South Florida Ecosystem Restoration Task Force

Invasive Exotic Species Strategic Action Framework

EDRR Case Study: The Sacred Ibis Project

Sacred ibis are colonial wading birds indigenous to African wetland regions. The bird is classified as aninvasive species in Europe where it escaped from numerous zoologiocal parks (Clergeau and Yésou 2006). The presence of sacred ibis in south Florida may threaten the integrity of the Everglades ecosystem by directly competing with native wading bird populations. Their opportunistic feeding habits, ability to colonize numerous habitats, and tendency to compete with and prey upon native species in Europe illustrate the potential of sacred ibis to establish viable invasive populations in other regions of the world, including south Florida (Herring & Gawlik 2008).

Sacred ibis escaped captivity following the devastating effects of Hurricane Andrew in 1992. In the following years, numerous sightings were reported in the region. Recognizing the risks of this species' expansion in Florida and the still limited distribution, members of the Everglades Cooperative Invasive Species Management Area (ECISMA) developed a sacred ibis Early Detection and Rapid Response (EDRR) plan to incorporate monitoring networks, coordinated invasive species control programs, trained rapid responders, and prevention and education plans. Staffing and funding to implement the plan were provided by the Everglades Foundation, the U.S. Department of Agriculture Wildlife Services (USDA-WS), and Zoo Miami.

An EDRR Success Story

Sacred ibis are wading birds indigenous to African wetlands that would directly compete with native wading birds if they became established in south Florida. Zoo Miami and the USDA Wildlife Services led a successful interagency Early Detection and Rapid Response (EDRR) program to eradicate 75 sacred ibis from Miami-Dade and Palm Beach counties.

Case Presentation

Staff at Zoo Miami (formerly Miami Metrozoo) began live-trapping birds at the Zoo and the USDA-WS began lethal take on Zoo grounds and in the surrounding area in 2008. A variety of live trapping techniques were strategically employed to maximize sacred ibis catch rates and minimize native bycatch. The USDA-WS released live-captured sacred ibis equipped with GPS transmitters (see photo below left) to determine if the birds would locate and join other populations of sacred ibis (see photo below right). This detection strategy, combined with outreach and reporting initiatives, led to the detection and eradication of sacred

Above left: A transmitter is secured to a sacred ibis using a backpack style harness. Above right: Two sacred ibis fitted with wing tags and satellite transmitters. Photos: Zoo Miami.

Sacred ibis roosting areas around Zoo Miami. Photo: Zoo Miami.

ibis at landfills in both Palm Beach and Miami-Dade counties. Satellite tracking of the released sacred ibis helped determine that the population of ibis living at the zoo never left the immediate area. They followed a general daily routine, moving from feeding areas to loafing and roosting areas located around the zoo (see photo above). While the transmittered birds being used for tracking purposes continued to utilize the zoo as their main base, they were visiting wetland areas located in close proximity to the zoo, including a mixed-species rookery site at the Calusa Country Club about 7 miles north of the zoo (see photo on page 3).

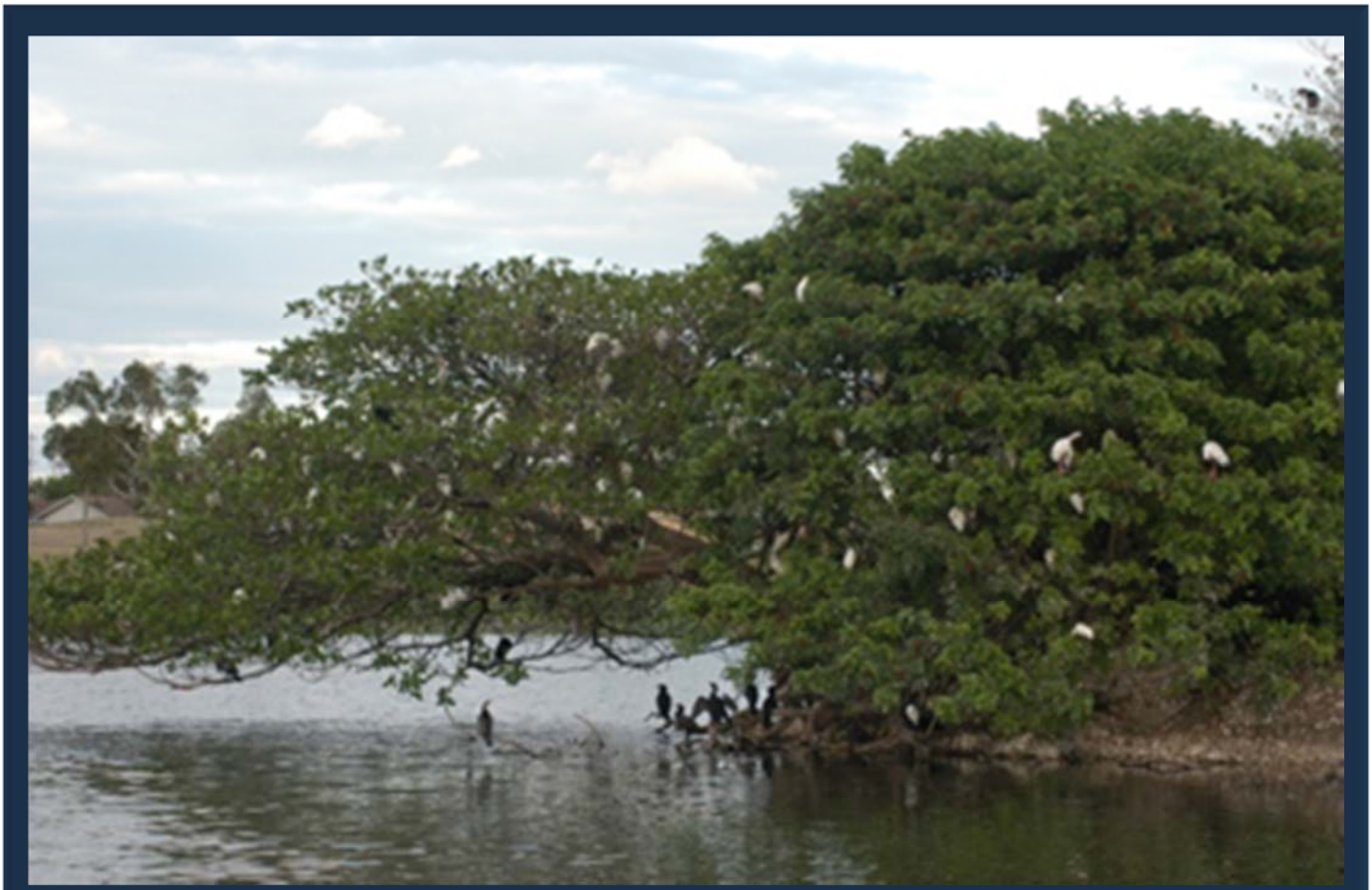
All birds trapped by Zoo Miami were surgically pinioned and placed with other accredited facilities with signed agreements of their invasive potential and need for containment.

The USDA-WS continued to monitor bird networks in the region for sacred ibis sightings following the initial detection and removal project phase. Outreach efforts targeted natural resource management personnel conducting field work who could possibly observe and report sacred ibis. In addition, partnerships were created with several birding groups and individuals to increase awareness and establish an observational network for sacred ibis. As a result, a variety of public and private cooperators assisted with detection efforts and reported a number of sightings in the region.

The EDRR framework used in the Sacred Ibis Project yielded positive results in terms of identifying a newly introduced invasive species, developing a thorough and efficient detection system, implementing control/eradication measures, effectively coordinating action among multiple government agencies, achieving short-term eradication goals, and promoting scientific research and public education.

Management Outcomes and Actions

The Sacred Ibis Project prevented sacred ibis range expansions and successfully controlled populations while they remained localized and extirpation was still feasible. Threats posed by the sacred ibis to native flora and fauna, particularly to endangered wetland species, have declined. Considerable progress was made in determining habitat preference, geo-



Sacred ibis rookery site at the Calusa Country Club about 7 miles north of Zoo Miami. Photos: Zoo Miami.

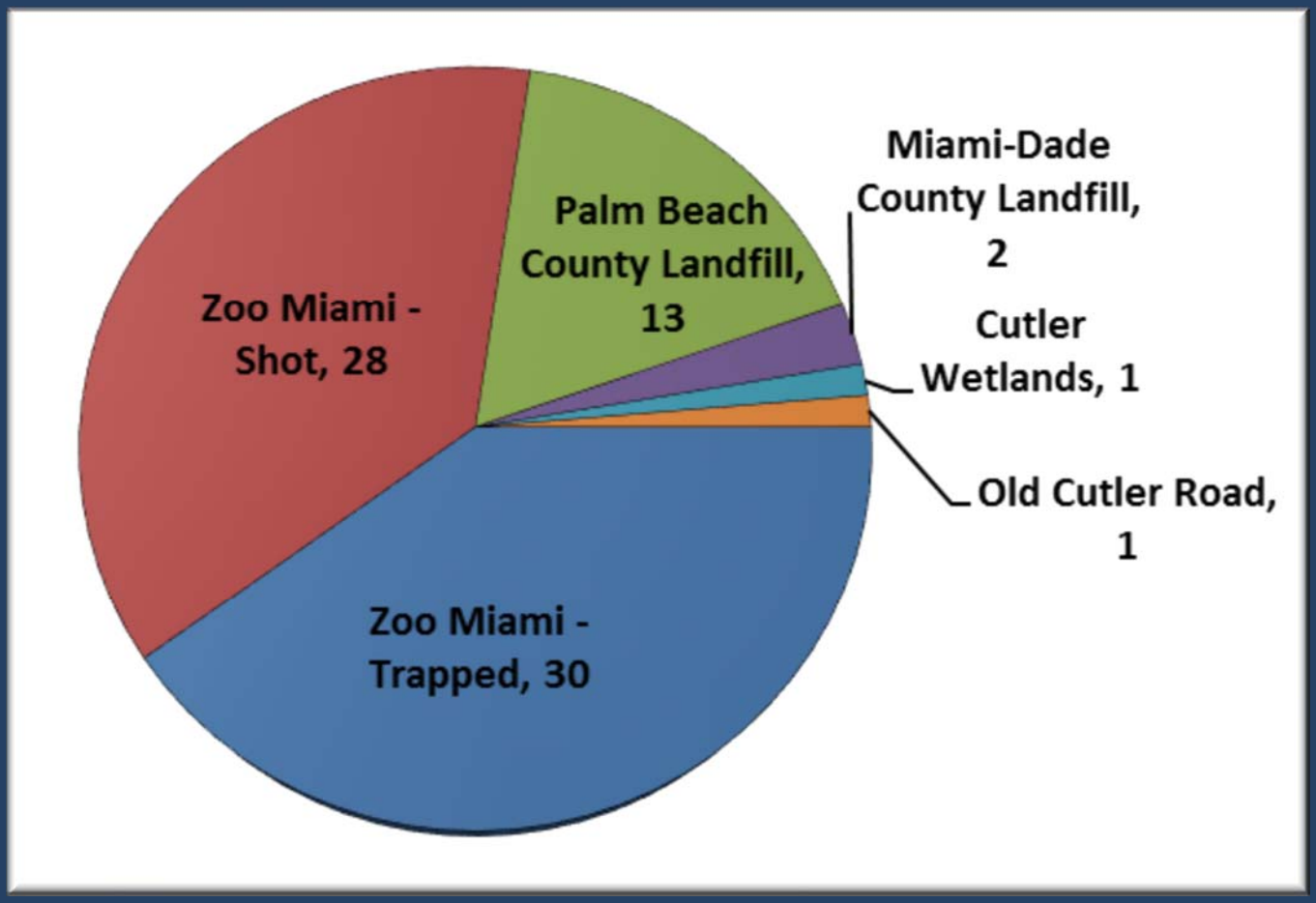
graphic distribution, and daily routines of the sacred ibis. Overall, 75 sacred ibis were located and removed from the wild by USDA-WS and Zoo Miami staff during the project.

The rapid response paradigm is best illustrated by the two most recent sacred ibis removals. On May 8th, 2011, the Florida Fish and Wildlife Conservation Commission alerted the USDA-WS to the presence of an adult sacred ibis at the Palm Beach County Landfill. The USDA-WS dispatched personnel to the site who successfully removed a single adult sacred ibis from that location. On November 2nd, 2011, a single adult sacred ibis was sighted at the National Park Service building on Old Cutler Road, Palmetto Bay, Florida. As before, this information was relayed to USDA-WS biologists, and the bird was removed that day.

Much of the success of the program relied on multiple agencies and landowners granting access to property and voluntarily monitoring and reporting sightings. For successful lethal take, the birds had to be located in open and accessible locations where firearms could be safely discharged. A large factor in the removal of the Zoo Miami population was due to the birds having been habituated to the close proximity of people, aggressive scavenging behavior at feeding areas for the collection, and existing infrastructure that aided capture. Satellite tracking allowed for the discovery of roosting locations, daily migration patterns, and a rookery site for continued monitoring and evaluation of removal efforts.

Challenges included misidentification of similar looking endemic juvenile white ibis and wood storks. Adaptation was exhibited by individual birds that developed aversions to roost locations and trap areas, types, and techniques if a capture was unsuccessful or if a lethal take had occurred in the proximity.

Sacred Ibis Removed



Key Recommendations/Issues

- Interagency communication and cooperation is essential for efficient, timely response to control invasive exotic species.
- Availability of trained competent personnel greatly increases the chance for success.
- Telemetry is a useful tool for helping to define the scope of the problem, at least for birds.
- There is abundant habitat for a mobile species like the sacred ibis in south Florida. Remnant individuals likely remain in the wild and vigilant monitoring is needed to avoid the resurgence of this species in Florida.

Literature Cited

Herring, G., & D. E. Gawlik. 2008. Potential for Successful Population Establishment of the Non-Indigenous Sacred Ibis in the Florida Everglades. *Biological Invasions* 10(7): 969-976.

Clergeau, P. and P. Yesou. 2006. Behavioural flexibility and numerous potential sources of introduction for the sacred ibis: causes of concern in western Europe?" Biological Invasions 8: 1381-1388.

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This document is part of a series of case studies developed for the Invasive Exotic Species (IES) Strategic Action Framework. This particular case study highlights issues within the Eradication/EDRR Phase of the IES Invasion Curve. 6/1/15