

C-PIF-01. CONTRIBUTED PAPERS

WATERBIRDS, SHOREBIRDS, AND NICARAGUAN GRACKLE

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C-PIF-01-01. RESPONSIBLE OBSERVER MANAGEMENT OF COLONIAL AQUATIC BIRDS, PAJAROS ISLAND, ACAT, GUANACASTE

MANEJO DE FLUJO DE OBSERVADORES RESPONSABLES DE AVES ACUÁTICAS COLONIALES EN LA ISLA PÁJAROS, ÁREA DE CONSERVACIÓN ARENAL-TEMPISQUE, GUANACASTE

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Esta investigación plantea una serie de recomendaciones para regular la visitación en el sector de Isla Pájaros del Parque Nacional Palo Verde el objetivo general para este estudio es determinar el manejo de observadores responsables de Aves Acuáticas Coloniales en el sitio. Primero se describe el perfil del turista que llegan al área, después se analizan las políticas y objetivos de manejo del flujos de los visitantes que cuenta el Parque Nacional Palo Verde, seguidamente se enumeran los factores de visita, manejo y biológico del área, y por último se brinda recomendaciones y sugerencias para el manejo del turismo, lo anterior expuesto con el propósito de diseñar un Manual de Avistamiento Responsable de Aves Acuáticas Coloniales para aplicar normas de conducta y regular la actividad turística, y como consecuencia de dicha estudio disminuir el impacto causado por las embarcaciones que llegan a observar el ecosistema de anidación de aves acuáticas más importantes de Costa Rica, Isla Pájaros. La metodología de trabajo utilizada en esta investigación es de carácter mixto, realizando un análisis cuantitativo y cualitativo, en donde se utilizaron diferentes técnicas e instrumentos de investigación tales como; entrevistas, encuestas, una observación no participante, consulta a personas expertas, giras de campo, investigación de fuentes de información secundarias como primarias. En los apartados de conclusiones, se menciona que se debe promover la visita a la Isla Pájaros para sea mercadeada a través de redes sociales, mediante un perfil en Facebook, y priorizando los sitios que pueden recibir visitas en número suficiente para garantizar la rentabilidad y la sostenibilidad en la comunidad de Puerto Humo, así pues involucrar a la población, capacitándola para que pueda prestar servicios de calidad. Además se debe permitir que los botes se acerquen a una menor distancia de 65 m con respecto a la Isla.

This research raises a series of recommendations to regulate visitation to Isla Pájaros of Palo Verde National Park. The general objective of the study is to determine the management of responsible observers of colonial waterbirds at the site. First, the profile of the tourist who comes to the area is described, then the policies and objectives of visitor flow management in Palo Verde National Park are analyzed, and the visit, management, and biological factors of the area are listed below. The last one provides recommendations and suggestions for the management of tourism, the foregoing for the purpose of designing a Manual of Responsible Observation of Colonial Waterbirds to apply norms of conduct and to regulate tourist activity, and as a consequence of the study to reduce the impact caused by the boats that come to observe the most important ecosystem of nesting waterbirds in Costa Rica, Isla Pájaros. The methodology used in this research is a mixed one, performing a quantitative and qualitative analysis, where different techniques and research instruments were used, such as interviews, surveys, non-participant observation, consultation of experts, field trips, investigation of secondary sources of information and primary. The conclusions suggest that visits to Isla Pájaros should be promoted and marketed through social networks, including a profile on Facebook, and prioritizing sites that can receive visits in sufficient numbers to guarantee profitability and sustainability in the community of Puerto Humo, involving the population and enabling it to provide quality services. In addition, the boats should be allowed to approach a closer distance than 65 m to the island.

C-PIF-01-02. CONSERVATION STATUS OF NEOTROPIC CORMORANT (*PHALACROCORAX BRASILIANUS*) IN EL SALVADOR

ESTADO DE CONSERVACIÓN DEL CORMORAN NEOTROPICAL (*PHALACROCORAX BRASILIANUS*) EN EL SALVADOR

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El Cormorán Neotropical (*Phalacrocorax brasilianus*) es una de las especies de aves acuáticas más frecuente y abundante en los humedales de El Salvador. En los últimos diez años ha sido objeto de atención debido al aumento desmesurado de su población y los subsecuentes efectos en la pesca artesanal, particularmente en el embalse Cerrón Grande (13,000 ha). En este humedal se han realizado estudios del tamaño de la población, anidación, cantidad y tipo de presas, análisis de metales pesados, histopatología, bacteriología, endoparásitos, bromatología, concentraciones de pesticidas, metales pesados y morfometría. Así mismo se ha evaluado el daño económico que los pescadores perciben por las presas consumidas y se ha llevado a cabo controles poblacionales de los ejemplares. Los resultados obtenidos estiman una población cercana a 30,000 ejemplares y más de 3,000 parejas reproductoras. Se alimentan de once especies de peces, llegando a consumir 0.49 kilogramos de pescado al día. Resultados del estudio en carne indicaron ausencia de pesticidas, salmonella, una baja carga bacteriológica, alto contenido de proteína y fosforo. Se identificó una alta infestación en el tracto digestivo producida por *Contracaecum rodolphii*, *Syncyaria squamata* y *Diplostomun* sp. No obstante, el estudio histopatológico no evidenció estructuras parasitarias. La carne no se encuentra infectada a nivel muscular. No se encontraron metales pesados. Morfométricamente se encontraron diferencias significativas entre adultos e inmaduros ($X^2=0.99$) y entre ambos sexos ($X^2=0.67$). Las diferencias más marcadas se basan en la longitud del ala, es más larga en las hembras (CV=8.2%) y en la corona, las hembras tienen una mayor longitud (CV=24.93%), mientras que los machos es más ancha (CV=26.97%). Se estima que el consumo de peces equivale a \$504,006 dólares anuales. En los últimos seis años, más de 15,000 ejemplares adultos han sido eliminados.

The Neotropic Cormorant (*Phalacrocorax brasilianus*) is one of the most frequent and abundant waterbird species in the wetlands of El Salvador. In the last ten years, it has been the object of attention due to its excessive population increase and the subsequent effects on small-scale fishing, particularly in the Cerrón Grande reservoir (13,000 ha). Studies on population size, nesting, quantity and type of prey, heavy metal analysis, histopathology, bacteriology, endoparasites, food webs, concentrations of pesticides, heavy metals and morphometry have been carried out in this wetland. Likewise, the economic damage that the fishermen perceived due to the prey consumed has been evaluated and population control has been carried out. The results estimate a population of about 30,000 and more than 3,000 breeding pairs. They feed on eleven species of fish, consuming 0.49 kilograms of fish per day. Results of the flesh study indicated absence of pesticides, salmonella, a low bacterial load, high protein content and phosphorus. The digestive tract was highly infested by *Contracaecum rodolphii*, *Syncyaria squamata* and *Diplostomun* sp. However, the histopathological study did not show parasitic structures. The meat is not infected at muscle level. No heavy metals were found. Morphometrically significant differences were found between adult and immature ($X^2 = 0.99$) and between the sexes ($X^2 = 0.67$). The most marked differences are based on wing length, longer in females (CV = 8.2%), and in crown, females have a longer length (CV = 24.93%), while males are wider CV = 26.97%). It is estimated that the consumption of fish is equivalent to \$504,006 per year. In the last six years, more than 15,000 adult specimens have been eliminated.

C-PIF-01-03. PROTECTING PUBLIC BEACHES AND NATURE PRESERVES TO STABILIZE IMPERILED COASTAL BIRD POPULATIONS IN COASTAL TEXAS

PROTECCIÓN DE LAS PLAYAS PÚBLICAS Y DE LOS RECURSOS NATURALES PARA ESTABILIZAR LAS POBLACIONES DE PÁJAROS COSTEROS AMENAZADAS EN TEXAS COSTERAS

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One of the greatest threats to successful breeding for coastal birds is human impacts associated with recreation both on public beaches and in protected areas, such as nature preserves, state parks, and other similar sites. American Bird Conservancy and our partners began a collaborative conservation program for beach-nesting birds in Texas in 2012. Through habitat protection and educational-based stewardship, we seek to stabilize and, ultimately, increase populations of imperiled species such as Least Tern (*Sternula antillarum*), and Wilson's Plovers (*Charadrius wilsonia*) and Snowy Plovers (*Charadrius nivosus*), both of which are a Red Status on the US Watch List, and all of which are US Fish and Wildlife Service Species of Conservation Concern. We implement physical protection of breeding and foraging habitat for coastal birds through temporary and permanent barriers and further safeguard the land and birds through public education and stewardship. By implementing such measures, we can gain baseline reproductive data about these birds to successfully and adaptively manage for them, and build reproductive data sets that contribute to setting conservation goals for these species in Texas, along the Gulf of Mexico, and range-wide. We currently work across 13 Texas coastal sites from the upper coast through the central coast, with plans to add additional sites in these regions, as well as in the lower coast in 2018 and beyond. We will present the methodologies used to protect habitat and birds, along with reproductive output metrics observed over the past 2 to 5 years at the sites where we implement protective measures. We will address novel and ongoing threats that coastal breeding birds face, how those challenges are mitigated, and how those impacts affect reproduction.

C-PIF-01-04. PROMOTING STEWARDSHIP OF COASTAL HABITAT AND BIRDS ACROSS THE US GULF OF MEXICO

PROMOVER LA ADMINISTRACIÓN DEL HÁBITAT COSTERO Y LOS PÁJAROS A TRAVÉS DEL NORTE GOLFO DE MÉXICO

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Human disturbance and impacts are a leading cause of reproductive failure for beach-nesting birds. American Bird Conservancy's Gulf Coastal Program was established in 2011 and since then has worked with over 30 local, state, and federal agencies and other non-profit organizations to implement some combination of protection, adaptive management, and public outreach for beach-nesting birds at over 50 locations across the US Gulf of Mexico. Our goal is to stabilize and, ultimately, increase populations of imperiled species such as Least Tern (*Sternula antillarum*), and Wilson's Plover (*Charadrius wilsonia*), and Snowy Plovers (*Charadrius nivosus*), both of which are a Red Status on the US Watch List, and all of which are US Fish and Wildlife Service Species of Conservation Concern. Through on-the-ground stewardship efforts and community engagement, land managers can reduce human disturbance impacts on nesting birds and the habitats they depend on and promote successful breeding. One such example is from a high recreational use beach in St. Pete Beach, Florida where 180 pairs of nesting Black Skimmers (*Rynchops niger*) produced 119 fledglings (0.66 fledges/pair,) in 2016. Thirty volunteers spent 1,250 hours conducting nest site outreach, reaching nearly 4,000 people recreating on the beach near the colony. Such results illustrate the importance of using

community engagement to reduce human disturbance and promote successful reproduction. We will present other such scenarios and discuss various approaches to address human disturbances and impacts that may be negatively impacting coastal habitat and bird populations. Engaging local citizens and tourists through community-based activities and events promotes stewardship of the land and birds by creating new societal perspectives that respect, protect, and value natural resources for generations to come.

C-PIF-01-05. RED KNOTS CONVERGE IN THE NORTHERN GULF OF MEXICO: TWO SUBSPECIES AND THREE MIGRATORY FLYWAYS

PLAYEROS ROJIZOS (*CALIDRIS CANUTUS*) CONVERGEN EN EL NORTE GOLFO DE MEXICO: DOS SUBESPECIES Y TRES RUTAS MIGRATORIAS

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Red Knots (*Calidris canutus*) are known to utilize a variety of long- and medium-distance migratory strategies between Arctic breeding grounds and wintering areas. Two subspecies are known to winter in the Western Hemisphere (*C. c. rufa* and *C. c. roselaari*). While there is relatively high confidence that birds on the western Atlantic flyway are primarily *C. c. rufa* and those on the Pacific coast are *C. c. roselaari*, results from studies in the northern Gulf of Mexico suggest both subspecies may be present and using novel migratory strategies. Previous studies have utilized stable isotope ratios to shed light on migratory connectivity of shorebirds. This study extends stable isotope analysis of samples from previously unanalyzed sites of importance in conjunction with resight data to elucidate the complex patterns of usage of the species in the northern Gulf of Mexico. While the Gulf is more directly connected hydrologically with the Atlantic Ocean, knots from different breeding areas evidently use multiple migratory routes (Pacific, Central, and Atlantic) during fall migration but overlap in the Gulf of Mexico in the spring.

C-PIF-01-06. PRESENT DISTRIBUTION OF NICARAGUAN GRACKLE AT PACIFIC ARID SLOPE

DISTRIBUCIÓN ACTUAL DEL *QUISCALUS NICARAGUENSIS* EN LA VERTIENTE DEL PACIFICO DE NICARAGUA

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El Zanatillo nicaragüense (*Quiscalus nicaraguensis*) es un ave endémica regional compartida por Nicaragua y Costa Rica compartiendo gran parte de su hábitat en la región de los grandes lagos y los humedales adjuntos. Se realizaron búsquedas intensivas sin distancia fija en las temporadas secas de los años 2016 y 2017, encontrándose en el 2016 nula presencia en algunos sitios con datos históricos, pero reencontrándose de nuevo en el año 2017. Se realizó la búsqueda en 2017 en otros sitios del pacífico diferentes al 2016, así como un punto cerca del Río San Juan, para un total de 61 individuos observados. La sequía debido al fenómeno del niño ha afectado la región por más de 2 años lo que ha hecho que el régimen de lluvias disminuya y el espejo de agua también. Los sitios donde históricamente era factible la observación en la vertiente del pacífico de Nicaragua como Tisma y El guayabo experimentaron una reducción de su espejo de agua por la sequía además de que amenazas secundarias derivadas como las quemadas, los cultivos, y el ganado. Una presión en la región pacífica es dada por el crecimiento poblacional que se acerca cada vez más a las riveras, lo que impacta negativamente a las poblaciones de esta especie, la cual puede ver reducido su rango de vida en el futuro de manera irreversible.

The Nicaraguan Grackle (*Quiscalus nicaraguensis*) is a regional endemic bird shared by Nicaragua and Costa Rica in the Great Lakes region and the associated wetlands. Intensive searches with no fixed distance were performed in the dry seasons of 2016 and 2017. In 2016, there was no presence in some sites with historical data, but they were found again in 2017. The search was performed in 2017 at sites in the Pacific different from 2016, as well as a point near the Rio San Juan, for a total of 61 individuals observed. The drought due to El Niño has affected the region for more than two years, with decreased rainfall and bodies of water. The sites where it was historically feasible to observe the bird along the Pacific slope of Nicaragua such as Tisma and El Guayabo experienced a reduction of their water bodies due to the drought and suffered from secondary threats such as burning, crops, and livestock. Population growth that is increasingly approaching the riverbanks creates pressures in the Pacific region, which negatively impacts the populations of this species, which may see its future life span irreversibly reduced.