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History of the Reddish Egret International Working Group and Conservation Planning for the Species

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Abstract

For decades, Reddish Egrets (Egretta rufescens) have remained one of the least studied and rarest Ardeidae in North America. In the early 2000s, much needed attention began to be placed on Reddish Egrets, both their ecology and conservation. Following a gathering of interested Reddish Egret stakeholders in 2005, there begin a series of population surveys and genetic studies to assess the rangewide population status and connectivity between populations. As surveys and studies expanded across the range, so did the network of partners and stakeholders that would comprise the Reddish Egret Working Group. In 2012, the group formally met for a three-day workshop to develop and draft the first conservation action plan using the Open Standards for Practice of Conservation methodology. Following the completion of the plan, new ecological research in areas of movement ecology, habitat use and population genetics were conducted and funding from Neotropical Migratory Bird Conservation Act Grant was awarded to ProNatura for ecological research and development of business plan for Mexico. In 2018, the working group formally changed its name to Reddish Egret International Working Group (REIWG) and organized into Steering and Standing (Research and Monitoring, Planning, Habitat, Communications) Committees and began efforts to revise the conservation action plan and develop a business plan for the U.S.A. In 2022, the REIWG initiated a 10-year conservation plan focusing on population monitoring, legal protection, habitat protection and restoration and education/outreach. As a coastal obligate species, these next 10 years are critical for the conservation of the species and its associated habitats in the face of a changing climate and rising seas.

Key words: Ardeidae, Egretta, heron, management, stakeholders.

At the beginning of the 21st century, Reddish Egrets (*Egretta* rufescens) were one of the rarest *and* least studied herons (Family Ardeidae) in North America (Fig 1). During the 20th century,

fewer than 50 peer-reviewed manuscripts (Google scholar search between 1900–2000) were published that focused on Reddish Egrets; the majority of those publications were status updates,

range extensions and/or unusual sightings or notes on basic ecology. Additionally, the last rangewide status assessment of the species had been conducted by Paul (1991). In the early 2000s, U.S. Fish and Wildlife Service expressed interest in a status update for the species to better assess increasing conservation concern about the species ('moderate concern', Kushlan *et al.* 2002; 'immediate management', Hunter *et al.* 2006).

In 2005, at the annual meeting of the Waterbird Society in Jekyll Island, Georgia, Stefani Melvin (USFWS) organized a small meeting of researchers and conservationists interested in Reddish Egrets. From that initial meeting, the USFWS contracted with Texas State University to develop the rangewide status update for the species (Green 2006) based on existing published and unpublished survey data, published ecological studies and expert opinion. From the Green (2006) status report, surveys were initiated within the U.S. Gulf coast, Bahamas and portions of Mexico between 2006-2009 (e.g., Green et al. 2011, Hill and Green 2011, Holderby et al. 2012, Palacios et al. 2018). During this period, a growing network of researchers, conservationists, and other various stakeholders

from federal and state agencies, non-governmental organizations and universities interested in Reddish Egret research and conservation was expanded and formed the Reddish Egret Working Group. While the working group's intentions were representation across the species' range, in reality the working group consisted primarily of persons from U.S. Gulf Coast states, and portions of Mexico (i.e., Tamaulipas and Baja California).



Figure 1. White morph Reddish Egret in breeding plumage, Yucatan, Mexico. Photo by Ernesto Gomez.

While surveys were being conducted, opportunistic color banding and collection of genetic material (e.g., blood samples) occurred from breeding colony and nest surveys in Texas, Bahamas, Tamaulipas (Mexico) and Baja California (Mexico) (Fig 2). From the genetic sampling effort, baseline population genetic studies were conducted revealing high gene flow within Texas population (Bates *et al.* 2009) and genetic differ-

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Figure 2. Dark morph Reddish Egret hatchlings in nest at nestling island in Laguna Madre, Texas, U.S.A. Photo by Clay Green.

entiation between populations in Baja California, Texas/Tamaulipas and Bahamas (Hill *et al.* 2012). Unpublished banding data from the same regions supported reduced gene flow between these populations (C. Green, unpubl. data). While genetic studies and movement studies from color banding provided insight into movement ecology of Reddish Egrets, the studies also revealed gaps in population representations across the species' range.

During 2010-2011, as survey and genetic data were being analyzed and published, leadership within the working group (i.e., Troy Wilson and Jennifer Wheeler, USFWS) secured funding to organize and host a three-day workshop for the working group with the primary mission of development and drafting of species conservation action plan (Fig 3). Stakeholders from U.S. Gulf Coast states and Mexico participated in the workshop and conservation planning process. The working group opted to follow the Open Stan-

dards for the Practice of Conservation (OSPC, https://conservationstandards.org/) in collaboration with facilitators from Foundations of Success (https://fosonline.org/) to develop the conservation action plan. Prior to the workshop, the working group held several virtual webinars to review OSPC guidelines and begin discussions on conservation targets (i.e., what we wish to conserve) and threats directly and indirectly affecting the conservation targets. The working group selected populations (i.e., individual birds), breeding habitat and foraging habitat as our conservation targets. Based on genetic studies (Hill et al. 2012), the working group decided to divide the Reddish Egret populations into three management units: Western (northwestern Mexico), Central (Louisiana, Texas, eastern and southern Mexico, Central America) and Eastern (Florida, Caribbean, South America) Management Units. The use of management units allowed the working group to identify threats, challenges and opportunities that are unique to a specific management unit while



Figure 3. Participants from the 2012 meeting in Corpus Christi, Texas, U.S.A. of the Reddish Egret Working Group. Photo by Clay Green.

also identifying threats, challenges and opportunities common across the management units (i.e., species' range). Following the workshop and postworkshop meetings and webinars, the Reddish Egret working group formally introduced and published the conservation action plan (Wilson *et al.* 2014).

During the conservation planning period (~2010-2014), independent research was being conducted on Reddish Egrets from various partners and stakeholders within the Working Group. Following the survey and genetic studies described above, new research focused on examining movement ecology and relationships across populations throughout the species' range. A series of telemetry studies (Fig. 4) was conducted primarily in Texas that documented dispersal distances of juveniles (Bates *et al.* 2015, Geary *et al.* 2015) and migratory routes, winter site fidelity and space use of adult (Koczur *et al.* 2017, 2018a, b). Additionally, through the growing network within the Working Group, the genetic survey of Reddish

Egret populations was expanded from three populations (Hill *et al.* 2012) to eight populations (Shahrokhi *et al.* 2020). Findings by Shahrokhi *et al.* (2020) partially supported the three working group management units (e.g. Wilson *et al.* 2014) while yielding insights into higher gene flow rates along the Gulf of Mexico populations (e.g., Louisiana, Texas, Tamaulipas and Yucatan) and support for a possible fourth management unit for population in Chiapas/Oaxaca (Shahrokhi *et al.* 2020).

An important step forward within the Reddish Egret Working Group following the 2012 Workshop in Corpus Christi was funding by U.S Neotropical Migratory Bird Conservation Act (NMBCA) Grant to ProNatura for conservation planning and research of Reddish Egrets in Mexico. Grant funding from the NMBCA grant was awarded in 2013 and through this initial funding and subsequent phases of NMBCA funding, the working group conducted conservation planning and research in Mexico including



Figure 4. Juvenile Reddish Egret with ARGOS satellite transmitter affixed to the individual using Teflon ribbon. Bird was part of study examining juvenile movement and survival in Laguna Madre, Texas, U.S.A. Photo by Clay Green.

winter abundance surveys, conservation workshops, small-scale telemetry studies and education/outreach, ultimately culminating in completion of the Business Plan for the conservation of Reddish Egrets in Mexico (Álvarez-Cerda *et al.* 2018). The success of the working group in Mexico was instrumental in reinvigorating the Reddish Egret Working Group to reorganize internally, draft a business plan for the U.S.A. and revise/revisit the Wilson *et al.* 2014 Conservation Action Plan.

While Working Group leadership was participating in the Mexican business planning workshops, it became apparent that the Reddish Egret Working Group was viewed primarily as a "U.S." group and even our initial "rangewide" conservation plan (Wilson *et al.* 2014), while written to cover the entire species' range, was focused and represented mostly by U.S. scientists and conservationists. Over the course of two Working Group meetings in 2017 (Florida) and 2018 (Texas), the Working Group under the leadership of Kelli

Stone (USFWS) accomplished two major items; first, the group officially renamed itself as the Reddish Egret International Working Group (REIWG) to formally acknowledge and emphasize the "international" aspect of the group and second, to organize the REIWG into a Steering Committee and set of four Standing Committees (Research and Monitoring, Planning, Habitat, and Communications). The Steering Committee was comprised of Working Group Chair (or Co-Chairs) and the chairs of each standing committee. Quarterly calls were established and conducted with the Steering Committee to increase measurable progress towards implementation of conservation plans. In 2018, the REIWG submitted (and was successfully funded) a grant proposal (P.I. M. C. Green, Co-P.I.s K. Stone, W. A. Cox) to National Fish and Wildlife Foundation to revise the rangewide conservation action plan and to draft an initial business plan for the U.S. Reddish Egret populations.

With funding from National Fish and Wildlife

Foundation, the REIWG organized three multiday workshops in 2018 (Merida, Mexico) and 2019 (Cameron, Louisiana and Cedar Key, Florida) to develop the strategies, goals and objectives for the revised conservation action plan using the Open Standards for the Practice of Conservation (Fig. 5). Whereas during the 2012 workshop (Wilson et al. 2014) the working group had only members from U.S.A. and Mexico, the 2018-2019 workshops had broader participation from U.S.A. (Texas, Louisiana, Florida) and Mexico (Baja California, Chiapas, Veracruz, Tamaulipas, Yucatan, Sonora) as well as stakeholders from Belize, Honduras, Cuba and Bahamas. From the workshops and follow-up webinars, the REIWG drafted seven overarching strategies for Reddish Egret conservation: 1) Implement population monitoring, 2) Strengthen legal protections, 3) Increase protected habitats, 4) Reduce disturbance and predation impacts, 5)

Manage, steward and restore priority habitats, 6) Engage and influence key audiences and 7) Bolster reach and effectiveness of REIWG (Green *et al.* 2023).

During the past five years as the REIWG has become better organized and initiated revisions to the conservation action plan, attention has increased on the species from across its range especially in relation to distribution and status updates (e.g., Selman and Davis 2015, Gonzalez *et al.* 2016, Cox *et al.* 2017, Collins *et al.* 2021, Santoya 2021), migratory stopover habitat (Koczur and Ballard 2022) as well as habitat availability in relation to foraging and nesting (Bates *et al.* 2016, Cox *et al.* 2019, Krainyk *et al.* 2020). As mentioned above, during the 20th century fewer than 50 publications exist that included Reddish Egrets and most were notes on status and distribution of the species. Since 2000,



Figure 5. Participants from the 2018 meeting in Merida, Mexico of the Reddish Egret International Working Group. Photo by Salvador Narvaiz.

over 25 research articles have been published, most primarily focused on the species' ecology, genetics and conservation. Additionally, the species account has been updated in Birds of the World and provides a comprehensive description and literature review of species ecology, life history and conservation (Koczur *et al.* 2020).

With the publication (Green *et al.* 2023) of the 10year Conservation Action Plan (2023-2033) for the species, the REIWG will focus on plan implementation centered around the seven strategies through the work of the standing committees assigned to each strategy; the steering committee provides oversight, support and overall responsibility for plan implementation. These are exciting times for the Reddish Egret International Working Group and the next 10 years are critical for furthering conservation of the species and its associated habitats, especially in the face of a changing climate and rising seas.

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