

# Coastwide Nutria Control Program 2017 - 2018

**Nutria Harvest and Distribution 2017-2018  
and  
A Survey of Nutria Herbivory Damage in Coastal Louisiana 2018**



\*Funded by Coastal Wetlands, Planning, Protection, and Restoration Act  
through the Natural Resources Conservation Service and the Coastal Protection  
and Restoration Authority

**Conducted by: Coastal and Nongame Resources  
Louisiana Department of Wildlife and Fisheries**

**As part of the Coastwide Nutria Control Program\*  
CWPPRA Project (LA-03b)**

Submitted by: Catherine Normand & Jennifer Manuel  
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## Section 1

### Nutria Harvest Distribution for 2017-2018.

#### Introduction

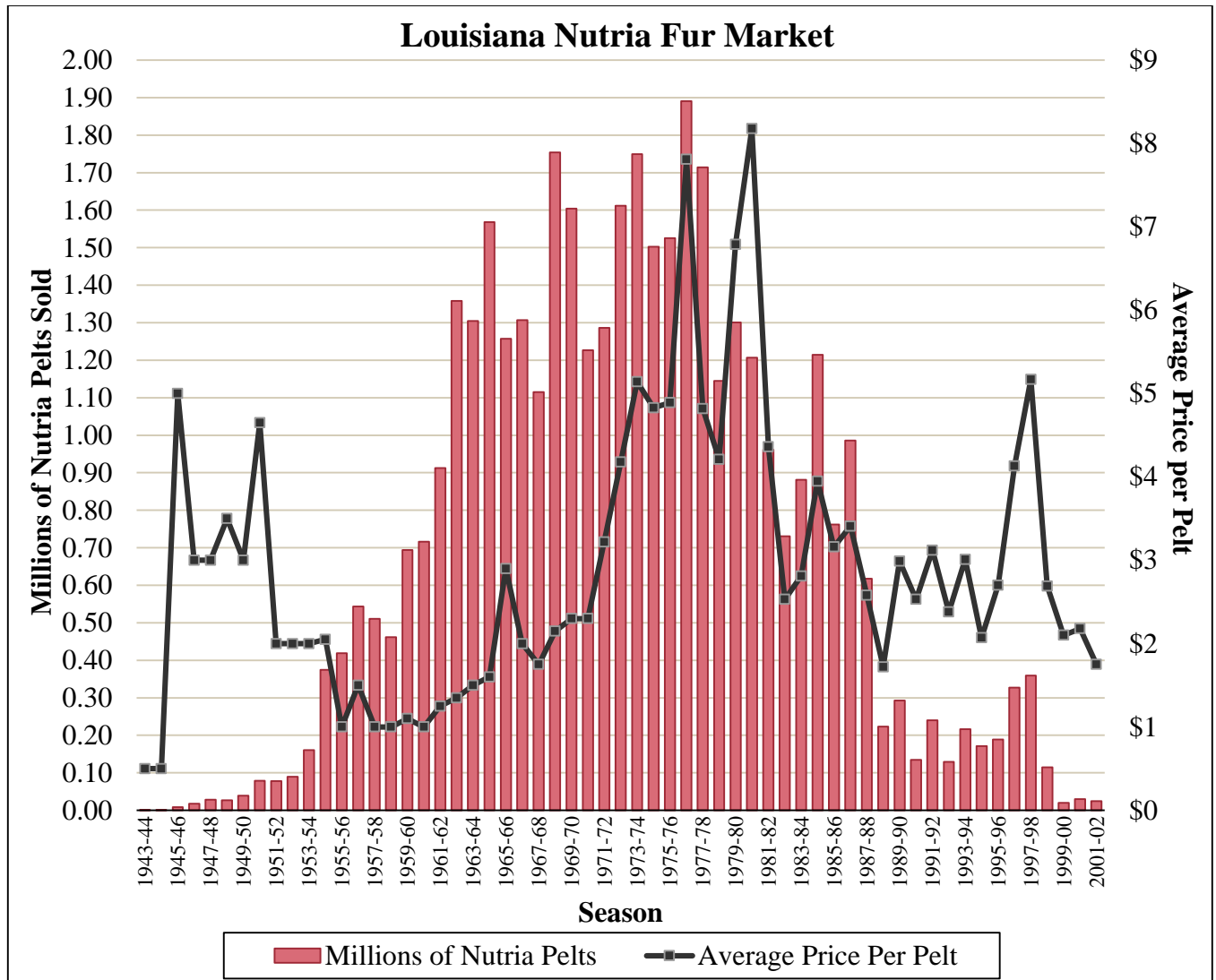
The nutria (Myocastor coypus) is a large semi-aquatic rodent indigenous to South America. The first introduction of nutria to North America occurred in California in 1899; however, it was not until the 1930's that additional animals were introduced in seven other states primarily for fur farming. These fur farms failed during the Second World War as a result of poor pelt prices and poor reproductive success. After the failures of these fur farms, nutria were released into the wild. Sixteen states now have feral populations of nutria.

The Gulf Coast nutria population originated in Louisiana in the 1930's from escapes and releases from nutria farms. Populations first became established in the western coastal portion of the state and then later spread to the east through natural expansion coupled with stocking. During the mid-1950s, muskrat populations were declining, nutria had little fur value, and serious damage was occurring in rice fields in southwestern Louisiana and sugarcane fields in southeastern Louisiana; farmers complained about damage to crops and levee systems, while muskrat trappers blamed the nutria for declining numbers of muskrats. In 1958, the Louisiana Legislature placed the nutria on the list of unprotected wildlife and created a \$0.25 bounty on every nutria killed in 16 south Louisiana parishes, but funds were never appropriated.

Research efforts were initiated by the federal government in the southeastern sugarcane region of the state to determine what control techniques might be successful. This research conducted by the U.S. Fish and Wildlife Service during the 1960's examined movements in relation to sugarcane damage and recommended shooting, trapping, and poisoning in agricultural areas. Ted O'Neil, Chief of the Fur and Refuge Division, Louisiana Department of Wildlife and Fisheries (LDWF), believed that the problem could only be solved through the development of a market for nutria pelts. A market for nutria developed slowly during the early 1960's and by 1962 over 1 million pelts were being utilized annually in the German fur trade. The nutria became the backbone of the Louisiana fur industry for the next 20 years, surpassing the muskrat in 1962 in total numbers harvested. In 1965, the state legislature returned the nutria to the protected list. As fur prices showed a slow rise during most of the 1970's and early 1980's, the harvest averaged 1.5 million pelts and complaints from agricultural interest became uncommon. From 1971 through 1981 the average annual value of the nutria harvest to the coastal trappers was \$8.1 million. The nutria harvest in Louisiana from 1962 until 1982 remained over 1 million annually. The harvest peaked in 1976 at 1.8 million pelts worth \$15.7 million to coastal trappers (Figure 1).

The nutria market began to change during the early 1980's. In 1981-1982, the nutria harvest dropped slightly below 1 million. This declining harvest continued for two more seasons; then in the 1984-1985 season, the harvest jumped back up to 1.2 million. During the 1980-1981 season, the average price paid for nutria was \$8.19. During the 1981-1982 season, the price dropped to \$4.36 and then in 1982-1983, the price dropped to \$2.64. Between the 1983-1984 season and the 1986-1987 season, prices fluctuated between \$3.00 and \$4.00. Then in 1987-1988 and again in 1988-1989 prices continued to fall (Figure 1). From 1982 through 1992 the average annual value of the nutria harvest was only \$2.2 million. Between 1988-1989 and 1995-1996 the number of nutria harvested annually remained below 300,000 and prices remained at or below a \$3.00 average.

Due to a strong demand for nutria pelts in Russia in both 1996-1997 and in 1997-1998, 327,286 nutria were harvested at an average price of \$4.13 and 359,232 nutria were harvested at an average price of \$5.17 during those seasons respectively. In September 1998, the collapse of the Russian economy and general instability in the Far East economies weakened the demand for most wild furs including nutria. The demand for nutria pelts in Russia declined quickly due to the devaluation of the Russian ruble. During the 1998-1999 trapping season, pelt values fell to \$2.69 and harvest decreased to only 114,646, less than one-third of the previous year. During the 1999-2000 trapping season there was virtually no demand for nutria pelts. The harvest decreased to 20,110 nutria. This was, by far, the lowest nutria harvest on record since the mid-1950s. The number of nutria harvested in 2000-2001 trapping season increased to 29,544. The value of nutria pelts decreased to \$1.75 during the 2001-2002 season, prompting another decrease in harvest to 24,683 nutria.



**Figure 1.** Louisiana fur market 1943 – 2002 (the season prior to CNCP implementation).

During the strong market period for nutria pelts, there were no reports of wetland damage caused by nutria. However, before the market developed and after the market declined, reports of marsh vegetation damage from land managers became common. Such complaints began in 1987 and became more frequent during the early 1990's. In response, the Fur and Refuge Division of the Louisiana Department of Wildlife and Fisheries (LDWF) initiated limited aerial survey flights, particularly in southeastern Louisiana. Survey flights of Barataria and Terrebonne basins were conducted during the

1990's, with initial support from Barataria-Terrebonne National Estuary Program (BTNEP) and later support from Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA). From 1993 to 1996 these flights showed acres of damage increasing from approximately 45,000 to 80,000 acres within the basins. The first CWPPRA funded coastwide survey, conducted in 1998, showed herbivory damage areas totaling approximately 90,000 acres. By 1999 this coastwide damage had increased to nearly 105,000 acres. This rapid and dramatic increase in damaged acres prompted LDWF to pursue funding for the Coastwide Nutria Control Program (CNCP) in January 2002.

The project is funded by the CWPPRA through the Natural Resources Conservation Service (NRCS) and the Coastal Protection and Restoration Authority (CPRA) with the LDWF as the lead implementing agency. Task one requires LDWF to conduct an annual aerial survey to evaluate the herbivory damage caused by nutria. Task two of the CPRA and LDWF Interagency Agreement No. 2511-02-29 for the CNCP requires LDWF to conduct general project operation and administration. LDWF is required to 1) conduct and review the registration of participants in the CNCP; 2) establish collection stations across coastal Louisiana; 3) count valid nutria tails and present participants with a receipt/voucher; 4) deliver tails to an approved disposal facility and receive documentation that ensures the nutria will be properly disposed of and shall not leave the facility; and 5) process and maintain records regarding participants, number and location where tails were collected. Task 3 requires LDWF to provide incentive payments to program participants and task 4 requires LDWF to provide a report regarding the distribution of the harvest by township.

The program area is coastal Louisiana bounded to the north by Interstate-10 from the Texas state line to Baton Rouge, Interstate-12 from Baton Rouge to Slidell, and Interstate-10 from Slidell to the Mississippi state line. The project goal is to significantly reduce damage to coastal wetlands attributable to nutria herbivory by removing 400,000 nutria annually. This project goal is consistent with the Coast 2050 common strategy of controlling herbivory damage to wetlands. The method chosen for the program is an incentive payment to registered trappers/hunters for each nutria tail delivered to established collection centers. Initially, registered participants were given \$4.00 per nutria tail. To encourage participation, the payment was increased to \$5.00 per tail in the 2006-2007 season.

## **Methods**

The application for participation in the CNCP was developed in July 2002 but is modified as needed to obtain better information about the location of nutria harvest. It was made available through the LDWF offices and website, as well as LSU Cooperative Extension offices. In order for a participant to be qualified, the individual must complete the application, obtain written permission from a landowner or land manager with property in the program area, complete a W-9 tax form and provide LDWF with a complete legal description of the property to be hunted or trapped. A map outlining the property boundaries was an added requirement of participants beginning with the 2003-2004 season. Once an applicant was accepted, the participant was mailed information on the program's regulations, collection sites for nutria tails, contact information and a CNCP registration card.

Coastal Environments Inc. (CEI) was selected as the contractor to develop and maintain the program database, collect nutria tails, and distribute incentive payment checks to participants for tail harvests. The contract with CEI, which began with the 2002-2003 season, was extended to include the 2003-2004 through 2006-2007, with the option to renew for 3 years thereafter. CEI's first renewal season was (2007-2008), the second renewal season was (2008-2009), and their third renewal season (2009-2010), and their fifth season (2014-2015) under their second contract, which began in 2010. The current contract with CEI included their sixth season (2015-2016) and CEI chose to extend this contract through



April 2019. Tail collection sites were originally established at Rockefeller Refuge, Abbeville, Berwick (Morgan City), Houma, Luling and Slidell. Rockefeller Refuge has since been removed as a collection site due to low numbers of participants utilizing that location and St. Bernard has been added. Collections were made once a week at most sites except for Abbeville, which were made by appointment only, and biweekly at Slidell and St. Bernard, due to low numbers of participants in the area.

Louisiana's open trapping season began on November 20, 2017. Nutria tail collections began November 21, 2017 and continued through April 6, 2018, which was 1 week after the season closed. Collections were made utilizing a 16 foot by 8 foot trailer containing a freezer, sorting table and desk. Participants reported to the collection site of their choice, presented their nutria control program registration card, and presented their tails to a CEI representative.



One CEI representative conducted an exact count of the nutria tails, which was then verified with the participant to ensure they were in agreement. At that time, the counted tails were placed into a plastic garbage bag labeled with the participant's CNCP registration number and the number of tails contained in that bag. Another CEI representative filled out a voucher on a tablet PC for the number of tails delivered, checking to make sure the mailing address of the participant was correct. The participant was asked a wide range of questions including method of take, location of take, and method of disposal (Figure 19). When complete, the voucher was signed using a stylus by the participant who would also indicate on a detailed map of their lease the location or locations where the nutria were harvested. The CEI representative would use a stylus to draw a polygon around the indicated area in a mapping program and save an electronic copy of the completed voucher. A copy of the voucher was printed and given to the participant.



The information on the voucher can then be transferred electronically to the CEI main offices via an FTP site for analysis and quality control. The data transfer occurred at the end of each collection day. Collected tails were transported to the BFI waste storage facility in Sorrento, Louisiana, at the end of each collection week or more frequently if necessary. The CEI representative checked in at a guard



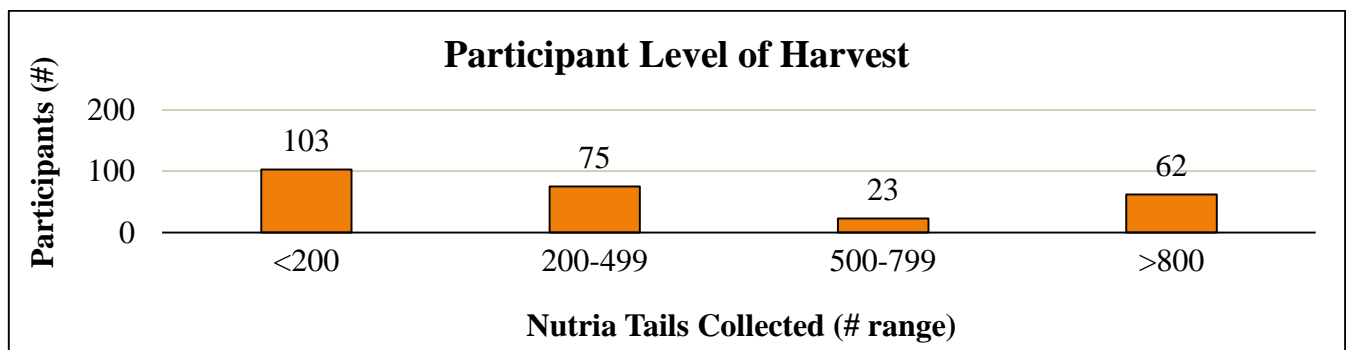
station where the vehicle containing the tails was weighed. The vehicle was also weighed when exiting the disposal site in order to calculate the exact amount of waste deposited at the facility. The tails were deposited into a biohazard waste pit under supervision of a BFI employee. The number of bags disposed, as well as weight deposited, was recorded on a receipt given to the CEI representative. Copies of the receipts for all disposals made were supplied to LDWF.

The digitized vouchers and maps would go through a rigorous QA/QC process each week which would end with the data being compiled and sent in a weekly report to LDWF detailing each transaction, including digital maps exported from Arc Map GIS 10 of that week's trapped/hunted areas. Each Monday morning, after receiving a weekly report and bill, LDWF sent a payment to CEI for the amount of tails collected and services rendered. CEI in turn sends participants checks through the mail for the amount of tails turned in. Louisiana's open trapping season ended on March 31, 2017, and nutria tail collections continued until the first Friday of April. After the conclusion of the season, CEI provided LDWF with all the transaction information for the entire season from November to March. This final report contains information recorded on the vouchers, the digitized trapped/hunted area, the nutria control program database and an Arc Map 10.4 project map with related information.

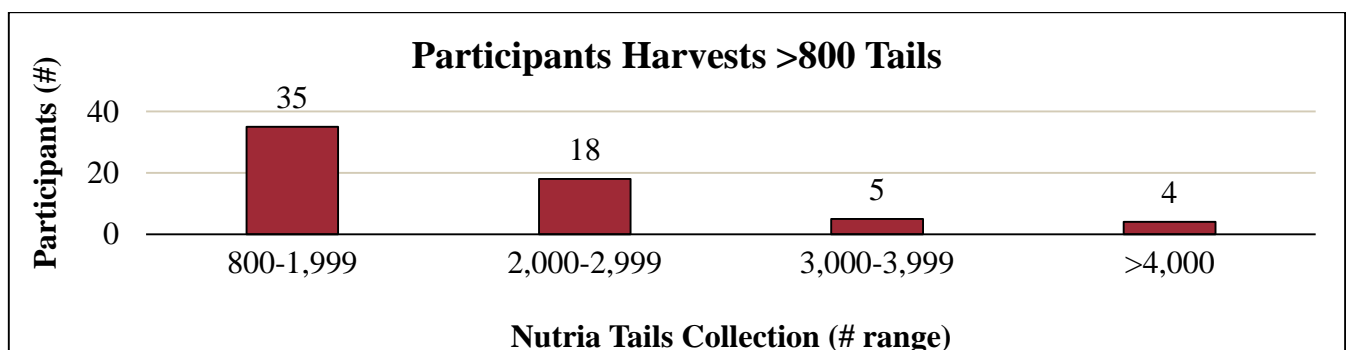
## Results and Discussion

### Participant Totals

We registered a total of 432 participants in the program for the 2017-2018 season. A total of 170,471 nutria tails worth \$852,355 in incentive payments were collected from 263 active participants. The fewest number of tails turned in by a single participant was 8 and the greatest number of tails by a single participant was 6,718. Approximately 24% of active participants turned in 800 or more tails (Figure 2A). Of the 62 participants who turned in 800 or more tails, 2% turned in more than 4,000 tails (Figure 2B).



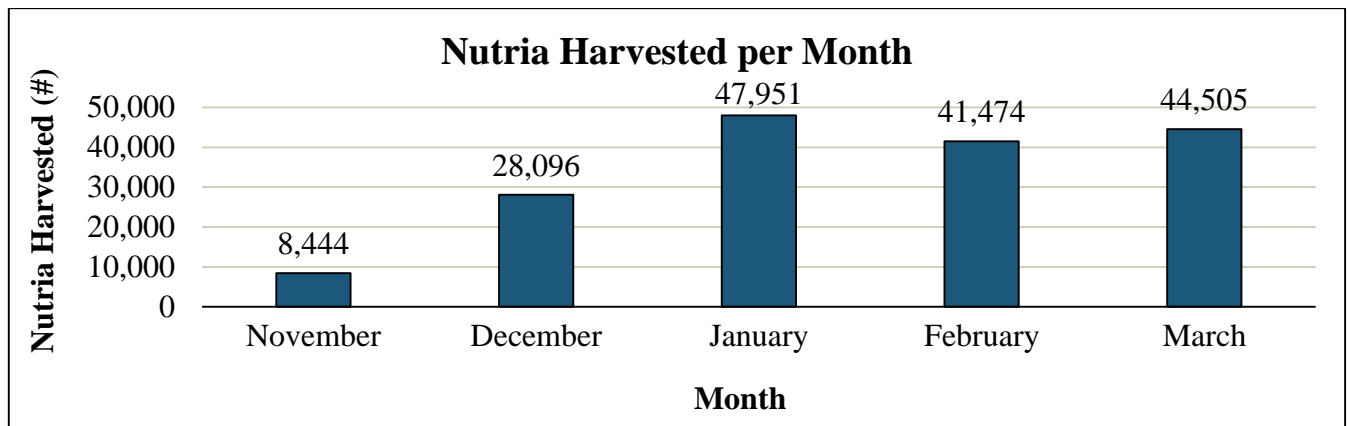
**Figure 2A.** Participant level of harvest for all 263 active participants.



**Figure 2B.** Participant level of harvest for the 62 participants who harvested more than 800 tails.

### Harvest by Month

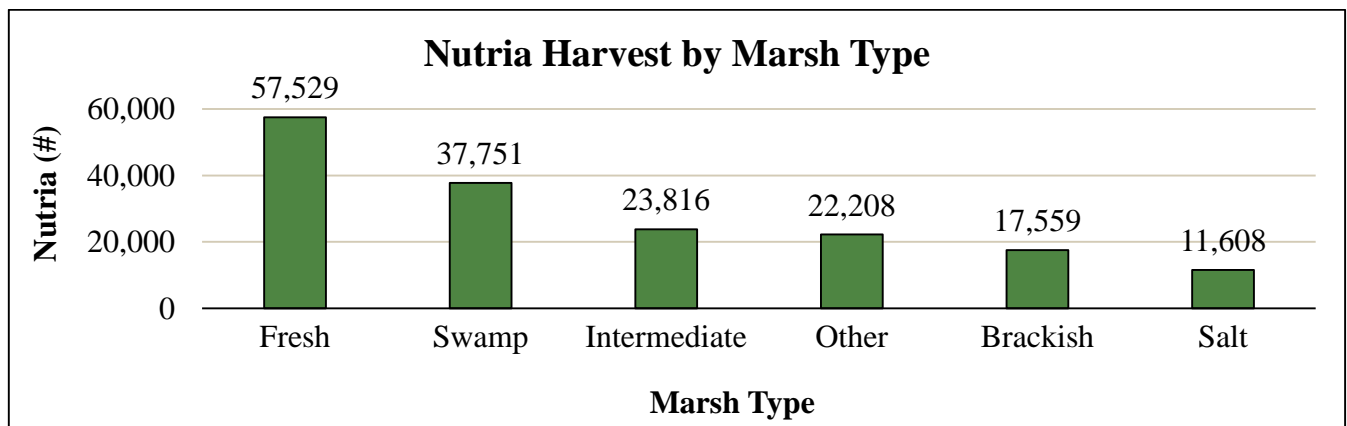
The 2017-2018 trapping season began November 20<sup>th</sup>, 2017 and continued through March 31<sup>st</sup>, 2018. Forty-seven thousand nine hundred and fifty-one (47,951) tails were collected in the month of January making it the most active month of the season. Tails that were presented at the collection sites through the first week of April are included in the March harvest (Figure 3).



**Figure 3.** CNCP nutria harvest per month.

### Harvest by Marsh Type

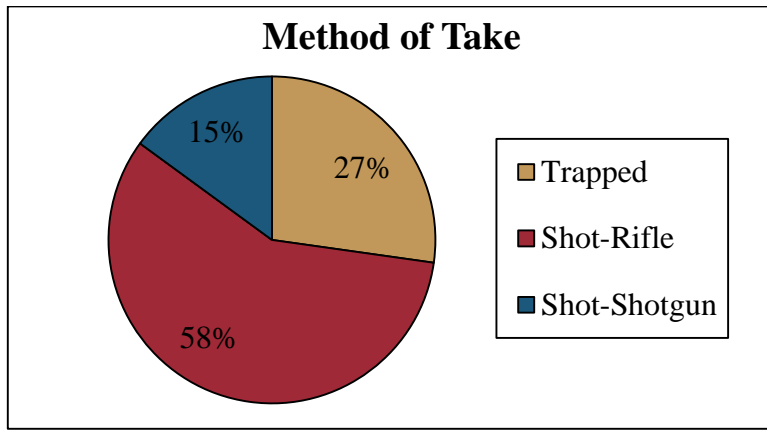
Harvest data were classified by marsh type: Fresh Marsh; Intermediate Marsh; Brackish Marsh; Salt Marsh; Swamp; and Other. The category Other includes developed properties and agricultural areas. During the 2017-2018 season, 34% of nutria were harvested from Fresh Marsh, followed by Swamp (22%), Intermediate (14%), Other (13%), Brackish (10%), and Salt (7%; Figure 4). During the first 15 seasons, we reported harvests for a category called Open Water, which were leases having more acres of open water than land acres. We eliminated Open Water during the 2016-2017 season because that category was too vague and instead these harvests are included in the marsh type category that comprised the most land acres within the lease area.



**Figure 4.** CNCP nutria harvest by marsh type.

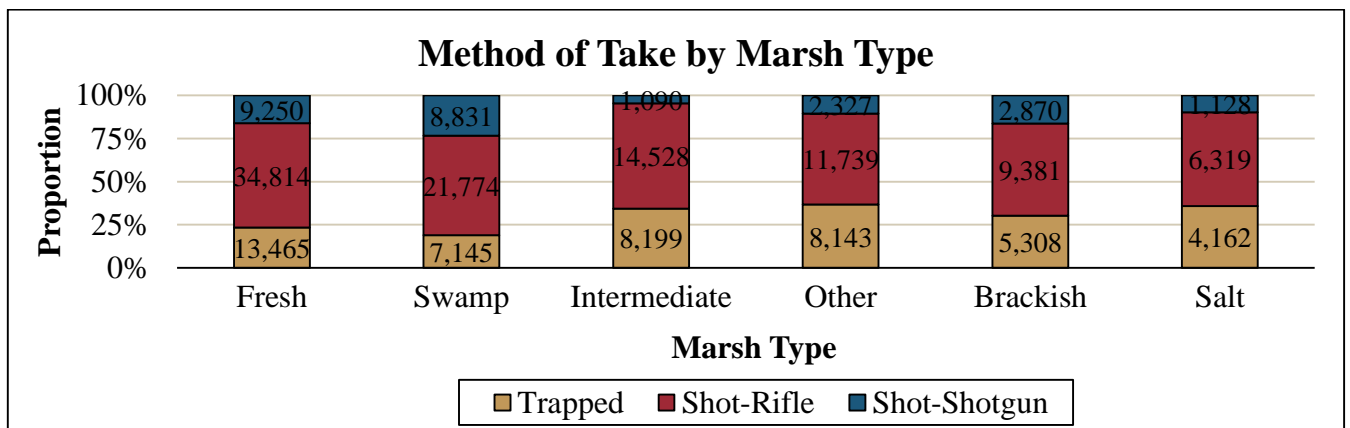
### Method of Take

During collection transactions, program participants indicated their method of take: trapped; shot with rifle; or shot with shotgun. The predominant method of take used in the 2017-2018 season was shooting with a rifle (Figure 5).



**Figure 5.** Method of take.

Harvesting with a rifle is the most common method of take used in all marsh types (Figure 6).



**Figure 6.** Method of take within each marsh type.

### Carcass Use/Disposal

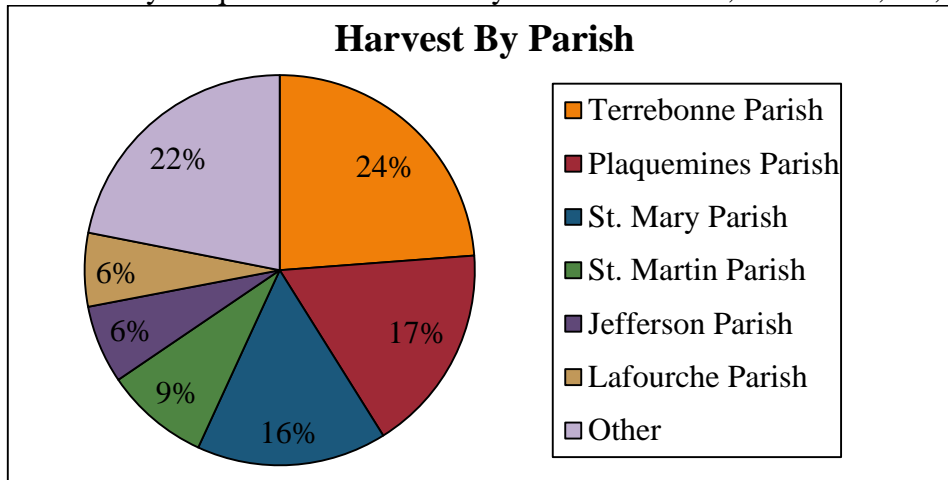
Use or method of disposal for nutria carcasses was recorded for each participant transaction. Overall, 2% of the nutria harvested were kept as whole carcass, of which hides were sold from 4% and meat sold from 90%. The remaining 98% of nutria carcasses were disposed of by approved methods, which include burying carcasses, placing carcasses in heavy overhead vegetation, or sinking the carcasses in the water (Table 1). All interested participants were supplied a fur buyer/fur dealer list to encourage the use of animals for the fur and meat. The total number within each category was estimated from percentages reported by participants.

Marsh Type	Whole Carcass	Fur	Meat	Abandoned-Buried	Abandoned-Vegetation	Abandoned-Waterway
Fresh	249	11	223	42,092	9,125	6,332
Swamp	148	7	133	28,514	3,866	5,135
Intermediate	536	24	481	17,914	1,700	3,610
Other	1,040	46	933	15,344	2,928	2,840
Brackish	688	30	617	11,825	3,906	1,099
Salt	1,545	68	1,386	5,419	2,042	2,575
<b>Total</b>	<b>4,205</b>	<b>186</b>	<b>3,773</b>	<b>121,109</b>	<b>23,567</b>	<b>21,590</b>

**Table 1.** CNCP nutria carcass use or disposal.

### Harvest by Parish

Twenty-one parishes were represented in the 2017-2018 season of the CNCP, with nutria harvests ranging from 154 to 40,581 nutria. Terrebonne Parish reported the highest number of tails with 40,581 followed by Plaquemines and St. Mary Parishes with 29,474 and 26,869, respectively (Figure 7).



**Figure 7.** CNCP harvest by parish.

## Section 2

### A SURVEY OF NUTRIA HERBIVORY DAMAGE IN COASTAL LOUISIANA IN 2017

#### Introduction

Herbivory damage was noticed in the late 1980s by landowners and land managers when the price of fur dropped and the harvest of nutria all but ceased. The LDWF was contacted to investigate the problem. The first region wide aerial survey became possible because of the interest and concern of many state and federal agencies, coastal land companies and, in particular, funding provided by BTNEP. The objectives of the aerial survey were to: (1) determine the distribution of damage along the transect lines as an index of region wide damage, (2) determine the severity of damage as classified according to a vegetative damage rating, (3) determine the abundance of nutria by the nutria relative abundance rating (4) determine the species of vegetation being impacted and (5) determine the status of recovery of selected damaged areas (Linscombe and Kinler 1997).

Helicopter surveys were flown in May and December 1993 and again in March and April 1996 across the Barataria and Terrebonne Basins. During the December 1993 survey, 90 damaged sites were observed with more than 15,000 acres of marsh impacted along the transects with an estimated 60,000 acres across the study area. In 1996, a total of 157 sites were observed. The damage observed along the transect lines increased to 20,642 acres, and an extrapolated acreage of 77,408 acres across the study area. (The extrapolated coastwide estimate is derived by multiplying the observed acres by 3.75 to account for area not visible from the transect lines.) All of the 1993 sites were evaluated again in 1996, but only 9% showed any recovery. Clearly, the trend identified was a continued increase in both the number of sites and the extent of nutria damage in the Barataria and Terrebonne Basins.

In 1998, the first coastwide nutria herbivory survey was flown, as part of the Nutria Harvest and Wetland Demonstration Program (LA-03a). A total of 23,960 acres of damaged wetlands were located at 170 sites along the survey transects, with an extrapolated coastwide estimate of 89,850 acres. In 1999, the damage increased to 27,356 acres located at 150 sites, with an extrapolated coastwide estimate of 102,585 acres. In 2000, the damage slightly decreased to 25,939 acres located at 132 sites, with an extrapolated coastwide estimate of 97,271 acres. In 2001, the damage decreased to 22,139 acres located at 124 sites, with an extrapolated coastwide estimate of 83,021 acres. In the 2002 survey, the first survey funded as part of the CNCP and the survey which preceded implementation of the CNCP incentive payments, the damage decreased again, but only slightly to 21,185 acres located at 94 sites, with an extrapolated coastwide estimate of 79,444 acres. During the 2003 survey, a total of 84 sites had some level of vegetative damage and covered a total of 21,888 acres, with an extrapolated coastwide estimate of 82,080 acres. In summary, the coastwide estimates of nutria herbivory damage prior to implementation of the CNCP incentive payments (from 1998 to 2003) ranged from 79,444 to 102,585 acres.

Vegetative damage caused by nutria has been documented in at least a dozen Coastal Wetlands Planning Protection and Restoration Act (CWPPRA) project sites in the Barataria and Terrebonne Basins. Nutria herbivory is only one of many factors causing wetlands loss, but the additional stress placed on the plants by nutria herbivory may be very significant in CWPPRA projects sites and throughout coastal Louisiana.

The previous extrapolated estimates of 79,444 to 102,585 acres of marsh damaged was conservative because only the worst sites (most obvious) can be detected from aerial surveys; the actual number of

acres being impacted was certainly higher. When vegetation is removed from the surface of the marsh, as a result of over grazing by nutria, the very fragile organic soils are exposed to erosion through tidal action and/or storms. If damaged areas do not revegetate quickly, they may become open water as tidal scour removes soil and thus lowers elevation. This is evident as the damaged sites that converted to open water over the last five years have been in the intermediate and brackish marsh types. Frequently the plant's root systems are also damaged, making recovery through vegetative regeneration very slow.

In an effort to create an incentive for trappers and hunters, the CNCP was implemented. Task number 1 of the LDNR and LDWF Interagency Agreement No. 2511-02-29 for the CNCP requires LDWF to conduct annual coastwide aerial surveys during spring/summer to document the current year's impact of nutria herbivory. Survey techniques followed Linscombe and Kinler (1997), and CNCP funded surveys, have been conducted each spring from 2003 to present. Results were analyzed and the numbers of acres impacted or recovered were determined.

## Methods

The 2018 coastwide nutria herbivory survey was conducted April 2<sup>nd</sup> – April 13<sup>th</sup>. North-South transects were flown throughout the fresh, intermediate and brackish marshes of coastal Louisiana. Annually, a total of 155 transects (covering 2,354.7 miles) are surveyed for damage. The transects were spaced approximately 1.8 miles apart, starting at the swamp-marsh interface and continuing south to the beginning of the salt marsh. Due to low nutria population density, salt marsh habitat was not included in the survey and neither were swamp and other (developed areas and agricultural land) because nutria damage in these habitats cannot be reliably identified from the helicopter. Depending upon visibility and vegetative conditions, an altitude of 200-300 feet was considered optimum. At this altitude, vegetative damage was identifiable and allowed for a survey transect width of about 1/4 mile on each side of the helicopter. Flight speed was approximately 80 mph. Two observers were used to conduct the survey, each positioned on opposite sides of the helicopter. In addition to locating vegetative damage, one observer navigated along the transect line and the other observer recorded all pertinent data.



When vegetative damage was identified, the helicopter landed at the site and the following information was recorded:

- 1) Location of each site was determined by recording latitude and longitude utilizing GPS equipment. A real time differential corrected (WAAS Enabled) GPS (Garmin GPSmap 696) was utilized to allow for accurate location of damaged sites. The open-source software DNRGPS, provided by the Minnesota Department of Natural Resources was used in conjunction with ArcView 10.2 determine the size of each damage site, by logging polygons using stream digitizing with the GPS equipment.

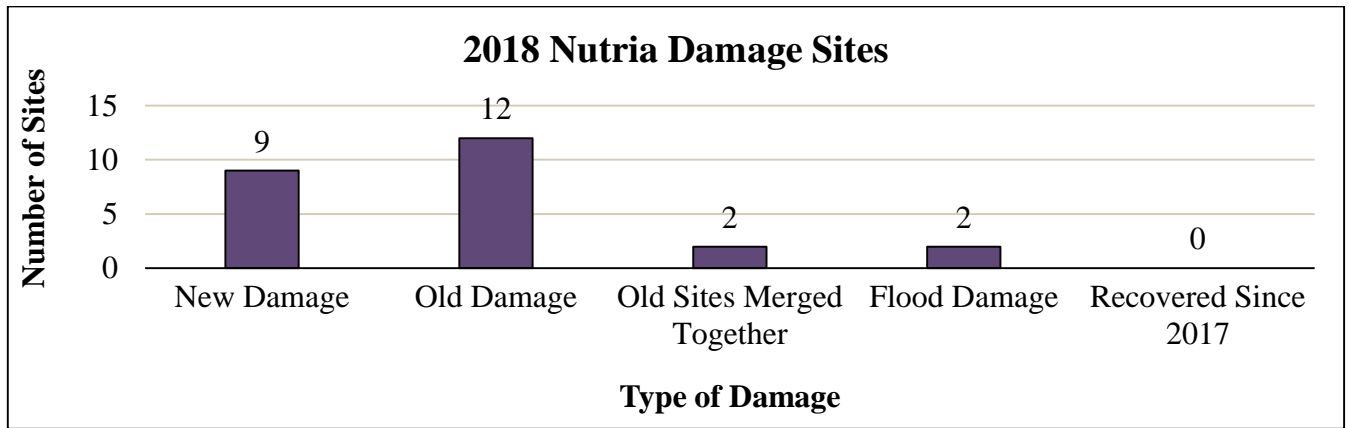


- 2) The abundance of nutria sign was placed in one of the following nutria relative abundance rating (NRAR) categories: **(0) no nutria sign visible, (1) nutria sign visible, (2) abundant feeding, or (3) heavy feeding.**
- 3) The extent of damage to the vegetation was placed in one of the following vegetative damage rating categories: **(0) no vegetative damage; (1) minor vegetative damage** which is defined as a site containing feeding holes, thinning vegetation and some visible soil; **(2) moderate vegetative damage** which is defined as a site that has large areas of exposed soil and covers less than 50% of the site; **(3) severe vegetative damage** which is defined as a site that has more than 50% of the soil exposed; or **(4) converted to open water.**
- 4) The dominant plant species were identified and recorded for damaged areas, recovering areas and in the adjacent areas.
- 5) The age of damage and condition is determined by considering feeding activity and vegetation condition. The age of damage and condition was placed in one of the following categories: **(0) recovered, (1) old recovering, (2) old not recovering, (3) recent recovering, (4) recent not recovering, or (5) current (occurring now).**
- 6) The prediction of vegetative recovery is made considering feeding activity, age of damage and the extent of damage. The prediction of vegetative recovery by the end of 2013 was characterized by one of the following categories: **no recovery (0), full recovery (1), partial recovery (2) or increased damage (3).**
- 7) The number of nutria observed at each site was recorded.

In addition to searching for new damaged sites, all previously identified damaged sites were revisited to assess extent and duration of damage or to characterize recovery. All data were entered into a computer for compilation. Damaged site locations are provided on the attached herbivory map and a data summary in Appendix B.

## **Results and Discussion**

There were 21 nutria damage sites observed during the 2018 vegetative damage survey compared to the 16 damage sites observed during the 2017 survey. Nine of the observed damaged sites were new and the remaining 12 were sites observed in previous years' surveys. There were two old damage sites that were each comprised of a pair of old damaged sites that grew so large they merged together (Sites 274 and 437 merged together and sites 425 and 436 merged together). There were also two old damaged sites where flooding and water damage prevented the assessment of nutria damage. No sites were identified as recovered since the 2017 vegetative damage survey (Figure 8).



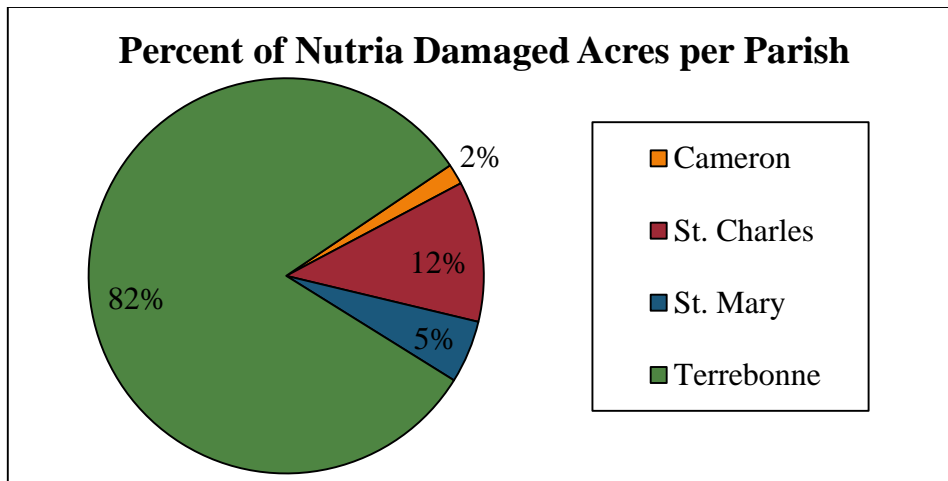
**Figure 8.** 2018 vegetation survey damage sites located along transect lines.

### Nutria Damage

The following discussion details the 21 sites that had observable nutria damage during the 2018 survey (Appendix A). A total of 4,380 acres along transects, extrapolated to 16,424 acres coastwide were identified as impacted by nutria feeding activity. This represents approximately a 180% increase in acres impacted by nutria since 2017 (1,564 acres, extrapolated 5,866 acres coastwide.) There were 6 damage sites documented during the 2017 survey that have since partially converted to open water with a total of 867 observed acres converted (Figure 12 and Tables 10A-10C).

### Damage by Parish

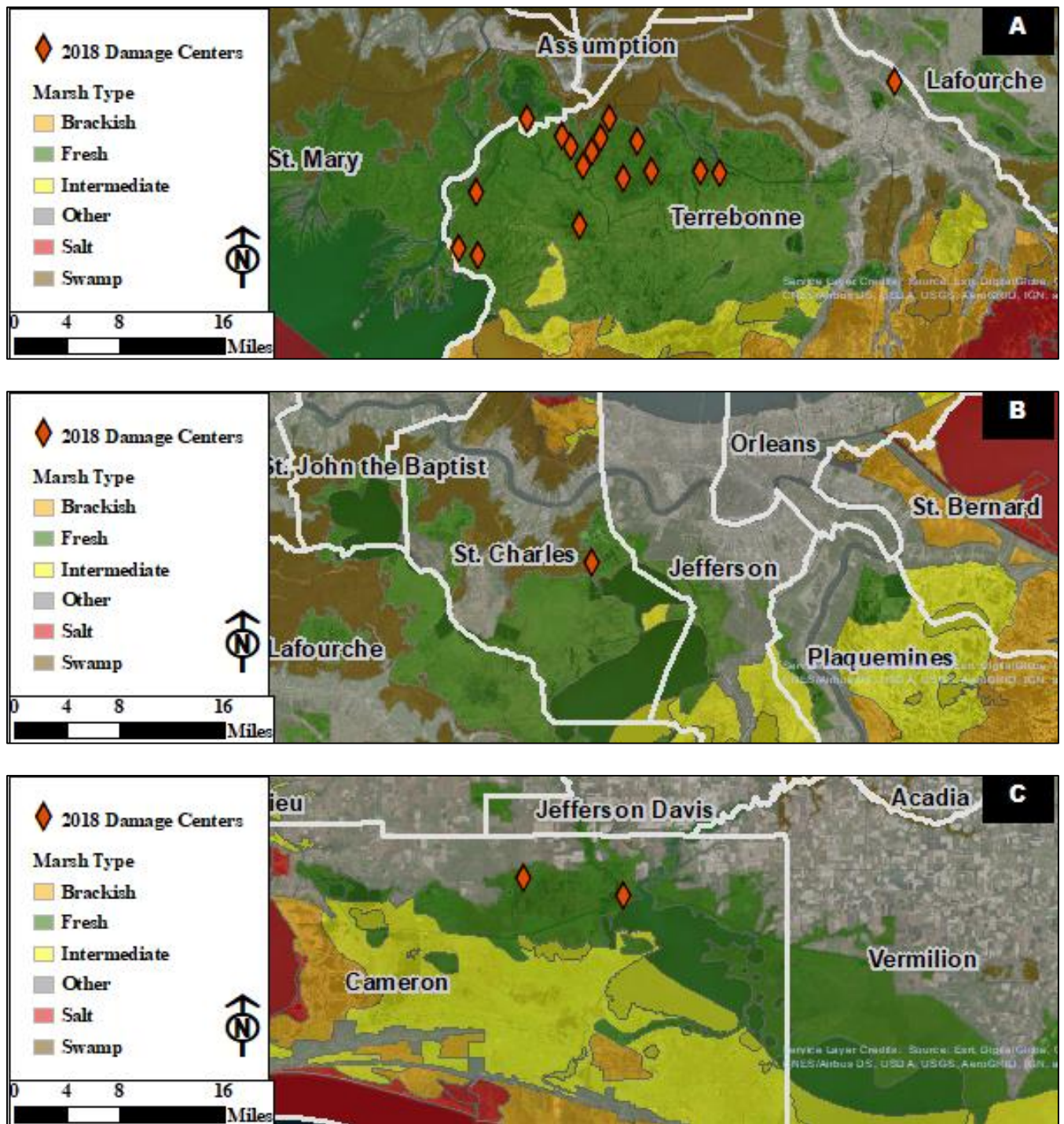
Four parishes were observed to have damage in 2018. Most of the observed damaged acres were in Terrebonne Parish (3,578ac; 17 sites), followed by St. Charles Parish (504ac; 1 site), St. Mary Parish (224ac, 1 site), and Cameron Parish (74ac, 1 site; Figure 9).



**Figure 9.** 2018 vegetation survey damaged acres by parish.

### Damage by Marsh Type

Marsh type, based on Vegetation types in coastal Louisiana in 2013 (Sasser, Visser, Mouton, Linscombe, and Hartley 2014), was recorded for each damage site (Figures 10A-10C).

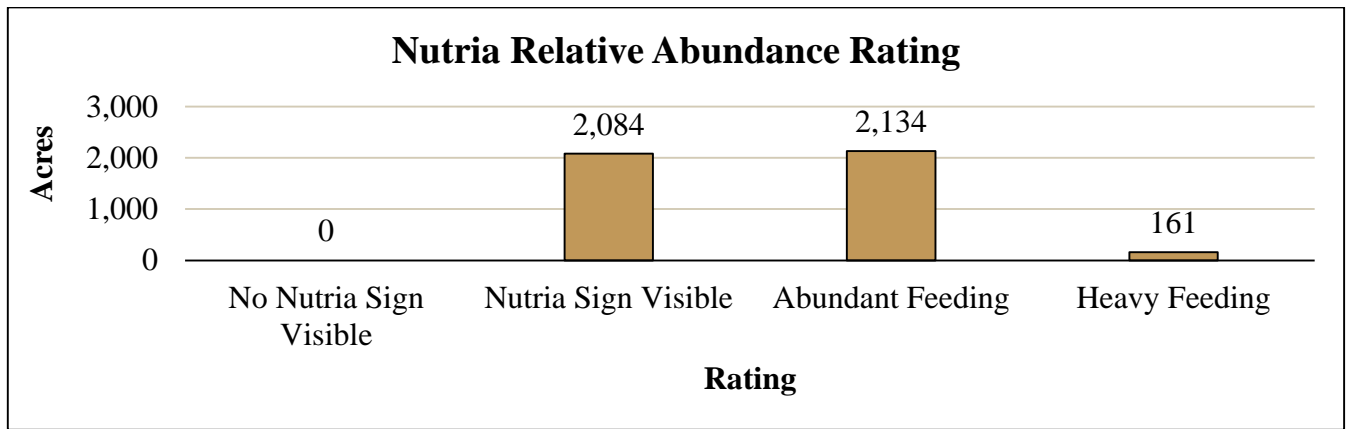


**Figures 10A-C.** 2018 Vegetation survey damage centers. (A) 17 sites in Terrebonne Parish and 1 site in St. Mary Parish (B) 1 site in St. Charles Parish (C) 2 sites in Cameron Parish. Brackish marsh appears orange on map and Intermediate marsh appears yellow.

All observed sites damaged by nutria herbivory were located in fresh water marsh. The typical vegetation impacted in fresh marsh was *Eleocharis* spp., *Hydrocotyle* spp, and *Bidens laevis*.

### Nutria Relative Abundance Rating

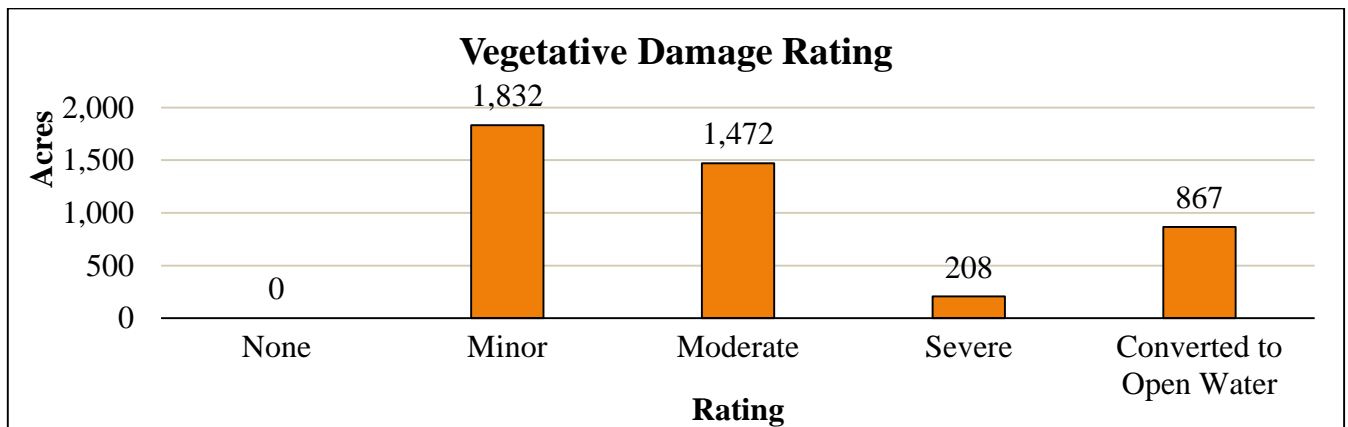
A nutria relative abundance rating (NRAR) was used to quantify the abundance of nutria at each site. Categories include: (0) no nutria sign visible, (1) nutria sign visible, (2) abundant feeding sign, and (3) heavy feeding sign; sites converted to open water are not given a NRAR (Figure 11.)



**Figure 11.** Nutria relative abundance ratings for 2018 nutria damaged sites.

### Vegetative Damage Rating

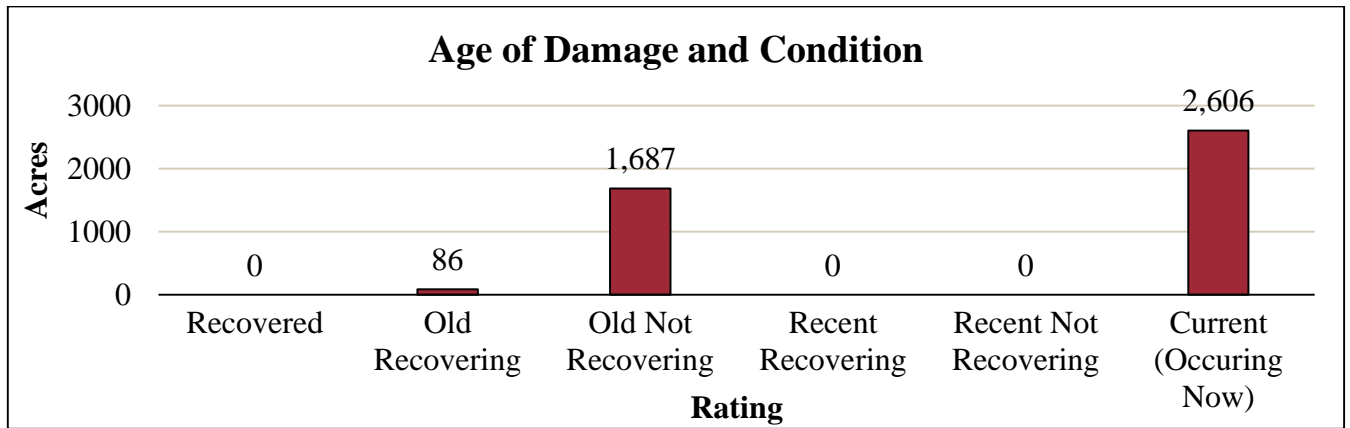
Vegetative damage was also evaluated at each site. A rating system was developed to quantify nutria vegetative damage. The vegetative damage rating (VDR) has five categories: (0) no vegetative damage, (1) minor vegetative damage, (2) moderate vegetative damage, (3) severe vegetative damage, (4) converted to open water (Figure 12). Nine of the damage sites contained greater than one VDR as different portions of each site may be more or less damaged than other areas within the same site. The acres impacted is estimated from the proportion of each site impacted at each rating level.



**Figure 12.** Vegetative damage ratings for 2018 nutria damaged sites.

### Age of Damage Rating

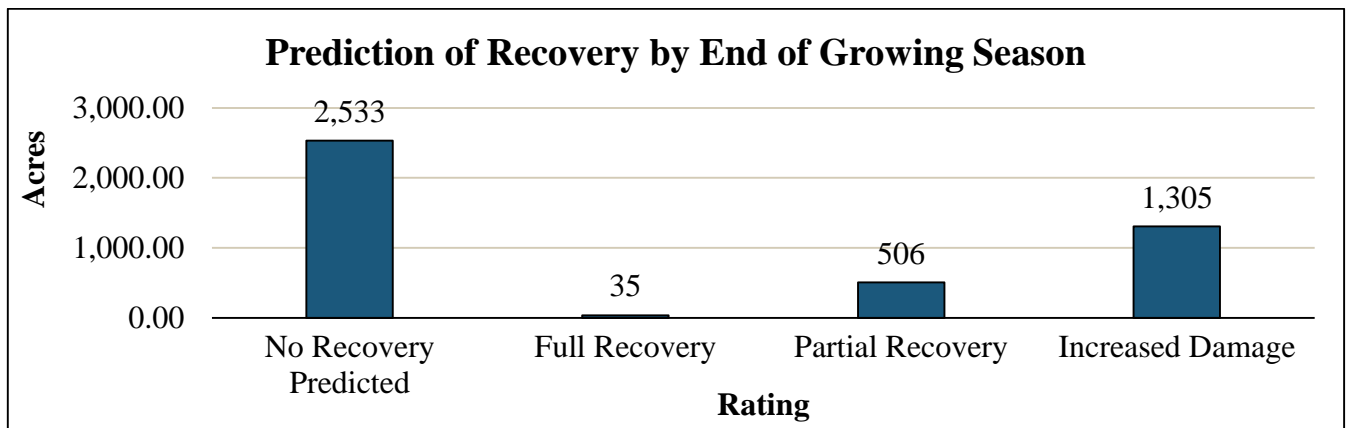
Categories for the age of damage and condition rating include: (0) recovered, (1) old damage-recovering, (2) old damage not recovering, (3) recent damage-recovering, (4) recent damage-not recovering, and (5) current damage (Figure 13).



**Figure 13.** Age of damage and condition of 2018 nutria damaged sites.

### Prediction of Recovery

For each site with current damage, the degree of recovery by the end of the 2017 growing season was predicted. These categories include: (1) full recovery, (2) partial recovery, (3) increased damage and (4) no recovery predicted (Figure 14).



**Figure 14.** Prediction of recovery by the end of the growing season for the 2018 nutria damaged sites.

### Conclusions

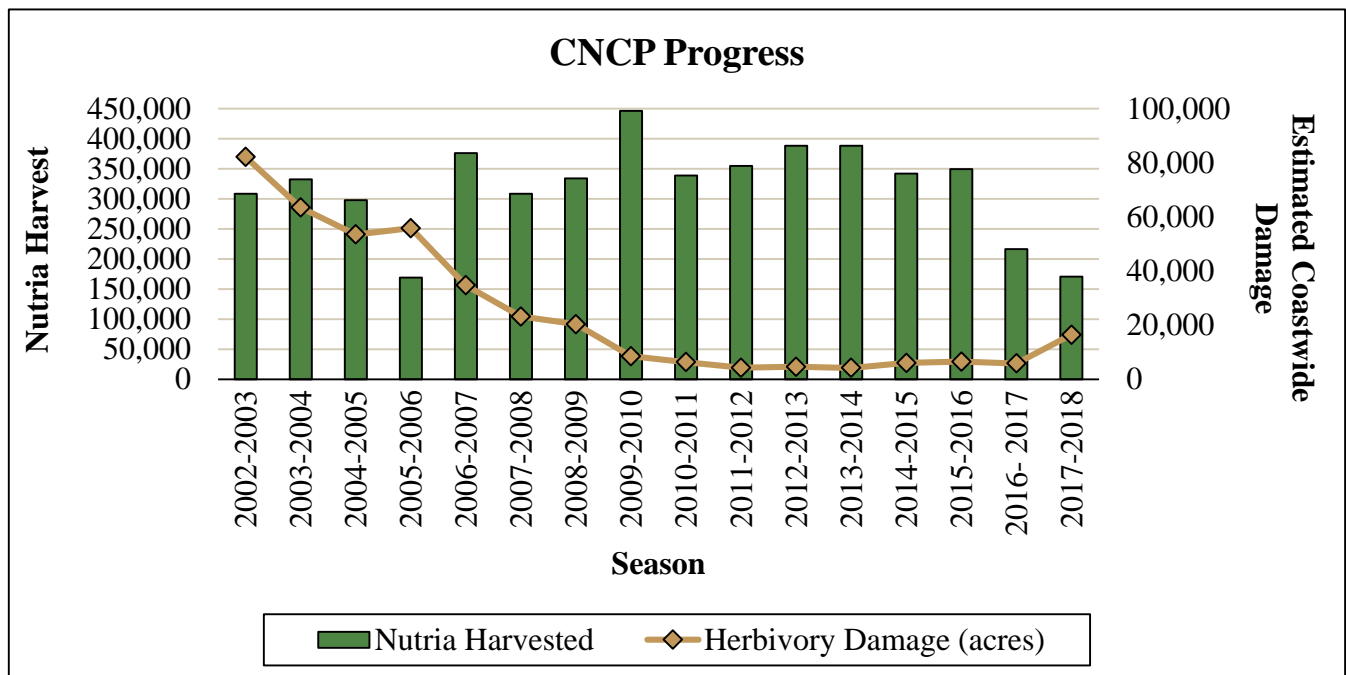
The 2018 vegetative damage survey yielded a total of 4,380 acres of nutria damage along transect lines. When extrapolated to the entire program area, an estimated 16,424 acres were impacted coastwide at the time of survey. When compared to the 2017 survey (1,564 acres, extrapolated to 5,866 acres coastwide), there was approximately a 180% increase in the number of damaged acres.

Due to the distance between survey lines, all areas impacted by nutria herbivory could not be identified. Additionally, there were areas along survey lines where nutria activity was observed but marsh conditions did not warrant a damage classification (i.e., nutria present but no damage observed or damaged areas <1ac are too small to record). Only the most obvious impacted areas were detected and recorded so the total impact of nutria was probably underestimated, yet the increase in observed damage this season is the most significant increase throughout 16 seasons of the program.

## Section 3

### Summary of Results (2002-2018) and Adaptive Management

In total, 5,117,786 nutria have been harvested from coastal Louisiana through 16 seasons of the CNCP. Throughout much of the CNCP, seasonal nutria tail collection, which is how we determine harvest, has ranged between 300,000 and 400,000. From the beginning of the CNCP through 2011, estimated coastwide nutria damage declined nearly every year and then from 2011-2017, the damaged areas stabilized between 4,000 and 6,500 acres. Unfortunately, nutria harvest during the 2016-2017 and the 2017-2018 seasons was 216,059 and 170,471, respectively, which is substantially lower harvest than years prior. Subsequently, estimated coastwide nutria damage increase from 5,866 acres in 2017 to 16,424 acres in 2018 (Figure 15).



**Figure 15.** Nutria harvest and coastwide nutria herbivory damage. The low harvest during the 2005-2006 season is attributed to the coastwide disruptions caused by Hurricane Katrina in August 2005.

Prior to implementation of CNCP incentive payments, nutria harvest was below 30,000 per season and coastwide nutria damage ranged between 79,000 and 98,000 acres.

Harvest Season	Nutria Harvested	Year of Survey	Herbivory Damage (acres)
1999-2000	20,110	2000	97,271
2000-2001	29,544	2001	83,021
2001-2002	24,683	2002	79,444

**Table 2.** Nutria harvest and herbivory damage in years prior to CNCP.



<b>Harvest Season</b>	<b>Nutria Harvested</b>	<b>Total Incentive Payments</b>	<b>Year of Survey</b>	<b>Herbivory Damage (acres)</b>
2002-2003	308,160	\$1,232,640	2003	82,080
2003-2004	332,596	\$1,330,384	2004	63,398
2004-2005	297,535	\$1,190,140	2005	53,475
2005-2006	168,843	\$675,372	2006	55,755
2006-2007	375,683	\$1,878,415	2007	34,665
2007-2008	308,212	\$1,541,060	2008	23,141
2008-2009	334,038	\$1,670,190	2009	20,333
2009-2010	445,963	\$2,229,815	2010	8,475
2010-2011	338,512	\$1,692,560	2011	6,296
2011-2012	354,354	\$1,771,770	2012	4,233
2012-2013	388,160	\$1,940,800	2013	4,624
2013-2014	388,264	\$1,941,320	2014	4,181
2014-2015	341,708	\$1,708,540	2015	6,008
2015-2016	349,235	\$1,746,175	2016	6,496
2016- 2017	216,052	\$1,080,260	2017	5,866
2017-2018	170,471	\$852,355	2018	16,424
<b>Total</b>	<b>5,117,786</b>	<b>24,481,796</b>		

**Table 3.** Nutria harvest and herbivory throughout 16 seasons of the CNCP.

### Participant survey

Part of the adaptive management strategy of the CNCP includes soliciting feedback from participants to help determine how the CNCP can or should change to continue fulfilling the program's stated goal. Following the end of the 2017-2018 CNCP season, an 8-question survey (Figure 16) was mailed to all participants who registered during that season, even if they failed to turn in nutria tails, and there was a self-addressed and stamped envelope included so the participants could return the survey at no cost to them. The survey consisted of multiple choice and open ended questions. There were 2 questions (Questions 5 and 6) designed to offer participants information about our free online trapper education classes and our free day or weekend trapping workshops, so the answers to these questions will not be discussed here.

### 2017-2018 CNCP Participant Survey

1) Please rate your satisfaction with the Coastwide Nutria Control Program from very unsatisfied to very satisfied

- ☐ Very Unsatisfied      ☐ Unsatisfied      ☐ Neither Satisfied nor Unsatisfied      ☐ Satisfied      ☐ Very Satisfied

2) What do you think we can do to improve the program? \_\_\_\_\_

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3) If you registered for the 2017-2018 season, but did not turn in any tails, please tell us why you didn't turn in tails.

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4) If your harvest was lower this season than in previous seasons, what do you think caused it?

- ☐ Did not hunt/trap as much as in previous seasons      ☐ Harvested different property/properties      ☐ My harvest was not lower this season
- ☐ Low water levels/ couldn't get to nutria      ☐ No more nutria on property      ☐ Couldn't see nutria through heavy vegetation
- ☐ This was my first season      ☐ Other (please explain) \_\_\_\_\_

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**Survey continues on the back of this page**

**Figure 16.** Page one of two from the survey mailed to all participants who enrolled in the CNCP during the 2017-2018 season.

5) If you use traps to harvest nutria, what kind of traps do you mostly use?

- ☐ Conibear      ☐ Foot-hold      ☐ Snare      ☐ I only hunt nutria and do not use any traps

6) Have you participated in any of the free trapper education courses?

- ☐ Yes, I took the online free online course      ☐ No, but I am interested – visit **[www.wlf.Louisiana.gov/hunting/trapper-eduction](http://www.wlf.Louisiana.gov/hunting/trapper-eduction)** for more information
- ☐ Yes, I attended a day or weekend free workshop      ☐ No and I am not interested

7) Please tell us what, if anything, could increase your nutria harvest next season

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8) This area is for you to write any additional comments or concerns you have that were not addressed anywhere else in this mail out or survey

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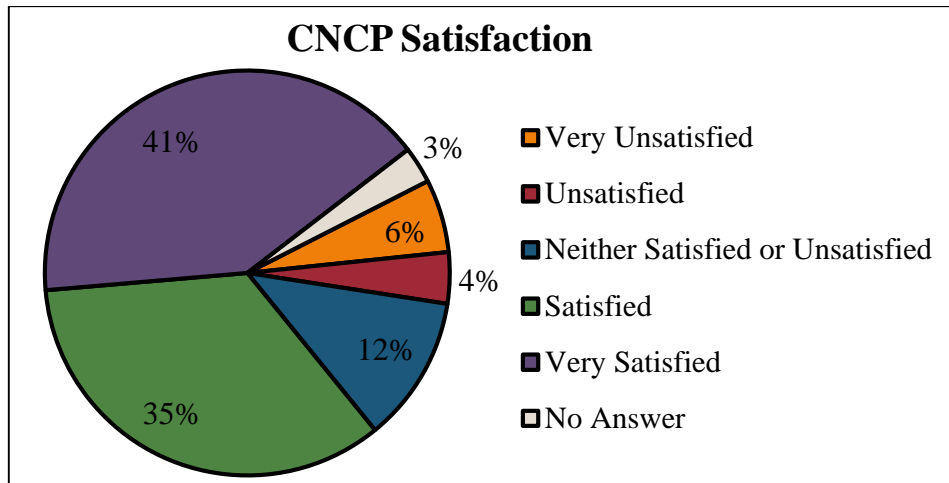
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**Thank you for participating in this survey. Please use the enclosed envelope to return this survey by **June 30, 2018**.**

**Figure 16 (continued).** Page two of two from the survey mailed to all participants who enrolled in the CNCP during the 2017-2018 season.

## Participant survey results

Of the 432 surveys mailed, 171 were completed and returned for 40% response rate. The majority of respondents (76%) were satisfied with the CNCP, 12% neither satisfied or unsatisfied, and 10% unsatisfied (Figure 17).



**Figure 17.** Survey respondents reported how satisfied they were with the CNCP.

When asked what they thought could improve the CNCP, the most frequent response was to increase the amount of the bounty payment (15%) and allowing access to more property (15%), followed by wanting additional tail collection locations or longer hours at those stations (3%) and requesting a CNCP season or policy change (4%; Table 4).

What can improve the CNCP?	%
No answer or answer not applicable	41%
Increase nutria bounty payment	15%
Allow access to more property	15%
Praise for program and/or tail collection station	8%
Additional tail collection locations/longer collection hours	3%
Program season/policy change	4%
Better weather/water conditions	2%
Allow airboats	2%
Allow night time harvest	2%
Different marsh management	2%
More advertisement/easily accessible program updates	2%
Improve fur/meat trade	1%
LDWF corruption/harassment	1%
Reduce predators (alligators, coyotes, bobcats)	1%
Better crime monitoring	1%
Don't increase bounty	1%
Faster payment	1%
Increase nutria population	1%
Program too complicated	1%

**Table 4.** Question 2 from survey: Respondent suggestions to improve the CNCP categorized by the major point of their comment.

Each season, more participants enroll in the CNCP than actively harvest and turn in nutria tails. During the 2017-2018 season, 432 participants enrolled, but only 263 participants (60.9%) actively participated. When asked the reason they enrolled but did not collect the bounty on the tails, 72% of respondents did not answer or indicated that the question was not applicable because they turned in tails. Of the respondents 9% indicated they did not participate because they were busy with other obligations followed by the participants not seeing very many or any nutria on their property (5%; Table 5).

<b>If enrolled in 2017-2018 CNCP season, why didn't turn in tails</b>	<b>%</b>
No answer or answer not applicable	72%
Busy with work/family/other	9%
Too few or no nutria	5%
Health reasons	2%
Registered for CNCP too late in season	2%
Habitat changes/land loss on property	2%
Harvested too few nutria to bother collecting the bounty	2%
Missed last tail collection date	2%
Didn't spend much time harvesting	1%
Harvesting nutria not worth the bounty	1%
Didn't know where to turn in tails	1%
Paid as nutria hunting guide so did not collect tails for the bounty	1%

**Table 5.** Question 3 from survey: Reasons given by respondents who registered for the CNCP during the 2017-2018 season, but did not turn in tails to collect the bounty.

The overall nutria harvest during the 2017-2018 season was nearly half of the average harvest from previous seasons, so participants were asked why they believed their individual harvests was lower. The most frequent response given (22%) was that they did not hunt or trap as much as in previous seasons. Eighteen percent of the respondents answered “Other”, of which the reasons given included too many predators (18%), unfavorable weather/water conditions (18%), not enough property available for harvest (16%), and fewer nutria than in previous seasons (14%).

<b>If harvest was lower than previous seasons, what was the cause?</b>	<b>%</b>
Did not hunt/trap as much as in previous seasons	22%
Other	18%
Low water levels/couldn't get to nutria	17%
Couldn't see nutria through heavy vegetation	15%
Harvest was not lower	11%
No more nutria on property	9%
This was my first season	7%
Harvested different property from previous seasons	1%

**Table 6.** Question 4 from survey: Reasons given by respondents why they thought their harvest was lower than in previous seasons.

When asked what could increase their nutria harvest during the 2018-2019 season, 21% of the respondents want greater access to property, 16% want more accommodating weather/water conditions, 11% suggest having more time to exert greater harvest effort will allow greater nutria harvest, and 10% want the nutria tail bounty increased (Table 7).

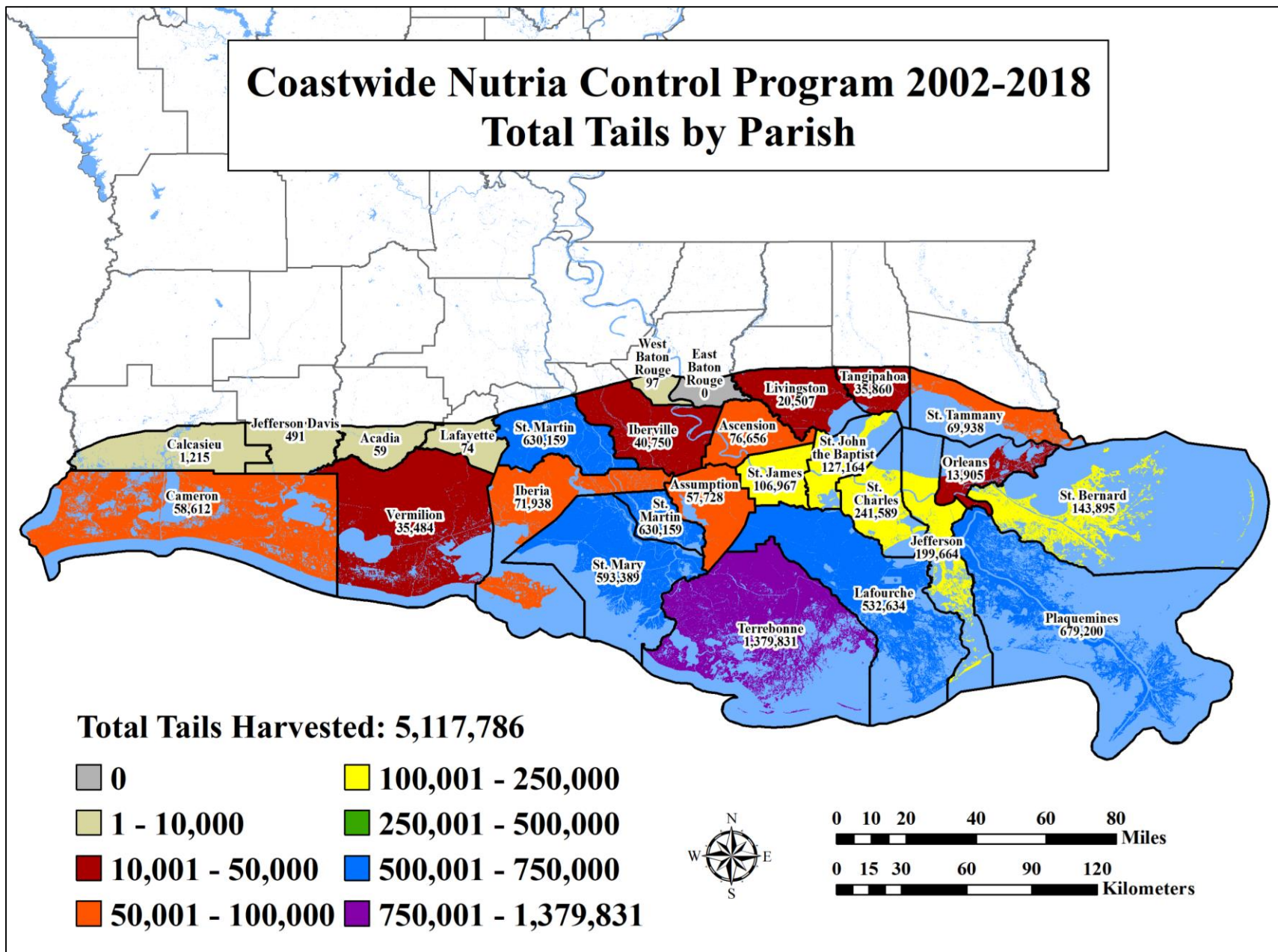
<b>What could increase your nutria harvest next season</b>	<b>%</b>
Have access to more property	21%
Better weather/water conditions	16%
More time to harvest/greater effort	11%
Increase bounty	10%
Different marsh management	7%
More nutria	7%
Allow airboats on properties	4%
Fewer property management or hunting season conflicts	4%
Allow night harvest	4%
Fewer predators (alligators, coyotes, bobcats)	3%
Longer CNCP harvest season	3%
Less poaching/greater enforcement presence	2%
Register earlier in CNCP season	2%
No size limit on nutria tails	1%
More experience harvesting nutria	1%
Restore land/habitats	1%
Don't tax bounty	1%
Legislation friendly to land owners (HB391 failed)	1%
More efficient registration	1%
Offer bonuses when reach certain nutria harvest numbers	1%

**Table 7.** Question 7 from survey: Respondents provided suggestions that they believed could increase their nutria harvests during the 2018-2018 CNCP season.

The purpose of the last question in the survey was to give participants an opportunity to ask questions or discuss concerns that were not addressed elsewhere in the survey. Of the 74 answers given for this question, 22% took the opportunity to praise the CNCP and/or the CEI tail collection station. Most of the answers (64%) reiterated responses given to other questions in the survey or pertained to areas where the CNCP has no power to make changes (i.e., weather/water level complaints, wanting access to private property, wanting fur market improvement). Of the remaining responses, 3% expressed concerns about feral hogs, 2% complained of invasive plants choking waterways, and then the rest were specific program questions.

The CNCP will take the participants' concerns and recommendations into consideration when preparing for the 2018-2019 season and will continue striving for the best management practices that will aid in reducing nutria-induced damage throughout Louisiana's coastal wetlands.





**Figure 18.** Total nutria harvest during 15 seasons of CNCP.

RNCP #:  Transaction #:  Date:

Participant Name:  Number of tails accepted:

**Transaction Information**  
 Number of tails rejected:   
 Reason for rejection: (check all that apply)  
☐ short ☐ spoiled  
☐ other (specify)

Method of Tail Collection (Take): (check all that apply)  
☐ Trapped  %  
☐ Shot, rifle  %  
☐ Shot, shotgun  %  
☐ other (specify)

# of days trapped  avg # of traps/day   
 # of days hunted  # of hunters   
 Retrieval Rate  % Total Days

Month of Tail Collection:  
☐ Nov  % ☐ Feb  %  
☐ Dec  % ☐ Mar  %  
☐ Jan  % ☐ Apr  %

Disposal of carcass: (check all that apply)  
☐ Took whole carcass  %  
☐ Hide  % ☐ Meat  %  
☐ Buried  %  
☐ Left in overhead vegetation  %  
☐ Left in waterway  %  
☐ Night Hunt  %

Additional Notes: (optional)

**Figure 19.** Screenshot of the digital datasheet used by Coastal Environments Inc. during the tail collections.

**Appendix A.**  
**A Comparison of Seasons 1-16**  
**(2002-2018)**

Parish	2002-2003		2003-2004		2004-2005		2005-2006		2006-2007		2007-2008	
	Nutria Harvested	Percentage	Nutria Harvested	Percentage	Nutria Harvested	Percentage	Nutria Harvested	Percentage	Nutria Harvested	Percentage	Nutria Harvested	Percentage
Acadia	0	-	0	-	0	-	0	-	0	-	0	-
Ascension	2,710	0.88%	5,474	1.65%	1,855	0.62%	1,678	0.99%	2,226	0.59%	1,957	0.63%
Assumption	3,128	1.02%	814	0.24%	427	0.14%	2,307	1.37%	2,095	0.56%	3,863	1.25%
Calcasieu	143	0.05%	374	0.11%	447	0.15%	58	0.03%	19	0.01%	19	0.01%
Cameron	7,851	2.55%	8,701	2.62%	16,592	5.58%	3,744	2.22%	1,725	0.46%	649	0.21%
East Baton Rouge	0	-	0	-	0	-	0	-	0	-	0	-
Iberia	1,412	0.46%	1,960	0.59%	3,516	1.18%	3,014	1.79%	18,910	5.03%	6,119	1.99%
Iberville	0	-	1,567	0.47%	5,551	1.87%	2,360	1.40%	9,172	2.44%	2,105	0.68%
Jefferson	20,529	6.66%	24,896	7.49%	11,019	3.70%	2,875	1.70%	10,405	2.77%	11,299	3.67%
Jefferson Davis	121	0.04%	85	0.03%	175	0.06%	110	0.07%	0	-	0	-
Lafayette	39	0.01%	25	0.01%	10	0.00%	0	-	0	-	0	-
Lafourche	28,852	9.36%	51,736	15.56%	32,362	10.88%	24,668	14.61%	28,038	7.46%	25,473	8.26%
Livingston	2,631	0.85%	357	0.11%	910	0.31%	1,921	1.14%	1,250	0.33%	695	0.23%
Orleans	597	0.19%	0	-	537	0.18%	0	-	575	0.15%	1,333	0.43%
Plaquemines	63,208	20.51%	86,720	26.07%	38,984	13.10%	1,816	1.08%	5,815	1.55%	41,072	13.33%
St. Bernard	5,769	1.87%	13,344	4.01%	4,337	1.46%	0	-	291	0.08%	4,150	1.35%
St. Charles	11,169	3.62%	12,672	3.81%	15,843	5.32%	13,807	8.18%	18,690	4.97%	18,271	5.93%
St. James	95	0.03%	487	0.15%	2,837	0.95%	4,912	2.91%	7,111	1.89%	9,604	3.12%
St. John the Baptist	18,450	5.99%	6,137	1.85%	8,391	2.82%	6,384	3.78%	15,786	4.20%	6,728	2.18%
St. Martin	11,425	3.71%	15,039	4.52%	31,608	10.62%	15,903	9.42%	113,629	30.25%	54,726	17.76%
St. Mary	26,004	8.44%	16,277	4.89%	20,908	7.03%	21,023	12.45%	34,693	9.23%	34,210	11.10%
St. Tammany	4,638	1.51%	3,756	1.13%	5,167	1.74%	1,423	0.84%	2,067	0.55%	4,356	1.41%
Tangipahoa	1,245	0.40%	745	0.22%	564	0.19%	826	0.49%	1,843	0.49%	2,323	0.75%
Terrebonne	92,831	30.12%	72,846	21.90%	81,012	27.23%	57,756	34.21%	99,433	26.47%	78,934	25.61%
Vermilion	5,313	1.72%	8,584	2.58%	14,481	4.87%	2,258	1.34%	1,813	0.48%	326	0.11%
West Baton Rouge	0	-	0	-	0	-	0	-	97	0.03%	0	-
<b>Total</b>	<b>308,160</b>	<b>1</b>	<b>332,596</b>	<b>1</b>	<b>297,535</b>	<b>1</b>	<b>168,843</b>	<b>1</b>	<b>375,683</b>	<b>1</b>	<b>308,212</b>	<b>1</b>

**Table 8.** Nutria harvested by parish seasons 1-16, Coastwide Nutria Control Program.

PARISH	2009-2010		2010-2011		2011-2012		2012-2013		2013-2014		2014-2015	
	Nutria Harvested	Percentage	Nutria Harvested	Percentage	Nutria Harvested	Percentage	Nutria Harvested	Percentage	Nutria Harvested	Percentage	Nutria Harvested	Percentage
Acadia	0	-	0	-	0	-	59	0.02%	0	-	0	-
Ascension	7,049	1.58%	3,435	1.01%	0	-	0	-	7,889	2.03%	16,013	4.69%
Assumption	2,930	0.66%	3,244	0.96%	3,582	1.01%	6,302	1.62%	7,904	2.04%	7,603	2.22%
Calcasieu	0	-	0	-	0	-	0	-	0	-	0	-
Cameron	1,177	0.26%	1,076	0.32%	413	0.12%	174	0.04%	1,446	0.37%	2,848	0.83%
East Baton Rouge	0	-	0	-	0	-	0	-	0	-	0	-
Iberia	1,206	0.27%	286	0.08%	1,384	0.39%	5,360	1.38%	12,157	3.13%	7,296	2.14%
Iberville	6,065	1.36%	886	0.26%	1,688	0.48%	3,062	0.79%	3,046	0.78%	1,076	0.31%
Jefferson	11,506	2.58%	5,945	1.76%	6,178	1.74%	16,152	4.16%	10,244	2.64%	12,855	3.76%
Jefferson Davis	0	-	0	-	0	-	0	-	0	-	0	-
Lafayette	0	-	0	-	0	-	0	-	0	-	0	-
Lafourche	39,564	8.87%	37,137	10.97%	37,415	10.56%	47,723	12.29%	42,061	10.83%	29,190	8.54%
Livingston	2,186	0.49%	738	0.22%	0	-	0	-	3,405	0.88%	1,279	0.37%
Orleans	1,756	0.39%	2,279	0.67%	1,238	0.35%	1,006	0.26%	929	0.24%	485	0.14%
Plaquemines	69,294	15.54%	80,241	23.70%	71,879	20.28%	22,171	5.71%	21,808	5.62%	23,883	6.99%
St. Bernard	3,543	0.79%	29,278	8.65%	27,053	7.63%	4,073	1.05%	5,201	1.34%	5,410	1.58%
St. Charles	27,221	6.10%	16,069	4.75%	10,830	3.06%	14,347	3.70%	14,164	3.65%	16,355	4.79%
St. James	19,226	4.31%	9,167	2.71%	15,450	4.36%	14,455	3.72%	5,443	1.40%	769	0.23%
St. John the Baptist	6,642	1.49%	9,447	2.79%	2,678	0.76%	6,832	1.76%	3,237	0.83%	3,394	0.99%
St. Martin	63,619	14.27%	23,551	6.96%	36,562	10.32%	40,356	10.40%	54,027	13.92%	50,392	14.75%
St. Mary	67,631	15.17%	43,533	12.86%	45,859	12.94%	64,386	16.59%	58,229	15.00%	40,045	11.72%
St. Tammany	8,855	1.99%	6,562	1.94%	6,417	1.81%	1,217	0.31%	1,485	0.38%	1,481	0.43%
Tangipahoa	267	0.06%	448	0.13%	141	0.04%	1,864	0.48%	4,637	1.19%	6,758	1.98%
Terrebonne	106,226	23.82%	65,190	19.26%	85,587	24.15%	138,305	35.63%	130,952	33.73%	114,373	33.47%
Vermilion	0	-	0	-	0	-	316	0.08%	0	-	203	0.06%
West Baton Rouge	0	-	0	-	0	-	0	-	0	-	0	-
<b>Total</b>	<b>445,963</b>	<b>1</b>	<b>338,512</b>	<b>1</b>	<b>354,354</b>	<b>1</b>	<b>388,160</b>	<b>1</b>	<b>388,264</b>	<b>1</b>	<b>341,708</b>	<b>1</b>

**Table 8 (Continued).** Nutria harvested by parish seasons 1-16, Coastwide Nutria Control Program.

PARISH	2015-2016		2016-2017		2017-2018	
	Nutria Harvested	Percentage	Nutria Harvested	Percentage	Nutria Harvested	Percentage
Acadia	0	-	0	-	0	-
Ascension	4,693	1.34%	1,777	0.82%	1,353	0.79%
Assumption	3,096	0.89%	2,372	1.10%	1,555	0.91%
Calcasieu	0	-	0	-	154	0.09%
Cameron	2,607	0.75%	2,534	1.17%	5,805	3.41%
East Baton Rouge	0	-	0	-	0	-
Iberia	4,516	1.29%	2,514	1.16%	1,683	0.99%
Iberville	2,930	0.84%	419	0.19%	2,379	1.40%
Jefferson	12,239	3.50%	20,025	9.27%	11,060	6.49%
Jefferson Davis	0	-	0	-	0	-
Lafayette	0	-	0	-	0	-
Lafourche	31,810	9.11%	18,249	8.45%	10,388	6.09%
Livingston	0	0.00%	1,879	0.87%	1,538	0.90%
Orleans	1,103	0.32%	1,077	0.50%	334	0.20%
Plaquemines	46,672	13.36%	33,684	15.59%	29,474	17.29%
St. Bernard	12,939	3.70%	11,094	5.13%	3,533	2.07%
St. Charles	13,685	3.92%	11,602	5.37%	5,626	3.30%
St. James	7,651	2.19%	3,005	1.39%	2,226	1.31%
St. John the Baptist	18,412	5.27%	6,351	2.94%	6,416	3.76%
St. Martin	50,202	14.37%	9,838	4.55%	14,746	8.65%
St. Mary	28,585	8.19%	32,102	14.86%	26,869	15.76%
St. Tammany	9,562	2.74%	5,244	2.43%	2,020	1.18%
Tangipahoa	4,894	1.40%	2,998	1.39%	1,331	0.78%
Terrebonne	93,301	26.72%	48,411	22.41%	40,581	23.81%
Vermilion	341	0.10%	877	0.41%	1,400	0.82%
West Baton Rouge	0	-	0	-	0	-
<b>Total</b>	<b>349,235</b>	<b>1</b>	<b>216,052</b>	<b>1</b>	<b>170,471</b>	<b>1</b>

**Table 8 (Continued).** Nutria harvested by parish seasons 1-16, Coastwide Nutria Control Program.



PARISH	2002-2003			2003-2004			2004-2005			2005-2006		
	Trap	Rifle	Shotgun	Trap	Rifle	Shotgun	Trap	Rifle	Shotgun	Trap	Rifle	Shotgun
Acadia	0	0	0	0	0	0	0	0	0	0	0	0
Ascension	0	2,306	404	0	4,093	1,381	100	1,678	80	470	908	300
Assumption	284	2,786	58	47	767	0	188	106	134	1,454	711	143
Calcasieu	0	143	0	0	374	0	213	24	212	57	1	0
Cameron	3,611	4,210	30	4,974	3,639	89	5,779	8,961	1,877	1,362	583	1,799
Iberia	0	1,353	59	636	1,324	0	1,286	1,310	926	1,215	449	1,350
Iberville	0	0	0	717	850	0	4,348	1,211	0	1,156	622	582
Jefferson	5,869	14,094	566	12,991	11,835	70	6,286	4,307	443	2,234	477	164
Jefferson Davis	121	0	0	82	0	0	158	16	0	109	1	0
Lafayette	19	10	10	0	25	0	0	10	0	0	0	0
Lafourche	11,807	16,826	219	28,516	22,780	440	12,221	18,212	1,977	9,213	11,050	4,598
Livingston	0	2,631	0	0	336	21	0	911	0	0	1,921	0
Orleans	287	219	91	0	0	0	538	0	0	0	0	0
Plaquemines	9,899	52,933	376	34,683	51,302	735	18,121	20,642	280	343	843	630
St. Bernard	2,877	2,892	0	5,412	7,783	149	727	3,617	0	0	0	0
St. Charles	2,099	8,706	364	2,801	9,543	329	1,279	13,958	631	1,863	10,915	1,029
St. James	48	47	0	97	350	40	32	2,752	57	278	4,239	395
St. John the Baptist	1,505	11,132	5,813	2,517	2,200	1,420	2,971	4,788	645	2,165	3,488	538
St. Martin	1,497	9,593	335	5,784	8,790	465	10,684	9,703	11,269	4,137	5,355	6,412
St. Mary	11,073	14,849	82	6,616	9,619	42	9,700	10,798	442	9,266	11,202	554
St. Tammany	3,088	1,529	21	2,687	1,069	0	2,692	2,483	0	533	800	90
Tangipahoa	335	894	16	577	169	0	35	530	0	142	638	46
Terrebonne	46,761	45,317	753	44,419	26,335	2,092	31,730	45,893	3,512	28,132	25,577	4,047
Vermilion	2,370	2,729	214	5,119	3,435	30	5,580	7,900	572	1,075	1,182	0
West Baton Rouge	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>103,550</b>	<b>195,199</b>	<b>9,411</b>	<b>158,675</b>	<b>166,618</b>	<b>7,303</b>	<b>114,668</b>	<b>159,810</b>	<b>23,057</b>	<b>65,204</b>	<b>80,962</b>	<b>22,677</b>

**Table 9.** Method of take by parish for seasons 1-16, Coastwide Nutria Control Program. Totals may not be exact due to reporting of percentages.

PARISH	2006-2007			2007-2008			2008-2009			2009-2010		
	Trap	Rifle	Shotgun	Trap	Rifle	Shotgun	Trap	Rifle	Shotgun	Trap	Rifle	Shotgun
Acadia	0	0	0	0	0	0	0	0	0	0	0	0
Ascension	0	2,008	218	0	1,905	52	217	6,751	61	338	6,712	0
Assumption	354	686	1,056	634	2,944	285	85	933	75	546	1,916	469
Calcasieu	19	0	0	19	0	0	0	0	0	0	0	0
Cameron	347	902	477	509	70	70	1,060	128	55	1,174	0	0
Iberia	6,695	4,635	7,580	3,623	1,248	1,247	258	524	196	932	274	0
Iberville	4,907	460	3,860	754	508	843	103	0	128	4,051	1,670	344
Jefferson	4,731	5,568	106	3,901	6,456	943	4,185	8,146	184	3,164	8,202	140
Jefferson Davis	0	0	0	0	0	0	0	0	0	0	0	0
Lafayette	0	0	0	0	0	0	0	0	0	0	0	0
Lafourche	12,260	11,460	4,259	9,701	11,425	4,345	32,373	13,324	2,555	21,796	16,310	1,458
Livingston	0	1,250	0	0	695	0	0	444	0	460	1,726	0
Orleans	575	0	0	1,333	0	0	656	0	0	1,658	71	27
Plaquemines	3,200	2,554	61	30,093	10,609	0	21,394	19,372	1,447	25,379	43,480	436
St. Bernard	146	146	0	4,071	79	370	9,790	4,131	43	3,177	240	126
St. Charles	6,637	9,401	2,652	3,607	13,366	1,298	6,111	14,036	1,068	7,712	18,593	916
St. James	203	6,439	469	425	9,128	51	597	7,862	531	572	17,805	849
St. John the Baptist	4,223	9,215	2,348	2,323	3,834	572	1,490	8,372	327	2,856	3,776	10
St. Martin	39,972	35,737	37,920	27,937	17,123	9,666	21,134	17,512	6,326	43,341	12,952	7,326
St. Mary	12,810	19,997	1,886	10,783	21,304	2,123	13,357	18,480	2,974	13,026	51,170	3,435
St. Tammany	1,452	529	86	1,736	2,216	404	3,377	1,848	456	2,604	4,945	1,307
Tangipahoa	542	1,189	113	563	1,760	0	321	4,530	124	0	267	0
Terrebonne	36,867	51,357	11,209	28,055	45,000	5,879	25,846	46,139	2,602	40,669	62,264	3,292
Vermilion	1,174	494	145	262	65	0	0	0	0	0	0	0
West Baton Rouge	0	97	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>137,114</b>	<b>164,124</b>	<b>74,445</b>	<b>130,329</b>	<b>149,735</b>	<b>28,148</b>	<b>142,354</b>	<b>172,532</b>	<b>19,152</b>	<b>173,455</b>	<b>252,373</b>	<b>20,135</b>

**Table 9 (continued).** Method of take by parish for seasons 1-16, Coastwide Nutria Control Program. Totals may not be exact due to reporting of percentages.

PARISH	2010-2011			2011-2012			2012-2013			2013-2014		
	Trap	Rifle	Shotgun	Trap	Rifle	Shotgun	Trap	Rifle	Shotgun	Trap	Rifle	Shotgun
Acadia	0	0	0	0	0	0	18	41	0	0	0	0
Ascension	0	3,107	0	0	0	0	0	0	0	368	7,482	39
Assumption	327	2,520	407	1,003	2,449	129	1,249	4,844	210	2,113	5,251	539
Calcasieu	315	0	0	0	0	0	0	0	0	0	0	0
Cameron	0	72	0	413	0	0	174	0	0	1,446	0	0
Iberia	1,103	46	89	222	1,163	0	1,602	2,862	896	5,579	5,906	671
Iberville	150	348	42	404	727	558	1,014	1,680	368	1,546	1,368	132
Jefferson	494	4,059	109	1,655	4,496	27	2,630	11,349	2,173	2,389	7,796	59
Jefferson Davis	1,872	0	0	0	0	0	0	0	0	0	0	0
Lafayette	0	0	0	0	0	0	0	0	0	0	0	0
Lafourche	0	23,326	43	9,573	27,574	267	11,260	33,137	3,326	9,924	31,266	870
Livingston	13,713	738	0	0	0	0	0	0	0	985	2,420	0
Orleans	0	115	0	1,202	36	0	1,006	0	0	929	0	0
Plaquemines	2,162	67,649	557	25,139	46,498	241	8,347	13,641	182	6,265	15,449	95
St. Bernard	12,021	11,489	12	16,226	10,826	0	1,214	1,276	1,584	3,228	1,974	0
St. Charles	17,764	10,155	671	2,425	8,240	165	2,473	9,748	2,125	3,806	9,587	771
St. James	5,225	9,016	115	0	15,417	33	157	13,199	1,099	32	5,410	0
St. John the Baptist	35	5,922	327	1,366	1,312	0	397	6,401	35	510	2,645	82
St. Martin	3,191	11,902	1,548	11,596	17,696	7,269	12,270	19,881	8,205	15,574	33,631	4,822
St. Mary	10,115	36,334	246	7,450	36,295	2,113	13,393	44,951	6,042	6,503	46,810	4,917
St. Tammany	6,928	2,947	899	4,817	1,123	477	579	588	50	1,312	174	0
Tangipahoa	2,711	398	0	0	142	0	0	1,205	659	2,211	2,426	0
Terrebonne	50	31,676	8,499	32,570	45,238	7,782	57,953	64,349	16,002	39,868	82,356	8,728
Vermilion	24,953	0	0	0	0	0	130	186	0	0	0	0
West Baton Rouge	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>103,129</b>	<b>221,819</b>	<b>13,564</b>	<b>116,061</b>	<b>219,232</b>	<b>19,061</b>	<b>115,866</b>	<b>229,338</b>	<b>42,956</b>	<b>104,588</b>	<b>261,951</b>	<b>21,725</b>

**Table 9 (continued).** Method of take by parish for seasons 1-16, Coastwide Nutria Control Program. Totals may not be exact due to reporting of percentages.

PARISH	2014-2015			2015-2016			2016-2017			2017-2018		
	Trap	Rifle	Shotgun	Trap	Rifle	Shotgun	Trap	Rifle	Shotgun	Trap	Rifle	Shotgun
Acadia	0	0	0	0	0	0	0	0	0	0	0	0
Ascension	551	15,259	202	257	4,226	209	159	1,505	112	184	947	221
Assumption	1,088	5,555	959	1,263	1,117	716	41	1,996	335	1,107	281	167
Calcasieu	0	0	0	0	0	0	0	0	0	118	0	36
Cameron	2,848	0	0	2,607	0	0	2,310	224	0	5,008	545	252
Iberia	3,464	3,148	684	1,321	2,854	341	60	1,394	1,060	427	656	599
Iberville	229	809	39	0	2,420	510	63	136	220	1,297	783	299
Jefferson	2,913	9,481	462	3,228	8,590	421	5,188	11,403	3,435	2,581	7,464	1,015
Jefferson Davis	0	0	0	0	0	0	0	0	0	0	0	0
Lafayette	0	0	0	0	0	0	0	0	0	0	0	0
Lafourche	7,737	21,453	0	7,820	23,783	207	6,352	11,177	720	4,115	6,145	128
Livingston	0	1,279	0	0	0	0	192	1,587	99	194	1,106	238
Orleans	485	0	0	1,045	58	0	1,077	0	0	283	50	0
Plaquemines	6,570	17,193	120	12,362	33,110	1,200	6,052	25,136	2,496	4,518	20,482	4,474
St. Bernard	4,346	1,064	0	7,828	4,995	116	7,028	3,892	175	1,825	1,580	128
St. Charles	3,592	12,659	104	2,682	9,047	1,956	4,772	6,205	626	774	3,844	1,008
St. James	133	635	0	790	6,059	802	264	2,550	191	303	1,563	361
St. John the Baptist	1,055	2,226	113	3,794	13,511	1,107	1,043	5,280	28	1,274	3,880	1,263
St. Martin	20,118	25,891	4,384	23,973	22,706	3,523	5,562	2,002	2,274	4,196	5,405	5,145
St. Mary	6,003	29,024	5,019	1,363	24,494	2,729	6,029	20,622	5,450	6,618	17,099	3,152
St. Tammany	1,282	69	131	726	8,229	607	1,142	1,092	3,010	1,092	928	0
Tangipahoa	28	6,731	0	23	4,870	0	784	2,185	29	238	955	138
Terrebonne	36,381	65,519	12,471	21,032	57,978	14,291	12,517	25,830	10,064	10,134	23,602	6,846
Vermilion	101	101	0	73	268	0	159	718	0	134	1,241	26
West Baton Rouge	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>98,924</b>	<b>218,096</b>	<b>24,688</b>	<b>92,186</b>	<b>228,316</b>	<b>28,733</b>	<b>60,794</b>	<b>124,934</b>	<b>30,324</b>	<b>46,421</b>	<b>98,555</b>	<b>25,495</b>

**Table 9 (continued).** Method of take by parish for seasons 1-16, Coastwide Nutria Control Program. Totals may not be exact due to reporting of percentages.

Year	Number of Sites Surveyed	Number of Sites with Current Damage	Number of Sites Converted to Open Water	Sites with Vegetative Recovery
2002	108 <sup>1</sup>	86	8	12
2003	100	81	3	16
2004	93	68	1	24
2005	78	47	2	29
2006	52	31	9	12
2007	34	23	3 (partial sites)	11 <sup>2</sup>
2008	23	16	1 (partial site)	6
2009	24	19	1 (partial site)	5 <sup>2</sup>
2010	20	11	0	9
2011	11	10	0	1
2012	12	11	0	1
2013	14	12	0	2
2014	13	11	0	2
2015	12	11	0	1
2016	10	10	4 (partial sites)	0
2017	17	16	5 (partial sites)	1
2018	25 <sup>1,3</sup>	21	6 (partial sites)	2

**Table 10.** Status and number of nutria herbivory sites surveyed from 2002 to 2018.

<sup>1</sup> Two sites could not be evaluated due to high water.

<sup>2</sup> Total includes 1 site with partial recovery.

<sup>3</sup> Two separate sites from previous season merged together to form single site

PARISH	2002		2003		2004		2005		2006	
	NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF	
	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES
Terrebonne	41	12,951	34	12,521	27	7,679	18	4,541	14	7,340
Lafourche	8	1,222	7	610	5	381	2	127	0	0
Jefferson	17	3,003	10	1,805	9	1,718	7	1,383	5	874
Plaquemines	10	882	13	2,540	7	2,494	7	1,850	7	1763
St. Charles	6	768	6	1,266	9	2,564	6	4,690	5	3249
Cameron	0	0	0	0	0	0	0	0	1	233
St. Bernard	6	921	5	918	5	1,035	4	882	4	1,004
St. John	0	0	1	20	2	111	2	240	2	241
Iberia	0	0	0	0	0	0	1	158	0	0
St. Tammany	4	752	2	360	0	0	0	0	0	0
Orleans	2	686	2	962	0	0	0	0	0	0
St. Mary	0	0	0	0	0	0	0	0	0	0
Vermilion	0	0	4	886	5	924	2	389	1	76
Jefferson Davis	0	0	0	0	0	0	0	0	1	88
St. John the Baptist	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>94</b>	<b>21,185</b>	<b>84</b>	<b>21,888</b>	<b>69</b>	<b>16,906</b>	<b>49</b>	<b>14,260</b>	<b>40</b>	<b>14,868<sup>1</sup></b>

**Table 11.** Number of nutria damaged sites and acres damaged along transects by parish in coastal Louisiana, 2002 - 2018.

<sup>1</sup>This figure represents acres damaged along transects only. Actual damage coastwide is approximately 3.75 times larger than the area estimated by this survey.

<sup>2</sup>This figure includes 2,553 acres of marsh previously impacted by nutria that was likely converted to open water in Plaquemines and St. Bernard Parishes due to tidal scour from Hurricane Katrina.

<sup>3</sup>These figures include acres from sites that were partially converted to open water.

PARISH	2007		2008		2009		2010		2011	
	NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF	
	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES
Terrebonne	12	5,915	12	3,768	10	3,162	10	2,241	9	1,591
Lafourche	2	328	2	338	2	207	1	19	1	88
Jefferson	3	177 <sup>2</sup>	2	69	1	29	0	0	0	0
Plaquemines	0	0	1	11	1	9	0	0	0	0
St. Charles	4	2,216 <sup>2</sup>	5	2,215 <sup>2</sup>	4	1,895	0	0	0	0
Cameron	1	167	0	0	1	120	0	0	0	0
St. Bernard	1	225 <sup>2</sup>	0	0	0	0	0	0	0	0
St. John	0	0	0	0	0	0	0	0	0	0
Iberia	0	0	0	0	0	0	0	0	0	0
St. Tammany	0	0	0	0	0	0	0	0	0	0
Orleans	0	0	0	0	0	0	0	0	0	0
St. Mary	0	0	0	0	0	0	0	0	0	0
Vermilion	0	0	0	0	0	0	0	0	0	0
Jefferson Davis	1	81	0	0	0	0	0	0	0	0
St. John the Baptist	1	135	1	70	0	0	0	0	0	0
<b>Total</b>	<b>25</b>	<b>9,244<sup>2</sup></b>	<b>23</b>	<b>6,471<sup>2</sup></b>	<b>19</b>	<b>5,422</b>	<b>11</b>	<b>2,260</b>	<b>10</b>	<b>1,679</b>

**Table 11 (Continued).** Number of nutria damaged sites and acres damaged along transects by parish in coastal Louisiana, 2002 - 2018. This figure represents acres damaged along transects only. Actual damage coastwide is approximately 3.75 times larger than the area estimated by this survey.

<sup>1</sup>This figure includes 2,553 acres of marsh previously impacted by nutria that was likely converted to open water in Plaquemines and St. Bernard Parishes due to tidal scour from Hurricane Katrina.

<sup>2</sup>These figures include acres from sites that were partially converted to open water.

PARISH	2012		2013		2014		2015		2016	
	NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF	
	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES
Terrebonne	10	1033	10	1212	9	1078	10	1586	10	1716
Lafourche	1	96	0	0	0	0	0	0	0	0
Jefferson	0	0	0	0	0	0	0	0	0	0
Plaquemines	0	0	0	0	0	0	0	0	0	0
St. Charles	0	0	0	0	0	0	0	0	0	0
Cameron	0	0	0	0	0	0	0	0	0	0
St. Bernard	0	0	0	0	0	0	0	0	0	0
St. John	0	0	0	0	0	0	0	0	0	0
Iberia	0	0	0	0	0	0	0	0	0	0
St. Tammany	0	0	0	0	0	0	0	0	0	0
Orleans	0	0	0	0	0	0	0	0	0	0
St. Mary	0	0	2	21	2	37	1	16	1	16
Vermilion	0	0	0	0	0	0	0	0	0	0
Jefferson Davis	0	0	0	0	0	0	0	0	0	0
St. John the Baptist	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>11</b>	<b>1,129</b>	<b>12</b>	<b>1,233</b>	<b>11</b>	<b>1,115</b>	<b>11</b>	<b>1,602</b>	<b>11</b>	<b>1,732<sup>2</sup></b>

**Table 11 (Continued).** Number of nutria damaged sites and acres damaged along transects by parish in coastal Louisiana, 2002 - 2018. This figure represents acres damaged along transects only. Actual damage coastwide is approximately 3.75 times larger than the area estimated by this survey.

<sup>1</sup>This figure includes 2,553 acres of marsh previously impacted by nutria that was likely converted to open water in Plaquemines and St. Bernard Parishes due to tidal scour from Hurricane Katrina.

<sup>2</sup>These figures include acres from sites that were partially converted to open water.



PARISH	2017		2018	
	NUMBER OF		NUMBER OF	
	SITES	ACRES	SITES	ACRES
Terrebonne	13	1,283	17	3,578
Lafourche	0	0	0	0
Jefferson	1	174	0	0
Plaquemines	0	0	0	0
St. Charles	1	72	1	504
Cameron	1	35	2	74
St. Bernard	0	0	0	0
St. John	0	0	0	0
Iberia	0	0	0	0
St. Tammany	0	0	0	0
Orleans	0	0	0	0
St. Mary	0	0	1	224
Vermilion	0	0	0	0
Jefferson Davis	0	0	0	0
St. John the Baptist	0	0	0	0
<b>Total</b>	<b>16</b>	<b>1,564<sup>2</sup></b>	<b>21</b>	<b>4,380<sup>2</sup></b>

**Table 11 (Continued).** Number of nutria damaged sites and acres damaged along transects by parish in coastal Louisiana, 2002 - 2018. This figure represents acres damaged along transects only. Actual damage coastwide is approximately 3.75 times larger than the area estimated by this survey.

<sup>1</sup>This figure includes 2,553 acres of marsh previously impacted by nutria that was likely converted to open water in Plaquemines and St. Bernard Parishes due to tidal scour from Hurricane Katrina.

<sup>2</sup>These figures include acres from sites that were partially converted to open water.

MARSH TYPE	2002		2003		2004		2005		2006		2007	
	NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF	
	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES
Fresh	41	11,593	36	10,871	37	10,565	26	9,811	23	11,273	21	8,842
Intermediate	39	7,416	31	8,086	25	5,128	19	3,789	16	3,421	3	298
Brackish	14	2,176	17	2,931	7	1,213	4	660	1	174	1	104
<b>Total</b>	<b>94</b>	<b>21,185</b>	<b>84</b>	<b>21,888</b>	<b>69</b>	<b>16,906</b>	<b>49</b>	<b>14,260</b>	<b>40</b>	<b>14,868</b>	<b>251</b>	<b>92,441</b>

**Table 12A.** Number of nutria damaged sites and acres damaged, by marsh type along transects in coastal Louisiana during 2002 to 2018; numbers include sites converted to open water. Continued through Tables 8A-8C.

<sup>1</sup> Total includes sites that were partially converted to open water.

MARSH TYPE	2008		2009		2010		2011		2012		2013	
	NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF	
	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES
Fresh	21	6,127	17	5,384	11	2,260	10	1,679	11	1,129	12	1,233
Intermediate	2	44	2	38	0	0	0	0	0	0	0	0
Brackish	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>23</b>	<b>6,471<sup>1</sup></b>	<b>19</b>	<b>5,422</b>	<b>11</b>	<b>2,260</b>	<b>10</b>	<b>1,679</b>	<b>11</b>	<b>1,129</b>	<b>12</b>	<b>1,233</b>

**Table 12B.**

MARSH TYPE	2014		2015		2016		2017		2018	
	NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF	
	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES
Fresh	11	1,115	11	1,602	11	1,716	15	1,390	21	4,380
Intermediate	0	0	0	0	0	0	0	0	0	0
Brackish	0	0	0	0	0	0	1	174	0	0
<b>Total</b>	<b>11</b>	<b>1,115</b>	<b>11</b>	<b>1,602</b>	<b>11</b>	<b>1,716</b>	<b>16</b>	<b>1,564</b>	<b>21</b>	<b>4,380</b>

**Table 12C.**

NUTRIA RELATIVE ABUNDANCE RATING	2002		2003		2004		2005		2006		2007	
	NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF	
	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES
No nutria sign visible	21	5,990	23	5,972	13	3,569	12	2,992	4	519	2	73
Nutria sign visible	31	4,379	26	3,562	29	6,040	28	6,748	26	11,223	12	3,402
Abundant feeding	17	4,198	19	6,682	19	5,251	4	4,113	1	573	5	1,495
Heavy feeding	17	5,568	14	5,599	7	2,026	1	273	0	0	4	3,658
<b>Total</b>	<b>86</b>	<b>20,135</b>	<b>81</b>	<b>21,815</b>	<b>69</b>	<b>16,886</b>	<b>47</b>	<b>14,126</b>	<b>31</b>	<b>12,315</b>	<b>23</b>	<b>8,628</b>

**Table 13A.** Number of nutria damage sites and acres damaged by revised nutria relative abundance rating in coastal Louisiana during 2002 to 2018; numbers do not include sites converted to open water. Continued through Tables 9A-9C.

NUTRIA RELATIVE ABUNDANCE RATING	2008		2009		2010		2011		2012		2013	
	NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF	
	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES
No nutria sign visible	0	0	0	0	0	0	0	0	0	0	0	0
Nutria sign visible	13	2,234	6	517	0	0	1	139	3	117	6	198
Abundant feeding	8	3,522	8	1,169	7	640	9	1,540	8	1,012	6	1,035
Heavy feeding	2	415	5	3,736	4	1,620	0	0	0	0	0	0
<b>Total</b>	<b>23</b>	<b>6,171</b>	<b>19</b>	<b>5,422</b>	<b>11</b>	<b>2,260</b>	<b>10</b>	<b>1,679</b>	<b>11</b>	<b>1,129</b>	<b>12</b>	<b>1,233</b>

**Table 13B.**

NUTRIA RELATIVE ABUNDANCE RATING	2014		2015		2016		2017		2018	
	NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF	
	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES
No nutria sign visible	0	0	0	0	0	0	0	0	0	0
Nutria sign visible	2	22	3	59	7	581	14	1,136	13	2,084
Abundant feeding	9	1,093	7	741	6	1,077	3	429	7	2,134
Heavy feeding	0	0	1	802	1	74	0	0	1	161
<b>Total</b>	<b>11</b>	<b>1,115</b>	<b>11</b>	<b>1,602</b>	<b>3193</b>	<b>1,732</b>	<b>3193</b>	<b>1,564</b>	<b>21</b>	<b>4,380</b>

**Table 13C.**

VEGETATIVE DAMAGE RATING	2002		2003		2004		2005		2006		2007	
	NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF	
	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES
No vegetative damage	1	30	0	0	0	0	0	0	0	0	0	0
Minor vegetative damage	28	3,498	26	8,732	35	6,675	34	8,070	21	7,621	17	4,021
Moderate vegetative damage	44	13,156	41	9,221	29	9,536	12	5,905	9	4,581	6	4,607
Severe vegetative damage	13	3,451	14	3,862	4	675	1	151	1	113	0	0
Converted to open water	8	1,050	3	73	1	20	2	134	9	2,553	3 <sup>1</sup>	616 <sup>1</sup>
<b>TOTAL</b>	<b>94</b>	<b>21,185</b>	<b>84</b>	<b>21,888</b>	<b>69</b>	<b>16,906</b>	<b>49</b>	<b>14,260</b>	<b>40</b>	<b>14,868</b>	<b>26<sup>1</sup></b>	<b>9,244<sup>1</sup></b>

**Table 14A.** Number of nutria damage sites and number of acres by the vegetative damage rating in coastal Louisiana 2002 to 2018. Continued through Tables 10A-10C.

<sup>1</sup> Total includes sites that were partially converted to open water.

VEGETATIVE DAMAGE RATING	2008		2009		2010		2011		2012		2013	
	NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF	
	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES
No vegetative damage	0	0	0	0	0	0	0	0	0	0	0	0
Minor vegetative damage	17	5,402	15	5,102	11	2,260	10	1,679	11	1,129	7	285
Moderate vegetative damage	5	640	4	320	0	0	0	0	0	0	3	726
Severe vegetative damage	1	129	0	0	0	0	0	0	0	0	2	222
Converted to open water	1 <sup>1</sup>	300 <sup>1</sup>	1 <sup>1</sup>	90	0	0	0	0	0	0	0	0
<b>TOTAL</b>	<b>24<sup>1</sup></b>	<b>6,471<sup>1</sup></b>	<b>20<sup>1</sup></b>	<b>5,512</b>	<b>11</b>	<b>2,260</b>	<b>10</b>	<b>1,679</b>	<b>11</b>	<b>1,129</b>	<b>12</b>	<b>1,233</b>

**Table 14B.**

VEGETATIVE DAMAGE RATING	2014		2015		2016		2017		2018	
	NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF	
	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES
No vegetative damage	0	0	0	0	0	0	0	16	0	0
Minor vegetative damage	8	898	9	772	2	39.93	10 <sup>1</sup>	850 <sup>1</sup>	12 <sup>1</sup>	1,832 <sup>1</sup>
Moderate vegetative damage	3	217	2	830	6 <sup>1</sup>	558 <sup>1</sup>	5 <sup>1</sup>	540 <sup>1</sup>	11 <sup>1</sup>	1,472 <sup>1</sup>
Severe vegetative damage	0	0	0	0	3	1134	1	174	2 <sup>1</sup>	208 <sup>1</sup>
Converted to open water	0	0	0	0	4 <sup>1</sup>	125 <sup>1</sup>	5 <sup>1</sup>	76 <sup>1</sup>	6 <sup>1</sup>	867 <sup>1</sup>
<b>TOTAL</b>	<b>11</b>	<b>1,115</b>	<b>11</b>	<b>1,602</b>	<b>15<sup>1</sup></b>	<b>1,857<sup>1</sup></b>	<b>16<sup>1</sup></b>	<b>1,656<sup>1</sup></b>	<b>31<sup>1</sup></b>	<b>4,380<sup>1</sup></b>

**Table 14C.**

AGE OF DAMAGE AND CONDITON RATING	2002		2003		2004		2005		2006		2007	
	NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF	
	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES
Recovered	12	1,119	16	1,674	24	6,049	29	4,169	13 <sup>1</sup>	1,341 <sup>1</sup>	11 <sup>1</sup>	1,783 <sup>1</sup>
Old Recovering	51	7,694	51	14,382	53	12,338	39	10,878	21	9,429	14	5,011
Old Not Recovering	31	11,449	17	5,375	5	2,898	2	656	4	1,519	5	2,874
Recent Recovering	0	0	0	0	1	35	1	10	0	0	0	0
Recent Not Recovering	0	0	0	0	0	0	0	0	1	285	0	0
Current Damage	4	992	13	2,058	9	1,615	5	2,582	5	1,082	4	743
<b>Total</b>	<b>98</b>	<b>21,254</b>	<b>97</b>	<b>23,489</b>	<b>92</b>	<b>22,935</b>	<b>76</b>	<b>18,295</b>	<b>44<sup>1</sup></b>	<b>136,56<sup>1</sup></b>	<b>34<sup>1</sup></b>	<b>104,11<sup>1</sup></b>

**Table 15A.** Number of nutria damage sites by age of damage and condition rating in coastal Louisiana in 2002 to 2018. Continued through Tables 11A-11C.

<sup>1</sup> Total includes sites that were partially recovered.

AGE OF DAMAGE AND CONDITON RATING	2008		2009		2010		2011		2012		2013	
	NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF	
	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES
Recovered	6	736	5 <sup>1</sup>	673 <sup>1</sup>	9	1,914	1	62	1	36	2	96
Old Recovering	15	3,852	16	5,321	10	2,198	5	1,270	8	1,033	1	29
Old Not Recovering	3	1,914	2	57	0	0	4	224	1	53	8	1,168
Recent Recovering	0	0	0	0	0	0	0	0	0	0	0	0
Recent Not Recovering	0	0	0	0	0	0	0	0	0	0	0	0
Current Damage	5	405	1	44	1	62	1	185	2	43	3	36
<b>Total</b>	<b>29</b>	<b>6,907</b>	<b>23<sup>1</sup></b>	<b>60,95<sup>1</sup></b>	<b>20</b>	<b>4,174</b>	<b>11</b>	<b>1,741</b>	<b>12<sup>1</sup></b>	<b>1,165<sup>1</sup></b>	<b>14<sup>1</sup></b>	<b>1,329<sup>1</sup></b>

**Table 15B.**

AGE OF DAMAGE AND CONDITON RATING	2014		2015		2016		2017		2018	
	NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF	
	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES
Recovered	2	34	1	23	0	0	1	16	0	0
Old Recovering	7	259	3	60	3	109	4	307	2	87
Old Not Recovering	3	833	7	1,481	8	1,624	6	481	7	1,687
Recent Recovering	0	0	0	0	0	0	1	35	0	0
Recent Not Recovering	0	0	0	0	0	0	0	0	0	0
Current Damage	1	23	1	61	0	0	5	740	12	2,606
<b>Total</b>	<b>13<sup>1</sup></b>	<b>1,149<sup>1</sup></b>	<b>12<sup>1</sup></b>	<b>1,625<sup>1</sup></b>	<b>11<sup>1</sup></b>	<b>1,732<sup>1</sup></b>	<b>17<sup>1</sup></b>	<b>1,580<sup>1</sup></b>	<b>21<sup>1</sup></b>	<b>4,380<sup>1</sup></b>

**Table 15C.**

PREDICTION OF RECOVERY BY END OF GROWING SEASON	2002		2003		2004		2005		2006		2007	
	NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF	
	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES
Full Recovery	7	919	8	4,238	10	338	6	443	4	828	2	350
Partial Recovery	59	13,950	64	14,497	50	13,440	36	10,073	27	11,487	21	8,278
Increased Damage	5	1,086	6	1,646	6	2,811	5	3,610	0	0	0	0
No Recovery Predicated	15	4,180	3	1,434	2	297	0	0	0	0	0	0
<b>TOTAL</b>	<b>94</b>	<b>21,185</b>	<b>84</b>	<b>21,888</b>	<b>69</b>	<b>16,906</b>	<b>49</b>	<b>14,260</b>	<b>31</b>	<b>12,315</b>	<b>23</b>	<b>8,628</b>

**Table 16A.** Number of nutria damage sites and acres damaged, by prediction of recovery rating in coastal Louisiana in 2002 to 2018. Continued through Tables 12A-12C.

PREDICTION OF RECOVERY BY END OF GROWING SEASON	2008		2009		2010		2011		2012		2013	
	NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF	
	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES
Full Recovery	1	80	2	1,588	2	84	0	0	0	0	0	0
Partial Recovery	22	6,091	16	3,543	9	2,176	10	1,679	11	1,129	3	665
Increased Damage	0	0	1	291	0	0	0	0	0	0	9	568
No Recovery Predicated	0	0	0	0	0	0	0	0	0	0	0	0
<b>TOTAL</b>	<b>23</b>	<b>6,171</b>	<b>19</b>	<b>5,422</b>	<b>11</b>	<b>2,260</b>	<b>10</b>	<b>1,679</b>	<b>11</b>	<b>1,129</b>	<b>12</b>	<b>1,233</b>

**Table 16B.**

PREDICTION OF RECOVERY BY END OF GROWING	2014		2015		2016		2017		2018	
	NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF	
	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES
Full Recovery	0	0	1	16	7	1,550	3	107	1	35
Partial Recovery	2	22	3	61	0	0	1	122	6	506
Increased Damage	9	1,093	7	1,525	3	109	1	159	5	1,305
No Recovery Predicated	0	0	0	0	1	74	12	1,176	9	2,533
<b>TOTAL</b>	<b>11</b>	<b>1,115</b>	<b>11</b>	<b>1,602</b>	<b>11</b>	<b>1,732</b>	<b>17</b>	<b>1,564</b>	<b>21</b>	<b>4,379</b>

**Table 16C.**

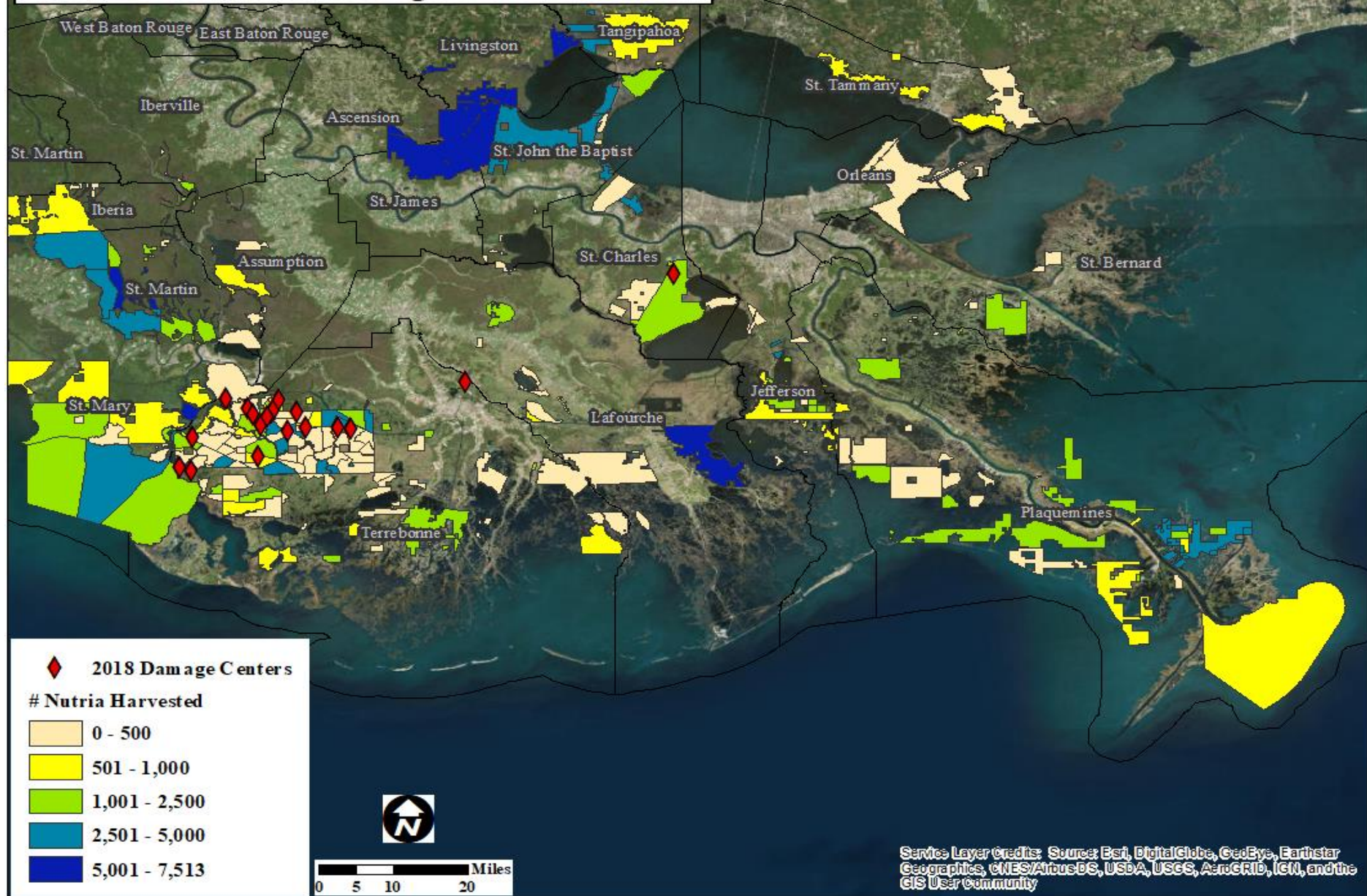
**APPENDIX B.**  
**2017 Nutria Vegetative Damage Sites**

SITE NUMBER	MARSH TYPE	LATITUDE	LONGITUDE	DAMAGE TYPE	SECONDARY DAMAGE	DAMAGED ACRES	ACRES TO OPEN WATER	NRAR	VDR	AGE OF DAMAGE & CONDITION	PREDICTION
8	Fresh	29.56	-91.16	Nutria	*	24.14	*	1	1	1	0
9	Fresh	29.59	-91.12	Nutria	*	24.12	*	1	1	1	0
17	Fresh	29.54	-91.04	Nutria	*	90.23	11.79	2	2	2	0
120	Fresh	29.61	-91.07	Nutria	*	144.91	44.86	1	1	1	0
274	Fresh	29.57	-91.09	Nutria	*	158.89	*	1	1	2	3
400	Fresh	29.58	-91.11	Nutria	*	114.24	8.19	1	1	1	0
418	Fresh	29.58	-91.02	Nutria	*	42.69	*	1	1	2	0
425	Fresh	29.56	-91.09	Nutria	*	6.37	0.83	1	2	2	0
433	Fresh	29.49	-91.11	*	*	*	*	1	0	0	1
434	Fresh	29.53	-91.35	Nutria	*	120.03	9.89	1	1	2	0
436	Fresh	29.56	-91.09	Nutria	*	63.20	*	1	1	2	0
437	Fresh	29.57	-91.07	Nutria	*	122.01	*	1	1	5	2
438	Fresh	29.58	-91.08	Nutria	*	207.68	*	1	2	5	0
439	Fresh	29.55	-90.98	Nutria	*	164.30	*	2	2	5	0
440	Brackish	29.56	-90.02	Nutria	*	174.32	*	2	3	5	0
441	Fresh	29.86	-90.29	Nutria	*	71.76	*	1	2	5	1
442	Fresh	29.99	-92.95	Nutria	*	35.48	*	1	1	3	1

**Table 17.** 2017 Nutria Vegetative Damage Sites. Nutria relative abundance rating (NRAR): (0) no nutria sign visible, (1) nutria sign visible, (2) abundant feeding sign, and (3) heavy feeding sign; sites converted to open water are not given a NRAR. Vegetative damage rating (VDR): (0) no vegetative damage, (1) minor vegetative damage, (2) moderate vegetative damage, (3) severe vegetative damage, (4) converted to open water. Age of damage and condition: (0) recovered (1) Old recovering (2) old not recovering (3) recent recovering (4) recent not recovering (5) current (occurring now). Prediction: (0) no recovery predicted (1) full recovery (2) partial recovery (3) increased damage. \* indicates a null value in this category. **Site 433 was marked as recovered during the 2017 survey.**

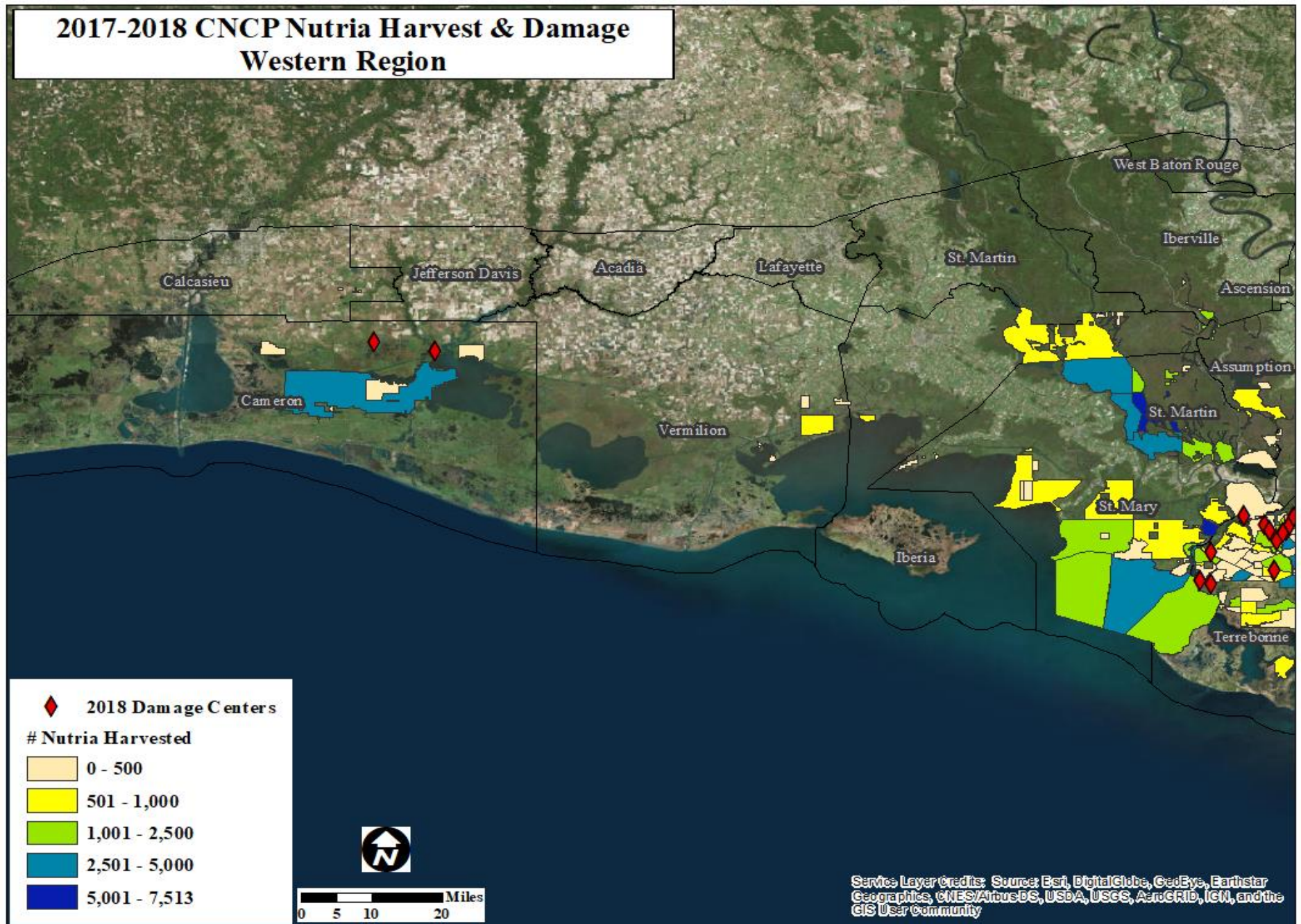


## 2017-2018 CNCP Nutria Harvest & Damage Eastern Region





## 2017-2018 CNCP Nutria Harvest & Damage Western Region



**APPENDIX C.**  
**Data collected at each damage site during the 2018**  
**vegetative damage survey.**

SITE NUMBER	MARSH TYPE	LATITUDE	LONGITUDE	DAMAGE TYPE	SECONDARY DAMAGE	DAMAGED ACRES	ACRES TO OPEN WATER	NRAR	VDR	AGE OF DAMAGE & CONDITION	PREDICTION	NUMBER OF NUTRIA OBSERVED
9	Fresh	29.5892	-91.1226	Nutria		66.68	33.34	1	1,4	2	2	2
17	Fresh	29.5363	-91.0478	Nutria		455.57	227.80	2	2,4	2	0	176
120	Fresh	29.6159	-91.0737	Nutria	Hog	435.09	435.10	1	4	2	0	90
400	Fresh	29.5815	-91.1087	Nutria		308.00		2	2,3	2	3	160
418	Fresh	29.5798	-91.0222	Nutria		114.09	57.05	2	2,4	2	0	41
434	Fresh	29.4921	-91.1054	Nutria		120.03	60.02	1	1,4	2	2	7
436	Fresh	29.5512	-91.0915	Nutria	Hog	187.59		1	2	2	3	153
437	Fresh	29.5747	-91.0732	Nutria		319.75		1	1	5	3	400+
438	Fresh	29.5801	-91.0728	Nutria		161.36	53.79	3	2,3,4	5	0	330
439	Fresh	29.5469	-91.0061	Nutria		51.00		1	2	1	2	7
441	Fresh	29.8609	-90.2936	Nutria	Hog	503.71		1	1	5	0	25
442	Fresh	29.9919	-92.9478	Flood	Nutria	35.48		1	1	1	1	2
443	Fresh	29.4765	-91.2569	Nutria		571.99		2	1,2	5	0	147
444	Fresh	29.5294	-91.2317	Nutria		54.36		1	1	5	0	19
445	Fresh	29.4584	-91.2336	Nutria		130.11		1	1	5	2	43
446	Fresh	29.6108	-91.1572	Nutria		224.40		2	1	5	3	65
447	Fresh	29.5909	-91.0761	Nutria		265.57		2	2	5	3	116
448	Fresh	29.5539	-90.9453	Nutria	Apple Snails	194.26		2	1,2	5	0	31
449	Fresh	29.5368	-90.9252	Nutria	Muskrat	99.61		1	1,2	5	2	29
450	Fresh	29.6421	-90.6989	Nutria		42.62		1	2	5	0	19
451	Fresh	29.9729	-92.8236	Nutria		38.33		1	1	5	2	4

**Table 18.** 2018 Nutria Vegetative Damage Sites. Nutria relative abundance rating (NRAR): (0) no nutria sign visible, (1) nutria sign visible, (2) abundant feeding sign, and (3) heavy feeding sign; sites converted to open water are not given a NRAR. Vegetative damage rating (VDR): (0) no vegetative damage, (1) minor vegetative damage, (2) moderate vegetative damage, (3) severe vegetative damage, (4) converted to open water. Age of damage and condition: (0) recovered (1) Old recovering (2) old not recovering (3) recent recovering (4) recent not recovering (5) current (occurring now). Prediction: (0) no recovery predicted (1) full recovery (2) partial recovery (3) increased damage.

**2017 NUTRIA VEGETATIVE DAMAGE SURVEY**

DATE: \_\_\_\_\_

SITE # \_\_\_\_\_

**PHOTOGRAPHY**

NEW SITE \_\_\_Y\_\_\_N

FRAME# \_\_\_\_\_

TRANSECT# \_\_\_\_\_

TIME start: \_\_\_\_\_

MARSH TYPE \_\_\_\_\_

TIME finish: \_\_\_\_\_

NOTES:

**LOCATION DESCRIPTION****NUTRIA RELATIVE ABUNDANCE**

# NUTRIA SIGHTED \_\_\_\_\_

ON TRANSECT # \_\_\_\_\_

**RATING**

EAST OF TRANSECT \_\_\_\_\_

\_\_\_ NO NUTRIA SIGN VISIBLE (0)

WEST OF TRANSECT \_\_\_\_\_

\_\_\_ NUTRIA SIGN VISIBLE (1)

LAT: \_\_\_\_\_

\_\_\_ ABUNDANT FEEDING (2)

LON: \_\_\_\_\_

\_\_\_ HEAVY FEEDING (3)

**DAMAGE TYPE****VEGETATIVE DAMAGE RATING**

\_\_\_ DAMAGE NOT RELATED TO NUTRIA

\_\_\_ NO VEG DAMAGE (0)

\_\_\_ DAMAGE – STORM

\_\_\_ MINOR VEG DAMAGE (1)

\_\_\_ DAMAGE – MUSKRAT

\_\_\_ MODERATE VEG DAMAGE (2)

\_\_\_ DAMAGE – NUTRIA

\_\_\_ SEVERE VEG DAMAGE (3)

\_\_\_ DAMAGE – OTHER \_\_\_\_\_

\_\_\_ CONVERTED TO OPEN WATER (4)

\_\_\_ SUBJECT TO TIDAL ACTION: \_\_\_Y\_\_\_N

PLANT SPECIES	COMMON NAME	seen?	PLANT SPECIES	COMMON NAME	seen?
Alternanthera philoxeroides	alligatorweed		Juncus spp.	rushes	
Aster spp.	asters		Ludwigia spp.	water primrose	
Bacopa spp.	water hyssop/bacopa		Lythrum lineare	purple loosestrife	
Bidens laevis	smooth beggar's tick		Panicum hemitomon	maidencane	
Cephalanthus occidentalis	button bush		Pluchea spp.	camphorweed	
Colocasia esculenta	elephant-ear		Sagittaria spp.	bulltongue/wapato	
Decodon spp.	water willow/loosestrife		Scirpus spp.	3-cornered grass/bullrush	
Distichlis spicata	saltgrass		Spartina alterniflora	oystergrass	
Eichhornia crassipes	water hyacinth		Spartina patens	wiregrass	
Eleocharis cellulose	gulfcoast spikerush		Typha spp.	cattail	
Eleocharis parvula	dwarf spikerush				
Hydrocotyle spp.	pennywarts				
Iris virginica	blue flag iris				

**AGE OF DAMAGE AND CONDITION****PREDICTION OF RECOVERY BY END OF**

\_\_\_ RECOVERED (0)

**GROWING SEASON**

\_\_\_ OLD RECOVERING (1)

\_\_\_ NO RECOVERY PREDICTED (0)

\_\_\_ OLD NOT RECOVERING (2)

\_\_\_ FULL RECOVERY (1)

\_\_\_ RECENT RECOVERING (3)

\_\_\_ PARTIAL RECOVERY (2)

\_\_\_ RECENT NOT RECOVERING (4)

\_\_\_ INCREASED DAMAGE (3)

\_\_\_ CURRENT (OCCURRING NOW) (5)

\_\_\_ CHECK NEXT YEAR

## **CODES FOR NUTRIA HERBIVORY SURVEY DATA**

### **<sup>1</sup>Marsh Type**

Fresh	F
Intermediate	I
Brackish	B

### **<sup>2</sup>Nutria Relative Abundance Rating**

No Nutria Sign Visible	0
Nutria Sign Visible	1
Abundant Feeding Sign	2
Heavy Feeding	3

### **<sup>3</sup>Vegetative Damage Rating**

No Vegetative Damage	0
Minor Vegetative Damage	1
Moderate Vegetative Damage	2
Severe Vegetative Damage	3
Converted To Open Water	4

### **<sup>4</sup>Age of Damage and Condition**

Recovered	0
Old Recovering	1
Old Not Recovering	2
Recent Recovering	3
Recent Not Recovering	4
Current (Occurring Now)	5

### **<sup>5</sup>Prediction of Recovery by End of 2016 Growing Season**

No Recovery Predicted	0
Full Recovery	1
Partial Recovery	2
Increased Damage	3