

Elmer's Island Refuge

Management Plan

Louisiana Department of Wildlife and Fisheries

December 15, 2016

Elmer's Island Refuge

Owned and Operated

By The

Louisiana Department of Wildlife and Fisheries



A joint document of the

OFFICE OF WILDLIFE

&

OFFICE OF FISHERIES

December 15, 2016

Office of Fisheries

Julia Lightner

Myron Fischer

Mark Schexnayder

Office of Wildlife

Kenny Ribbeck

Amity Bass

Beau Gregory

Nicole Lorenz

Keri Landry

Michael Seymour

Acknowledgement: Robert Thomas, PhD and Bob Rogers, PhD with the Louisiana Master Naturalists of Greater New Orleans and Mirka Zapletal with the University of Louisiana at Lafayette for providing information on species observed at Elmer's Island.

Contact: Julia Lightner (504) 286-4041 jlightner@wlf.la.gov

Table of Contents

- I. Introduction
 - a. Physical Description
 - b. History and Origin of the Property
 - c. Purpose/Need
 - d. Goals and Objectives
 - e. Important Considerations of Sale or Deed of Donation

- II. Status of Biological and Physical Resources
 - a. Wildlife and Fisheries Resources
 - b. Timber or Botanical Resources
 - c. Protected Resources
 - d. Physical Facilities
 - e. Acquisition Needs

- III. Existing Uses
 - a. Public Access
 - b. Hunting, Trapping, Fishing
 - c. Other Compatible Uses

- IV. Education/Outreach

- V. Research and Inventory

- VI. Management Practices
 - a. Emergency Management
 - b. Refuge Regulations
 - c. Species Specific Management
 - d. Beach Debris or Wrack

- VII. Plan Implementation
 - a. Funding
 - b. Staff
 - c. Partnerships

I. Introduction

This document will establish management goals and primary uses for Elmer's Island Refuge, owned and operated by the Louisiana Department of Wildlife and Fisheries.

a. Physical Description

Elmer's Island Refuge is located approximately 50 miles south of New Orleans, at the southern end of Jefferson Parish, where the Barataria Estuary meets the Gulf of Mexico. The refuge is bordered by Highway 1 to the north, Caminada Pass and Grand Isle to the east, Lafourche Parish to the west and the Gulf of Mexico to the south.

Saltwater marsh, coastal dunes and beaches are the prevalent ecologic features in the area. The refuge property includes a tidal zone, natural and restored dunes, and an expanse of open area leading to a back bay, which is surrounded by mangrove and salt water marsh habitat.

The geography is highly dynamic and greatly affected by weather events. Along with the rest of the Caminada Headlands, Elmer's Island beaches experience erosion rates of about 8 ft./yr. Erosion, breaches and movement of sand toward the back bay occur during storms and periods of high winds and water. Recent land formation on the eastern end of Elmer's Island is closing off the historic path of water flow from the interior bay to the Gulf of Mexico; this forces high water from storm events, high tides or northerly winds over and through the island, creating breaches or over-wash areas.¹

b. History and Origin of the Property

The property, historically known as Goat Island and referred to as Elmer's Island since the 1970s, was most recently used as a privately owned commercial campground until the death of Jay Elmer, son of the original owner, Dr. Charles Elmer. In 2003 a House Concurrent Resolution was enrolled to "urge and request the governor and the commissioner of administration to take the necessary steps to enable the state of Louisiana to purchase Elmer's Island in Jefferson Parish." Attempts to purchase the property failed during disputes of price. In December 2008, the Governor of Louisiana declared the accreted land as state property and opened the beachfront as a Louisiana Department of Wildlife and Fisheries (LDWF) Refuge, initially accessible only by boat. The Louisiana Department of Transportation and Development repaired the access road

¹ La. C.C. Art. 450 states that "Public things that belong to the state are such as running waters, the waters and bottoms of natural navigable water bodies, the territorial sea, and the seashore." La. C.C. Art. 490 states that "Unless otherwise provided by law, the ownership of a tract of land carries with it the ownership of everything that is directly above or under it." As aerial photography illustrations, all of this area is either state claimed water bottom, former state claimed water bottom upon which alluvion has accreted, or the seashore. The remainder of the Refuge area discussed herein and all recorded and known private interest related to the same were purchased by the State of Louisiana.

(damages occurred during Hurricanes Katrina and Gustav) and on July 3, 2009 LDWF opened the refuge to all visitors.

The town of Grand Isle, population 1541², is a recreational fishing destination and many of the full-time residents are involved in some commercial fishing. Grand Isle State Park is located on the eastern tip of Grand Isle, and provides amenities for RV and tent camping.

c. Purpose/Need

A majority of Louisiana's coastline is comprised of saltwater marsh, small mangrove islands, and some barrier islands, accessible only by boat. The Elmer's Island Refuge property provides an area of beachfront and marsh that the public can access. This access is regularly used for recreational fishing, bird watching, restoration projects, outdoor education programs and volunteer opportunities.

d. Goals and Objectives

The mission statement of the Department is: To manage, conserve, and promote wise utilization of Louisiana's renewable fish and wildlife resources and their supporting habitats through replenishment, protection, enhancement, research, development, and education for the social and economic benefit of current and future generations; to provide opportunities for knowledge of and use and enjoyment of these resources; and to promote a safe and healthy environment for the users of the resources.

Goals and objectives for the management of the refuge include the following:

1. Providing access for outdoor activities, education and recreational fishing opportunities.

Current: Elmer's Island Road is open to vehicle and pedestrian access; beach access is pedestrian only. Parking on the beach is allowed, near the end of the access road.

Objectives: Possibilities for increasing access include lengthening the hours of operation, constructing elevated walkways, installing kayak and canoe launches, creating an overnight camping area, and creating an alternative entrance to the refuge.

2. Encouraging and supporting research on the wildlife and fisheries resources at Elmer's Island.

Current: Research on nesting shorebirds (Louisiana Audubon), red knots and Wilson's plovers (Coastal Bend Bays & Estuaries Program and BTNEP) is ongoing (See Section V, Research for more information).

² U.S. Census Bureau, results from 2000 Census

Objectives: Create an archival collection of research material from Elmer's Island; encourage species specific research on Elmer's Island by providing some support (lodging, transportation on the refuge, small materials).

3. Restoring the habitat to benefit the native ecosystem.

Current: Several restoration projects have occurred at Elmer's Island Refuge. The Caminada Headland Beach and Dune Restoration Increment II (BA-143) project, part II will be completed in Fall of 2016. Proposed CWPPRA projects include marsh creation plans for areas behind the dunes (see more details in Section II).

Objectives: Continue to plant native materials on dunes and in the back bay areas, including the native flowering plants (to encourage pollinators); support projects designed to protect and restore the marsh and the dunes of Elmer's Island.

4. Engaging volunteers and educational organizations in projects on the refuge.

Current: Non-governmental organizations approach LDWF when interested in a service or learning project.

Objectives: Provide learning materials and staff for outreach events, such as brochures, presentations, and field days; actively engage volunteers for service hours at Elmer's Island; create a citizen science activity at Elmer's Island.

5. Protecting endangered and threatened species through regulatory and habitat management.

Current: Sensitive nesting areas are protected through signage and regulation.

Objectives: Continue to protect nesting habitat; protect foraging areas through education, outreach and signage.

6. Coordinate with adjacent landowners, local government and non-governmental organizations.

Current: LDWF coordinates with several organizations and agencies on issues relating to Elmer's Island; see Section VII-c for more information on partnerships.

Objectives: Continue to engage with interested parties on management issues involving Elmer's Island.

e. Important Considerations of Sale or Deed of Donation

In December 2008, the Governor of Louisiana declared the accreted land as state property. The property claimed by the state included the spit formation from Caminada Pass to the access road entrance at the beach, from the back bay to the Gulf of Mexico. In 2011, the state began the purchasing process for the property from Highway 1 to the back bay, and between the Jefferson Parish line and an area of marsh between the access road and the Caminada bridge.



Figure 1: Map indicating state owned property, and neighboring lots

In 2013, the Grand Isle Levee District (GILD) agreed to expropriate the remaining property surrounding the Elmer’s Island Refuge. The beachfront portion of the property was needed to complete the Caminada Headland Beach and Dune Restoration Project.

II. Status of Biological and Physical Resources

One of the primary goals for this property is to provide access to shore fishing for recreational anglers. Hunting and commercial fishing is not allowed on the Elmer’s Island. Sport fish found in the area include red drum, spotted sea trout, southern flounder, pompano, and blue crabs. Non-consumptive activities such as bird watching, outdoor education programs, university research and other recreational activities are very popular uses for Elmer’s Island.

The island is very dynamic, incurring erosion and accretion with every storm or weather event. Different projects have occurred to prevent further erosion:

1) Dune fence installation: Nicholls University, Bayou Land RC&D, Barataria – Terrebonne National Estuary Program, the Coalition to Restore Coastal Louisiana, and Friends of Grand Isle have collaborated to install dune fences on Elmer’s Island. The fences were constructed of 1 inch lathe attached to 4 inch fence post every five feet. Plantings of dune plants along the installed fences establish vegetative growth to retain sand in place during weather events.



Figure 2 Repair of breach at Caminada Pass using rocks and sand; location indicated on Figure 1 (Berm created by LAANG, 2010)

2) Native plantings: volunteer groups have propagated and planted different varieties of native grasses to encourage sand accretion in the area, including *Spartina patens*, *Panicum amarum* and *Uniola paniculata*;

3) Emergency repairs of breeches: In response to the DWH event in 2010, the Louisiana Army National Guard repaired a breach at Caminada Pass, utilizing sand and rocks (Figures 2);

4) Proposed CWPPRA projects to create marsh habitat and restore hydrologic flow and tidal exchange by placing dredge material in the back bay and culverts beneath the access road. The Caminada Headlands Back Barrier Marsh Creation, Increment 2 (BA-193) project, funded for the design and engineering phase, would place material dredged from the Gulf of Mexico behind the dune, located on the western edge of the access road. The Elmer’s Island Backbarrier Marsh Creation project has been selected for evaluation as a concept, and would create marsh habitat east of the access road, and restore hydrologic flow by installing culverts under the roadway.

5) The Caminada Headland Beach and Dune Restoration Increment II (BA-143) project, completed in fall of 2016, installed dredge material from an offshore supply in the intertidal and dune zone, raising the grade of the shoreline.

a. Wildlife and Fisheries Resources

All wildlife and fisheries resources on Elmer's Island Refuge will be for non-consumptive use, except for the legal recreational capture allowed by LDWF regulations, research and educational purposes, as permitted by the Secretary of LDWF.

1. Animals of Conservation Concern

More than 170 species of birds are believed to utilize Elmer's Island and the surrounding beach and marsh during some point in their life cycle; almost 40 of these species are listed as bird species of conservation concern in Louisiana. Common nesting species include mottled duck, clapper rail, willet, Wilson's plover, least tern, common nighthawk, and seaside sparrow. Piping plovers, which are federally listed as threatened, forage on Louisiana's beaches, including Elmer's Island, up to nine months out of the year, and Elmer's Island has been formally designated as Critical Habitat for the species. Red knots, also listed as threatened, use Elmer's Island as a stopover point during their long migratory route, which can span over 9000 miles in a season.

Diamondback terrapins are currently considered imperiled in Louisiana, however, recent work conducted by department biologists suggests that these turtles may be more abundant than previously thought. Both the adult turtles and nests have been documented on and around Elmer's Island. The diamondback terrapin begins nesting in May and continues until late July. The female terrapin leaves the marsh waters and comes ashore to nest, laying anywhere from 4-18 eggs (an average of 11). The eggs are a pale pink, leathery, and thin-shelled. Nests are 12.5 cm - 15 cm cavities dug at the sandy edges of marshes and dunes. The nest is allowed to incubate in the sand without any further parental care. After 60-120 days, hatchling terrapins emerge and head toward the nearest body of water. Hibernation generally occurs within and below the intertidal zone of the salt marsh, singly or in groups, and lasts from November through March. Threats affecting this species include commercial take, habitat loss, nest disturbance, and mortality due to derelict crab traps.

There are three sea turtle species that are known to occur in Louisiana waters in large numbers, the federally threatened loggerhead and green sea turtles, and the federally endangered Kemp's ridley sea turtle. In 2015, two loggerhead nests were identified on Grand Isle Beach, and false crawls were noted on Elmer's Island. Other "crawls" have been noted in recent years where a sea turtle emerges onto the beach (presumably to search for a nest site) and returns to the water without constructing a nest. It is plausible that sea turtles may eventually use Elmer's Island as a nesting area, and in the event that this occurs, nests will be protected and monitored. Interfering with a nesting sea turtle or disturbing a nest constitutes a violation of both state and federal laws. The following are observations made by various researchers and organizations through educational or privately funded programs:

| Animals observed | | | |
|-------------------------|--------------------------------|---------------------------|---------------------|
| | <i>Malaclemys terrapin</i> | Diamond-backed terrapin | Reptiles, turtles |
| | <i>Caretta caretta</i> | Loggerhead | Reptiles, turtles |
| | <i>Chelonia mydas</i> | Green | Reptiles, turtles |
| | <i>Dermochelys coriacea</i> | Leatherback | Reptiles, turtles |
| | <i>Ertmochelys imbricata</i> | Hawksbill | Reptiles, turtles |
| | <i>Lepidochelys kempii</i> | Kemp's ridley | Reptiles, turtles |
| | <i>Nerodia clarkii</i> | Saltmarsh watersnake | Reptiles, snakes |
| | <i>Canis latrans</i> | Coyote | Mammal, terrestrial |
| | <i>Sigmodon hispidus</i> | Hispid cotton rat | Mammal, terrestrial |
| | <i>Oryzomys palustris</i> | Marsh rice rat | Mammal, terrestrial |
| | <i>Mus musculus</i> | House mouse | Mammal, terrestrial |
| | <i>Rattus norvegicus</i> | Norway rat | Mammal, terrestrial |
| | <i>Sylvilagus floridanus</i> | Eastern cottontail rabbit | Mammal, terrestrial |
| | <i>Myocastor coypus</i> | Nutria | Mammal, terrestrial |
| | <i>Sus scrofa</i> | Feral hog | Mammal, terrestrial |
| | <i>Tursiops truncatus</i> | Bottlenosed dolphin | Mammal, marine |
| Birds observed | | | |
| | <i>Anas fulvigula</i> | Mottled duck | |
| | <i>Ammodramus maritimus</i> | Seaside sparrow | |
| | <i>Ammodramus nelsoni</i> | Nelson's sparrow | |
| | <i>Anas acuta</i> | Northern pintail | |
| | <i>Asio flammeus</i> | Short-eared owl | |
| | <i>Aythya affinis</i> | Lesser scaup | |
| | <i>Aythya americana</i> | Redhead | |
| | <i>Aythya valisineria</i> | Canvasback | |
| | <i>Bartramia longicauda</i> | Upland sandpiper | |
| | <i>Botaurus lentiginosus</i> | American bittern | |
| | <i>Calidris alpina</i> | Dunlin | |
| | <i>Calidris canutus</i> | Red knot | |
| | <i>Calidris subruficollis</i> | Buff-breasted sandpiper | |
| | <i>Charadrius alexandrinus</i> | Snowy plover | |
| | <i>Charadrius melodus</i> | Piping plover | |
| | <i>Charadrius wilsonia</i> | Wilson's plover | |
| | <i>Cistothorus palustris</i> | Marsh wren | |
| | <i>Cistothorus platensis</i> | Sedge wren | |
| | <i>Egretta rufescens</i> | Reddish egret | |
| | <i>Elanoides forficatus</i> | Swallow-tailed kite | |

| | | |
|--|---------------------------------|------------------------|
| | <i>Falco peregrinus</i> | Peregrine falcon |
| | <i>Gelochelidon nilotica</i> | Gull-billed tern |
| | <i>Haematopus palliatus</i> | American oystercatcher |
| | <i>Haliaeetus leucocephalus</i> | Bald eagle |
| | <i>Hydroprogne caspia</i> | Caspian tern |
| | <i>Ixobrychus exilis</i> | Least bittern |
| | <i>Lanius ludovicianus</i> | Loggerhead shrike |
| | <i>Limnodromus griseus</i> | Short-billed dowitcher |
| | <i>Limosa fedoa</i> | Marbled godwit |
| | <i>Numenius americanus</i> | Long-billed curlew |
| | <i>Pandion haliaetus</i> | Osprey |
| | <i>Passerina ciris</i> | Painted bunting |
| | <i>Pelecanus occidentalis</i> | Brown pelican |
| | <i>Platalea ajaja</i> | Roseate spoonbill |
| | <i>Plegadis falcinellus</i> | Glossy ibis |
| | <i>Rallus elegans</i> | King rail |
| | <i>Rallus longirostris</i> | Clapper rail |
| | <i>Rynchops niger</i> | Black skimmer |
| | <i>Sterna forsteri</i> | Forster's tern |
| | <i>Sterna hirundo</i> | Common tern |
| | <i>Sternula antillarum</i> | Coastal least tern |
| | <i>Sternula antillarum</i> | Interior least tern |
| | <i>Thalasseus maximus</i> | Royal tern |
| | <i>Thalasseus sandvicensis</i> | Sandwich tern |

2. Fisheries Resources

Elmer's Island is a popular fishing area for surf fishing and bank fishing (from the access road). Most frequently captured species include blue crab (*Callinectes sapidus*), spotted seatrout (*Cynoscion nebulosus*), sand seatrout (*Cynoscion arenarius*), sea catfish (*Ariopsis felis*), red drum (*Sciaenops ocellatus*), and southern flounder (*Paralichthys lethostigma*).

Commercial fishing vessels, such as shrimp boats or menhaden boats can be observed fishing on the Gulf side of the beach at Elmer's Island.

LDWF collects information on the fish resources near Elmer's Island beach through various sampling gears and creel surveys. The following table shows the most prevalent species in descending order as captured through each gear (beach side):

| Gillnet | |
|-----------------|-------------|
| Scientific name | Common name |
| | |

| | |
|---------------------------------|---------------------|
| <i>Brevoortia patronus</i> | Gulf menhaden |
| <i>Ariopsis felis</i> | Sea catfish |
| <i>Scomberomorus maculatus</i> | Spanish mackerel |
| <i>Cynoscion nebulosus</i> | Spotted seatrout |
| <i>Leiostomus xanthurus</i> | Spot |
| <i>Harengula jaguana</i> | Scaled sardine |
| <i>Callinectes sapidus</i> | Blue crab |
| <i>Pomatomus saltatrix</i> | Bluefish |
| <i>Bagre marinus</i> | Gafftopsail catfish |
| <i>Elops saurus</i> | Ladyfish |
| <i>Cynoscion arenarius</i> | Sand seatrout |
| <i>Caranx hippos</i> | Crevalle jack |
| <i>Peprilus paru</i> | Harvestfish |
| <i>Menticirrhus americanus</i> | Southern kingfish |
| <i>Litopenaeus setiferus</i> | White shrimp |
| <i>Menticirrhus littoralis</i> | Gulf kingfish |
| <i>Chloroscombrus chrysurus</i> | Atlantic bumper |
| <i>Mugil cephalus</i> | Striped mullet |
| <i>Micropogonias undulatus</i> | Atlantic croaker |
| Seine | |
| <i>Anchoa mitchilli</i> | Bay anchovy |
| <i>Palaemonetes spp.</i> | Grass shrimp spp. |
| <i>Micropogonias undulatus</i> | Atlantic croaker |
| <i>Brevoortia patronus</i> | Gulf menhaden |
| <i>Mugil cephalus</i> | Striped mullet |
| <i>Sardinella aurita</i> | Spanish sardine |
| <i>Trachinotus carolinus</i> | Florida pompano |
| <i>Harengula jaguana</i> | Scaled sardine |
| <i>Anchoa hepsetus</i> | Striped anchovy |
| <i>Menticirrhus americanus</i> | Southern kingfish |
| <i>Litopenaeus setiferus</i> | White shrimp |
| <i>Anchoa lyolepis</i> | Dusky anchovy |
| <i>Callinectes sapidus</i> | Blue crab |
| <i>Larimus fasciatus</i> | Banded drum |
| <i>Farfantepenaeus aztecus</i> | Brown shrimp |
| <i>Menidia beryllina</i> | Inland silverside |
| <i>Menticirrhus littoralis</i> | Gulf kingfish |
| <i>Callinectes similis</i> | Lesser blue crab |

| | |
|---------------------------------|---------------------|
| <i>Membras martinica</i> | Rough silverside |
| <i>Urophycis cirrata</i> | Gulf hake |
| Creel surveys | |
| <i>Callinectes sapidus</i> | Blue crab |
| <i>Cynoscion nebulosus</i> | Spotted seatrout |
| <i>Cynoscion arenarius</i> | Sand seatrout |
| <i>Menticirrhus littoralis</i> | Gulf kingfish |
| <i>Ariopsis felis</i> | Sea catfish |
| <i>Sciaenops ocellatus</i> | Red drum |
| <i>Bagre marinus</i> | Gafftopsail catfish |
| <i>Paralichthys lethostigma</i> | Southern flounder |
| <i>Pogonias cromis</i> | Black drum |
| <i>Scomberomorus maculatus</i> | Spanish mackerel |

Table 1: Most prevalent species captured during LDWF monitoring (LDWF, Office of Fisheries)

The following are observations made by various researchers and organizations through educational or privately funded programs:

| Salt Marsh Fauna | Scientific name | Common name | type |
|--------------------------------|-------------------------------|------------------------------|---------------------|
| | <i>Crassostrea virginica</i> | Eastern (or American) oyster | Mollusca—Bivalvia |
| | <i>Geukensia demissa</i> | Ribbed mussel | Mollusca—Bivalvia |
| | <i>Ischadium recurvum</i> | Hooked mussel | Mollusca—Bivalvia |
| | <i>Littorina irrorata</i> | Saltmarsh periwinkle | Mollusca—Bivalvia |
| | <i>Melampus bidentatus</i> | Coffee bean shell | Mollusca—Gastropoda |
| | <i>Neritina reclivata</i> | Olive nerite | Mollusca—Gastropoda |
| | <i>Menippe adina</i> | Gulf Stone crab | Crustacea |
| | <i>Panopeus herbstii</i> | Common mud crab | Crustacea |
| | <i>Rithropanopeus harrisi</i> | Estuarine mud crab | Crustacea |
| | <i>Sesarma cinereum</i> | Wood crab | Crustacea |
| | <i>Uca spp.</i> | Fiddler crab | Crustacea |
| Subtidal and Intertidal | | | |
| | <i>Cliona celata</i> | Boring sponge | Porifera |
| | <i>Astrangia astreiformes</i> | Star coral | Cnidaria |
| | <i>Aurelia aurita</i> | Moon jellyfish | Cnidaria |
| | <i>Physalia physalis</i> | Portuguese man-of-war | Cnidaria |

| | | |
|---|------------------------------|------------------------|
| <i>Velevella velevella</i> | By-the-wind-sailor | Cnidaria |
| <i>Beroe ovata</i> | Sea walnut | Ctenophora |
| <i>Mnemiopsis mccradyi</i> | Phosphorus jelly | Ctenophora |
| <i>Membranipora commensale</i> | Encrusting bryozoan | Ectoprocts (Bryozoans) |
| <i>Chaetopterus variopedatus</i> | Parchment worm | Polychaeta |
| <i>Diopatra cuprea</i> | Plumed worm | Polychaeta |
| <i>Hydroides dianthus</i> | Serpulid worm | Polychaeta |
| <i>Neanthes succinea</i> | Pile worm | Polychaeta |
| <i>Busycon spp.*</i> | Lightning whelk | Mollusca—Gastropoda |
| <i>Janthina janthina</i> | Purple storm snail | Mollusca—Gastropoda |
| <i>Littoraria irrorata</i> | Saltmarsh periwinkle | Mollusca—Gastropoda |
| <i>Littoraria nebulosa</i> | Cloudy periwinkle | Mollusca—Gastropoda |
| <i>Neverita (Polinices) duplicata</i> | Moon snail | Mollusca—Gastropoda |
| <i>Oliva sayana</i> | Lettered olive | Mollusca—Gastropoda |
| <i>Stramonita haemastoma</i> | Southern oyster drill | Mollusca—Gastropoda |
| <i>Strombus alatus</i> | Florida fighting conch | Mollusca—Gastropoda |
| <i>Anadara brasiliana</i> | Incongruous ark | Mollusca—Bivalvia |
| <i>Anadara ovalis</i> | Blood ark | Mollusca—Bivalvia |
| <i>Anadara transversa</i> | Transverse ark | Mollusca—Bivalvia |
| <i>Chione elevata (formerly cancellata)</i> | Cross-barred venus | Mollusca—Bivalvia |
| <i>Chione latilirata</i> | Imperial venus | Mollusca—Bivalvia |
| <i>Crassostrea virginica</i> | Eastern (or American) oyster | Mollusca—Bivalvia |
| <i>Cyrtopleura costata</i> | Angel wing | Mollusca—Bivalvia |
| <i>Diplothyra curta</i> | Oyster piddock | Mollusca—Bivalvia |
| <i>Donax variabilis</i> | Bean clam | Mollusca—Bivalvia |
| <i>Ensis minor</i> | Jackknife clam | Mollusca—Bivalvia |
| <i>Laevicardium robustum</i> | Giant cockle | Mollusca—Bivalvia |
| <i>Macoma constricta</i> | Constricted macoma | Mollusca—Bivalvia |
| <i>Mercenaria campechiensis</i> | Southern quahog | Mollusca—Bivalvia |
| <i>Noetia ponderosa</i> | Ponderous ark | Mollusca—Bivalvia |
| <i>Petricola phaladiformis</i> | False angel wing | Mollusca—Bivalvia |
| <i>Rangia cuneata</i> | Common rangia | Mollusca—Bivalvia |
| <i>Tagelus plebeius</i> | Stout razor clam | Mollusca—Bivalvia |
| <i>Arenaeus cribrarius</i> | Speckled crab | Crustacea |
| <i>Balanus sp.</i> | Acorn barnacle | Crustacea |
| <i>Callinassa jamaicense</i> | Ghost (mud) shrimp | Crustacea |
| <i>Callichirus islagrande</i> | Common ghost shrimp | Crustacea |

| | | | |
|--|--------------------------------------|------------------------|-----------|
| | <i>Callinectes sapidus</i> | Blue crab | Crustacea |
| | <i>Cardiosoma guanhumi</i> | Great land crab | Crustacea |
| | <i>Lepas anatifera</i> | Gooseneck barnacle | Crustacea |
| | <i>Lepidophthalmus louisianensis</i> | Estuarine ghost shrimp | Crustacea |
| | <i>Ocypode quadrata</i> | Ghost crab | Crustacea |
| | <i>Palaemonetes vulgaris</i> | Grass shrimp | Crustacea |

Table 2: Observations of aquatic organisms and shells found on Elmer's Island (Information from Louisiana Master Naturalist, Greater New Orleans)

b. Timber or Botanical Resources - Habitats of Conservation Concern

The majority of Elmer's Island Wildlife Refuge is composed of beach/coastal dune grasslands and salt marsh habitats.

Coastal dune grasslands occurs on beach dunes and relatively elevated backshore areas (ridges) above intertidal beaches on barrier islands and on the mainland. The dunes of Louisiana's barrier islands and mainland beaches are poorly developed because of the high frequency of overwash associated with hurricanes and storms, and a limited amount of eolian-transported sand. The sites are normally xeric (excessively drained) owing to the fact that they are elevated above the highest flood mark (except during hurricanes). These sites are exposed to moderate to high amounts of salt spray. In addition, limited nutrient availability and substrate instability also affect coastal dune vegetation.

The vegetative cover ranges from sparse to fairly dense and is dominated by salt spray tolerant grasses, which may include *Spartina patens* (wiregrass, usually present and often dominant), *Uniola paniculata* (sea oats), *Panicum amarum* (beach panic), *Triplasis purpurea* (purple sandgrass), *Paspalum vaginatum* (jointgrass), *Schizachyrium maritimum* (seacoast bluestem), *Distichlis spicata* (saltgrass), *Cenchrus* spp (sandburs), *Chloris petraea* (finger grass), *Sporobolus virginicus* (coast dropseed), *Eragrostis oxylepis* (red lovegrass), and *Andropogon* spp. (broomsedges). Forbs are common in this community and may form forb-dominated zones, particularly on the gulfward side of the dune. Forbs include *Batis maritima* (salt wort), *Ipomea stolonifera* (beach morning-glory), *I. pes-caprae* (goat-foot morning-glory), *Heliotropium currasivicum* (seaside heliotrope), *Strophostyles helvola* (sand wild bean), *Agalinis maritima* (seaside false foxglove), *Iva imbricata* (sumpweed), *Solidago sempervirens* (seaside goldenrod), *Cakile* spp. (sea rockets), *Croton punctatus* (punctate goatweed), *Hydrocotyle bonariensis* (large leaf pennywort), *Heterotheca subaxillaris* (camphor weed), *Sesuvium portulacastrum* (sea purselane), *Pluchea camphorata* (camphor-weed), *Sabatia stellaris* (seastar rose-gentian), *Atriplex arenaria* (quelite), *Aphanostephus skirrobasis* (lazy daisy), *Salicornia* spp. (glassworts), *Sueda linearis* (annual seepweed), *Centrosema virginianum* (butterfly pea) and *Lippia nodiflora*

(common frog-fruit). Shrubs from adjacent coastal dune shrub thickets may occur as scattered individuals in this community. These sites are subject to frequent storm overwash with salt water flooding and sand deposition. These events frequently give rise to what are called "barrier flats". Dune swales may be extensive and are considered as inclusions in this natural community. Dunes and ridges may be shifted or eroded by storm floods, destroying vegetation.

Coastal dune shrub thickets are formed if dunes remain stable allowing natural succession to progress. These occur on established sand dunes and beach ridges on barrier islands and the mainland coast. Coastal dune shrub thickets are of very limited extent in Louisiana due to relatively poorly developed coastal dunes. The sites are typically xeric to xeric/mesic and moderately exposed to salt spray. This community normally appears as a relatively dense stand of shrubs. A variety of salt-tolerant shrubs may occur including *Morella cerifera* (wax myrtle), *Ilex vomitoria* (yaupon), *Iva* spp. (marsh elder), *Baccharis halimifolia* (saltbush), *Acacia smallii* (acacia), and *Zanthoxylum clava-herculis* (toothache tree). The shrubs are often covered with a dense growth of lichens. Vines, such as *Smilax* spp. (greenbriers) and *Vitis mustangensis* (wild grape), are often present. This community may be destroyed by sand dune migration or erosion and may be replaced by coastal dune grassland.

Salt marsh is, typically, the marsh area closest to the beach rim of the Gulf of Mexico, and, in general, varies from 1-15 miles in width. These marshes are regularly tidally flooded, flat, polyhaline areas dominated by salt-tolerant grasses and very few other species. Small pools or ponds may be scattered. Salt marsh has the least plant diversity and the lowest soil organic matter content of any marsh type. The community is often totally dominated by *Spartina alterniflora* (smooth cordgrass). Significant associate species includes *S. patens* (wiregrass), *Distichlis spicata* (salt grass), *Juncus roemarianus* (black rush), and *Batis maritima* (salt wort). Two other major groups of autotrophs found in Salt marsh are microscopic algae on the surface of the vascular plants, and benthic algae (usually diatoms) living on or in the marsh sediment. Soil and water conditions regulate plant growth and salinity appears to be the primary factor determining species composition. The mean salinity of salt marsh is about 16 ppt. The area of salt marsh is increasing apparently due to salt-water intrusion resulting in shifts in marsh salinity levels. Salt marsh acts as nursery areas for myriads of larval forms of shrimp, crabs, redfish, seatrout, menhaden, etc., and greatly enhances the production of marine organisms directly related to the enormous primary productivity of the marsh vegetation. Factors which promote the growth of salt marsh plants include: 1) a long growing season, 2) abundant rainfall, 3) presence of soil nutrients, 4) low tide differential and 5) tidally transported nutrients. Natural factors negatively impacting salt marsh include prolonged periods of inundation caused by winds, tides, or rain, especially those periods associated with hurricanes, subsidence, and erosion. Salt marsh also functions as a nitrogen and phosphorus sink (at least seasonally), thereby improving the quality of water that passes through it. In addition, it can alleviate the effects of storms and flooding by acting as a buffer and providing storage for large amounts of water.

| Scientific name | Common name | type |
|--------------------------------|--------------------------|-------|
| <i>Amaranthus greggii</i> | Greg's amaranth | herb |
| <i>Avicennia germinans</i> | Black mangrove | shrub |
| <i>Baccharis halimifolia</i> | Eastern baccharis | shrub |
| <i>Batis maritima</i> | Saltwort | herb |
| <i>Blutaparon vermiculare</i> | Silverheads | herb |
| <i>Borrichia frutescens</i> | Seaside tansy | herb |
| <i>Cakile constricta</i> | Sea-rocket | herb |
| <i>Calystegia sepium</i> | Hedge bindweed | herb |
| <i>Conyza canadensis</i> | Horseweed | herb |
| <i>Croton punctatus</i> | Gulf croton | herb |
| <i>Cuscuta</i> sp. | Dodder | herb |
| <i>Distichlis spicata</i> | Salt grass | grass |
| <i>Erigeron procumbens</i> | Corpus Christi fleabane | herb |
| <i>Erigeron procumbens</i> | Corpus Christi fleabane | herb |
| <i>Eustoma exaltatum</i> | Catchfly prairie gentian | herb |
| <i>Fimbristylis castanea</i> | Marsh fimbry | herb |
| <i>Hydrocotyle bonariensis</i> | Largeleaf pennywort | herb |
| <i>Ipomoea imperati</i> | Beach morning glory | herb |
| <i>Lycium carolinianum</i> | Carolina wolfberry | shrub |
| <i>Oenothera drummondii</i> | Beach evening primrose | herb |
| <i>Panicum amarum</i> | Bitter panicum (planted) | grass |
| <i>Salicornia depressa</i> | Virginia glasswort | herb |
| <i>Schoenoplectus pungens</i> | Common three square | grass |
| <i>Sesuvium portulacastrum</i> | Sea purselane | herb |
| <i>Sisyrinchium mucronatum</i> | Blue-eyed grass | herb |
| <i>Solidago sempervirens</i> | Seaside goldenrod | herb |
| <i>Spartina alterniflora</i> | Smooth cordgrass | grass |
| <i>Spartina patens</i> | Saltmeadow cordgrass | grass |
| <i>Sporobolus virginicus</i> | Seashore dropseed | grass |
| <i>Vigna luteola</i> | Deer pea | herb |

Table 3: Plants documented on Elmer's Island Refuge.

c. Protected Resources

Federally Listed Threatened and Endangered Species

Red knot (*Calidris canutus rufa*) - Threatened

Piping plover (*Charadrius melodus*) – Threatened

Loggerhead sea turtle (*Caretta caretta*) - Threatened

Green sea turtle (*Chelonia mydas*) - Threatened
 Kemp's ridley sea turtle (*Lepidochelys kempii*) – Endangered
 Leatherback sea turtle (*Dermochelys coriacea*) – Endangered
 Hawksbill sea turtle (*Eretmochelys imbricata*) – Endangered

Elmer's Island is listed as critical habitat for the piping plover.

State species of concern, S1 rank (critically imperiled in Louisiana because of extreme rarity [5 or fewer known extant populations] or because of some factor(s) making it especially vulnerable to extirpation):

| Scientific Name | Common Name |
|--------------------------------|--------------------------|
| <i>Panoquina panoquinoides</i> | Obscure skipper |
| <i>Brephidium isophthalma</i> | Eastern pygmy-blue |
| <i>Busycon sinistrum</i> | Lightning whelk |
| <i>Egretta rufescens</i> | Reddish egret |
| <i>Elanoides forficatus</i> | Swallow-tailed kite |
| <i>Haematopus palliatus</i> | American oystercatcher |
| <i>Charadrius alexandrinus</i> | Snowy plover |
| <i>Charadrius wilsonia</i> | Wilson's plover |
| <i>Sternula antillarum</i> | Interior least tern |
| <i>Hydroprogne caspia</i> | Caspian tern |
| <i>Sterna hirundo</i> | Common tern |
| <i>Lepidochelys kempii</i> | Kemp's ridley sea turtle |
| <i>Caretta caretta</i> | Loggerhead sea turtle |
| <i>Chelonia mydas</i> | Green sea turtle |
| <i>Automeris louisiana</i> | Louisiana eyed silkmoth |

d. Physical Facilities

Currently there are no facilities located on Elmer's Island. The island is traversed by several large oil and gas pipelines with accompanying canals and a pumping station. The island also once had a small, sand airstrip, remnants of which can still be seen. Adjacent to the property is the Grand Isle landfill.

e. Acquisition Needs

Property currently owned by the Federal Aviation Authority (FAA) is centrally located in the marsh area of Elmer's Island Refuge. In 2013, the FAA removed a damaged air tower from the

property in order to decommission and sell the parcel. Once the tower was removed, the FAA began the process for auctioning the property in 2015. LDWF is in contact with the FAA to obtain this 34.1 acre parcel.

III. Existing Uses

a. Public Access

Access onto the refuge is allowed between thirty minutes before official sunrise to thirty minutes after official sunset. The access road (crushed rock) begins at Highway 1, north of the Caminada Bridge, and ends at a parking area on the beach. Historically, driving on the beach was allowed, but future vehicular access will be limited to emergency or official vehicles due to the Louisiana state law prohibiting driving on an integrated coastal protection project (Louisiana RS 38:213).

The refuge should be considered a remote location, and access for emergency vehicles is limited. Visitors should dial 911 for emergency assistance, or the LDWF hotline, 1 (800) 442-2511.

Fees are not collected to enter the property, although a recreational saltwater fishing license is required for recreational fishing. The refuge may be closed during major storm activity, construction or other emergency situations. The access road to the island will be maintained by LDWF.

b. Hunting, Trapping, Fishing

Discharging firearms, hunting, trapping or disturbing any of the wildlife on Elmer's Island is not allowed. The legal take of recreational aquatic resources is allowed, which includes recreational fishing and crabbing.

c. Other Compatible Uses

The coastal islands are a popular destination for birding, especially during times of migration. A variety of species can be seen at Elmer's Island, including piping plovers, red knots, reddish egrets, marbled godwits, black skimmers and magnificent frigatebirds.

Nesting migratory birds include least terns and Wilson's plover, starting in mid-April continuing through September 1.



Figure 3 Wilson's plover nest at Elmer's Island



Figure 4: Reddish egret in back bay area of Elmer's Island, photo by Dr. Allyse Ferrara

IV. Education/Outreach

Several educational programs and university classes regularly integrate field trips to Elmer's Island into their curriculum.

WETSHOP is a week-long intensive teacher's educational workshop sponsored by LDWF and other organizations. The focus of the workshop is to provide teachers with an in-depth look at issues related to wetland ecology and coastal land loss in Louisiana. Participating teachers will accrue 55 hours of instruction covering a wide variety of topics, including wetland ecology, fisheries management and coastal restoration. Teachers will also spend a portion of each day in the field learning about maritime forests, barrier island beach ecology, coastal restoration projects, bird life, marsh and swamp habitats and marine organisms. Other supporting agencies involved in WETSHOP include These agencies and organizations include: BTNEP, Louisiana Department of Natural Resources, Louisiana Nature Conservancy, Louisiana Sea Grant College Program, Coastal Planning Protection and Restoration Act and Louisiana Universities Marine Consortium.

LDWF has partnered with several organizations to sponsor volunteer programs at Elmer's Island. Projects include dune fence installations, planting coastal native grasses and beach sweeps (litter/marine debris removal). These programs generally involve a component of education regarding coastal Louisiana fisheries, industry and coastal land loss.

Family Fish Fest, an LDWF sponsored fishing rodeo geared towards involving kids in outdoor activities and recreational fishing, occurs at Elmer's Island during the summer fishing season.

V. Research

Researchers should contact LDWF prior to conducting any sampling on Elmer's Island Refuge. A permit from the Secretary is required to collect or disturb any bird or animal on the refuge. Permits are not required for surveys that involve observation only (no traps, snares, or other devices capable of being used to capture or disturb).

The following projects have been permitted or undertaken by LDWF:

- Diamondback terrapin abundance and distribution in Louisiana
- Beach-nesting bird monitoring and banding on Elmer's Island, Louisiana Audubon
- Migratory connectivity in red knots occurring in coastal Louisiana, Coastal Bend Bays & Estuaries Program and BTNEP
- Carnivore distribution and prey abundance in Terrebonne and Barataria Bays, Mirka Zapletal with the University of Louisiana at Lafayette

VI. Management Practices

a. Emergency Management

Closure of Elmer's Island Refuge will occur periodically due to storm warnings, construction, oil spills or other emergency events.

The following protocol will be followed prior and during closure events:

Hurricanes

1 - Signs will be removed and stored at the LDWF Fisheries Research lab as soon as a named storm enters the Gulf of Mexico, or within 600 miles of Elmer's Island. This includes tropical storms as well as storms classified category 1 through 5.

2 – Elmer's Island will be closed to the public once a storm equal or above a category 1 reaches within 500 miles of Elmer's Island, within the Gulf of Mexico. Closure will be determined on the basis of direction, strength and speed of each storm; safety of the public and preservation of public resources are paramount to leaving the refuge open.

3- Closure protocols include a public announcement 24 hours in advance through press release, patrolling the area to verify that all visitors have been notified and exited, and locking the entrance gate on Elmer's Island access road.

Reopening of the refuge will be determined as soon as safely allowed back into the Grand Isle area, and will be announced through press release.

Construction

Construction events occur during times of restoration activities, maintenance of the access road, or emergency repairs. Heavy equipment on the road and the beaches poses hazards to the public. Announcements will be made through a press release for closures and re-openings of the area.

Oil spills or other emergencies

Elmer's Island Refuge will close due to oil spills, if public safety is in question.

Other emergency events may arise to cause closures which will be at the discretion of the Secretary of LDWF.

b. Refuge Regulations

Elmer's Island Refuge is regulated through the Louisiana Wildlife and Fisheries Commission per the authority granted by the Louisiana legislature.

Louisiana Administrative Code, Title 76, Part III, Ch. 3

§337. Elmer's Island Wildlife Refuge

A. Visitor Regulations for Elmer's Island Wildlife Refuge

1. Use of the refuge will be permitted from thirty minutes before official sunrise to thirty minutes after official sunset. This includes any land access routes to the refuge. No person or vehicle shall remain on the Elmer's Island Wildlife Refuge or any land access routes during the period from 30 minutes after official sunset to 30 minutes before sunrise.
2. No person shall possess any glass bottles, glass drink containers or other glass products on Elmer's Island Wildlife Refuge.
3. The secretary of the department may restrict access to the refuge whenever circumstances exist such that restrictions are necessary to protect the refuge or the public from harm. No person shall enter onto or be on the grounds of Elmer's Island Wildlife Refuge during a restricted access period; or alternatively shall do so only in accordance with restrictions set forth by the secretary.
4. No person shall discharge or fire any firearms including muzzleloaders, or bows and arrows or crossbows on Elmer's Island.
5. No person shall commercially fish, conduct any guiding service, hunt, pursue, kill, molest or intentionally disturb any type of wildlife on the refuge, except for the legal recreational harvest of living aquatic resources.
6. No person shall be in areas marked as restricted by signs posted by the department.
7. No person shall operate any vehicles in a restricted area. No person shall operate a vehicle in an unsafe or careless manner as to endanger life or property or at any speed in excess of five miles per hour.
8. The requirement of a Wild Louisiana Stamp on Elmer's Island Wildlife Refuge is hereby waived, and the secretary is directed to take all necessary steps to accomplish this waiver.

AUTHORITY NOTE: Promulgated in accordance with R.S. 56:6, R.S. 56:109, R.S. 56:109.2, R.S. 56:763 and R.S. 56:781 et seq.

HISTORICAL NOTE: Promulgated by the Department of Wildlife and Fisheries, Wildlife and Fisheries Commission, LR 36:1280 (June 2010).

Entrance requirements: Elmer's Island is a destination site for visitors to the area, recreational fisherman as well as "eco-tourists." The Department does not require a license or permit for visiting the property. LDWF regulations apply to any fishing or collecting activities occurring in the refuge.

Hours: The current rules state that the refuge will be closed at night, from 30 minutes after sunset to 30 minutes before sunrise. These hours may be amended through the Louisiana Wildlife and Fisheries Commission.

Seasons: Currently, Elmer's is open all year. The refuge will be closed during times of extreme weather conditions, major construction or if other circumstances pose a hazard to visitors.

Driving Areas: Driving is allowed on the access road and in parking areas on the beach, near the access road.

Camping: Camping is currently not allowed at the refuge, although this may be amended through the Louisiana Wildlife and Fisheries Commission. If amended, LDWF recommends only low-impact tent camping; overnight RV camping will not be allowed. Campers will be responsible for their own health and safety. Campers must bring in their own water and supplies. Emergency services can be attained through 911 phone calls. Towing services will be through private companies in the area.

Open Fires: The burning of any material from the refuge, such as driftwood, wrack and vegetative material will not be allowed. Visitors will be allowed to burn firewood brought into the refuge in a metal fire pit. All remnants of a fire must be removed upon leaving the refuge.

BBQ Pits/ Boiling Equipment: Visitors will be allowed to bring gas or propane powered barbeque pits and boiling equipment onto the property.

Litter/Garbage: All refuse shall be taken away from Elmer's Island at the end of a visit. There are no garbage receptacles maintained by LDWF at the refuge.

c. Species Specific Management

Nesting shorebirds such as Least terns and Wilson's plover are protected under the Migratory Bird Treaty Act. LDWF will close an area of the refuge during nesting season, April 15th to September 1st. The closed area will prohibit pedestrian traffic. Signage in the closed area will alert pedestrians to be alert for nesting birds. An area with a radius of at least 100 feet will be posted around nests.

Diamondback terrapins nest in area of Elmer's Island Refuge, and can be seen crossing the access road to reach the dunes or to return to the marsh after nesting. Signage to alert drivers to the presence of nesting Diamondback terrapins will be placed on the access road.

Sea turtle nests are federally protected under the Endangered Species Act, and should be reported to LDWF or to the US Fish and Wildlife Service. All located sea turtle nests will be posted and monitored.

d. Beach Debris

Although the occurrence of some beach wrack (organic material washed up onto the beach by tides, or surf) is expected, extreme cases do occur.

The sudden appearance of numerous dead fish on the beach (fish kill or spill) will be recorded and investigated through LDWF fisheries biologists. A fish kill can result from commercial and recreational fishing activity or environmental factors such as poor water quality. Fish will be allowed to decompose naturally and will not be removed from the area unless the situation poses a public health threat, as determined by the responsible state agency (Department of Health and Hospitals, Department of Environmental Quality, Wildlife and Fisheries, etc.).

Sargassum, a macro-algae, or seaweed, normally washes ashore during times of continued southerly winds, along with man-of-war jellyfish and other tropical or sub-tropical species. In 2014, the large amount of sargassum that was experienced on the beaches of Grand Isle and Elmer's Island exceeded all previous records. The Louisiana Army National Guard remediated the beaches by removing the sargassum from the shoreline and used it to create dunes in the dry sandy areas of the beach.



Figure 5 Sargassum on the beach at Elmer's Island, 2014

Other vegetation that appears as wrack on the beach includes water hyacinth, especially during high water events in the Mississippi River.

Marine debris and litter can either wash up from the Mississippi River or from offshore and inshore sources. LDWF does not collect litter in receptacles on the beach. All visitors should haul out all materials, supplies and refuse created while visiting the refuge.



Figure 6 Water hyacinth forming the majority of the wrack on Elmer's Island beach, April 2015

VII. Plan Implementation

a. Funding

Current funding for activities at Elmer's Island Refuge, such as road repairs, signage and staffing is supplied through the LDWF conservation fund. Future projects to improve public access to Elmer's Island may be available from the DWH BP settlement, National Fish and Wildlife Foundation (NFWF) funding grants, or other NGO grant opportunities.

b. Staff

LDWF Office of Fisheries staff are responsible for the management of Elmer's Island, with a supervisor or upper level biologist as the lead contact. The Office of Fisheries Biologist collaborates with the Office of Wildlife personnel when appropriate (ornithologists, botanists, etc.). LDWF enforcement agents patrol the refuge, and are commissioned to enforce LDWF regulations, Louisiana state and federal laws, including federal laws protecting wildlife and fisheries resources.

c. Partnerships

LDWF will continue to request management input from organizations and agencies interested in the conservation issues at Elmer's Island. Informal management meetings have included the following organizations: Town of Grand Isle, BTNEP (Barataria-Terrebonne National Estuary

Program), LSU Sea Grant, the Louisiana Wildlife Federation, CPRA (Coastal Protection and Restoration Authority), Nicholls State University, Louisiana Audubon, Grand Isle Port Commission, The Nature Conservancy, National Wildlife Federation, and CRCL (Coalition to Restore Coastal Louisiana). Other organizations involved in collaborative efforts to improve access and the natural resources at Elmer's Island include the Edward Wisner Donation, the Grand Isle Levee District, Friends of Grand Isle, Coastal Conservation Association (CCA), Louisiana Department of Natural Resources, Louisiana Department of Environmental Quality, the U.S. Fish and Wildlife Service and agencies involved with the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA).