tringa solitaria</i>		3	2		7	1	2	15
<i>Tringa melanoleuca</i>	9	3	62	11	75	13	6	179
<i>Tringa semipalmata</i>	11	51	1365	17	2661	650	897	5652

<i>Tringa flavipes</i>	7	36	41	41	243	11		379
<i>Phalaropus tricolor</i>		1	2					3
<i>Stercorarius parasiticus</i>		2		2				4
<i>Leucophaeus atricilla</i>	1	102	4092	32	1158	177	3727	9289
<i>Leucophaeus pipixcan</i>			15		13			28
<i>Larus argentatus</i>			3				1	4
<i>Sternula antillarum</i>		1			50			51
<i>Gelochelidon nilotica</i>		32	73		76	136	11	328
<i>Hydroprogne caspia</i>	43	23	1429	2	511	7		2015
<i>Chlidonias niger</i>			20		214			234
<i>Sterna hirundo</i>			12		36			48
<i>Thalasseus maximus</i>	131	854	2360	50	718	1423	31	5567
<i>Thalasseus sandvicensis</i>	2	74	235	3	256	381	17428	18379
<i>Thalasseus elegans</i>		22	61		9	7		99
<i>Rynchops niger</i>		111	962		224	1212		2509
<i>Jabiru mycteria</i>	4					3		7
<i>Mycteria americana</i>	41	30	137	6	425	341	5	985
<i>Fregata magnificens</i>	35	23	85	30	103	541	48	865
<i>Sula nebouxii</i>					14			14
<i>Sula leucogaster</i>	1				72	35		108
<i>Phalacrocorax brasilianus</i>	495	334	5439	106	1477	97	93	8041
<i>Phalacrocorax auritus</i>	12							12
<i>Anhinga anhinga</i>	27	15	5	4	25	44	25	145
<i>Pelecanus erythrorhynchos</i>		468	239		533	49	1	1290
<i>Pelecanus occidentalis</i>	102	394	236	72	90	1279	153	2326
<i>Botaurus pinnatus</i>	4							4
<i>Ixobrychus exilis</i>	3			1				4
<i>Tigrisoma mexicanum</i>	2	5	2	8	42	20	1	80
<i>Ardea herodias</i>	69	31	147	59	95	30	29	460
<i>Ardea cocoi</i>							4	4
<i>Ardea alba</i>	171	377	576	240	424	533	69	2390
<i>Egretta thula</i>	192	139	357	151	584	520	63	2006
<i>Egretta caerulea</i>	100	110	470	126	133	256	59	1254

