

Coastwide Nutria Control Program 2016 – 2017

**Nutria Harvest and Distribution 2016-2017
And
A Survey of Nutria Herbivory Damage in Coastal
Louisiana 2017**

***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)**

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Section 1

Nutria Harvest Distribution for 2016-2017.

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. These importations, primarily for fur farming, 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.

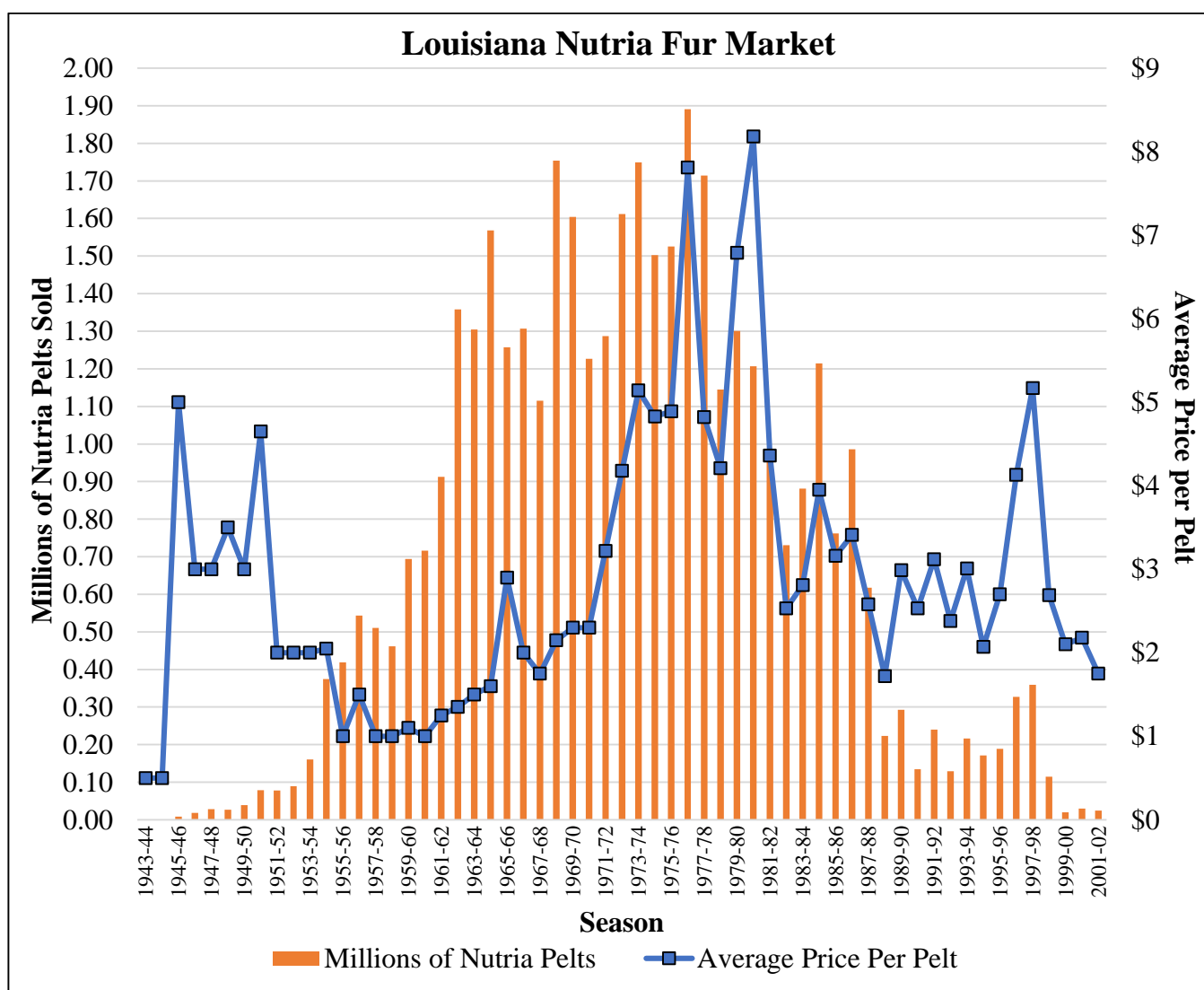


Figure 1. Louisiana fur market 1943 – 2002 (the year prior to CNCP implementation).

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 (CNCPP) 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 CNCPP requires LDWF to conduct general project operation and administration. LDWF is required to 1) conduct and review the registration of participants in the CNCPP; 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 CNCPP 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). 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, 2016. Nutria tail collections began November 22, 2016 and continued through April 7, 2017, 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. A participant reported to a collection site, presented his nutria control program registration card and presented his 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 17). 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 project map with related information.

Results and Discussion

Participant Totals

We registered a total of 384 participants in the program for the 2016-2017 season. A total of 216,052 nutria tails worth \$1,080,260 in incentive payments were collected from 228 active participants. The fewest number of tails turned in by a single participant was 2 and the greatest number of tails by a single participant was 14,843. Approximately 29% of active participants turned in 800 or more tails (Figure 2A). Of the 67 participants who turned in 800 or more tails, 16% turned in more than 4,000 tails (Figure 2B).

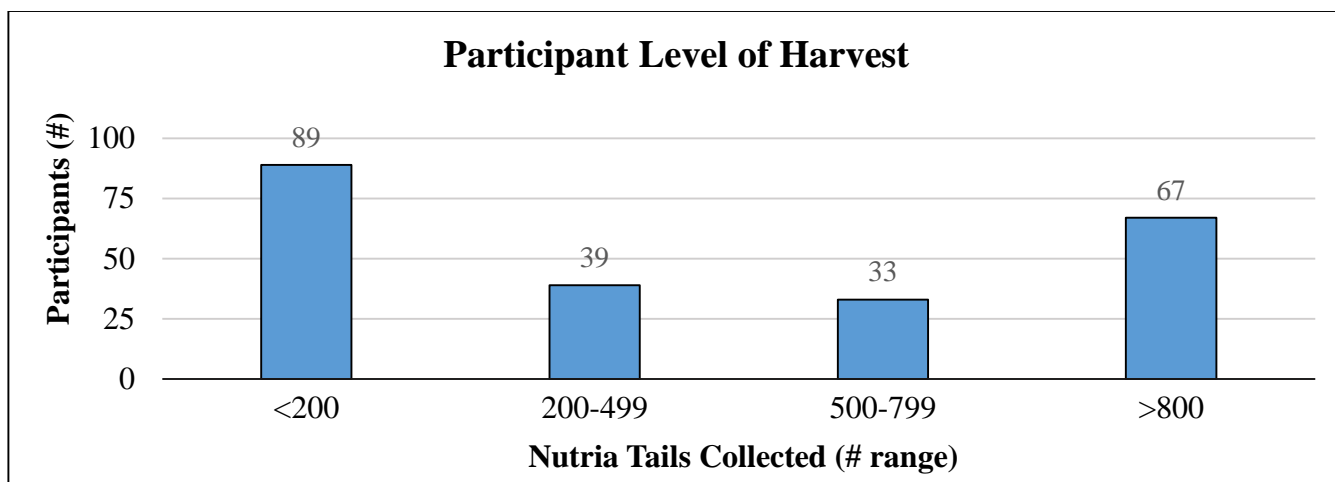


Figure 2A. Participant level of harvest for all 228 active participants.

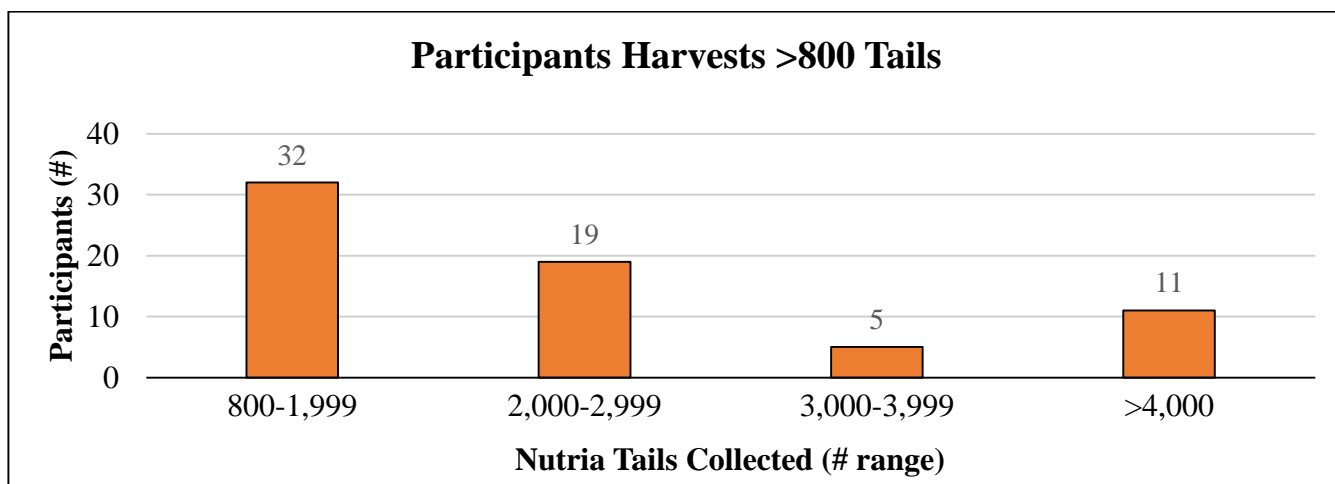


Figure 2B. Participant level of harvest for the 67 participants who harvested more than 800 tails.

Harvest by Month

The 2016-2017 trapping season began November 20th, 2016 and continued through March 31st, 2017. Seventy-eight thousand and eighty-seven (78,087) tails were collected in the month of February making it the most active month of the season (Figure 3.)

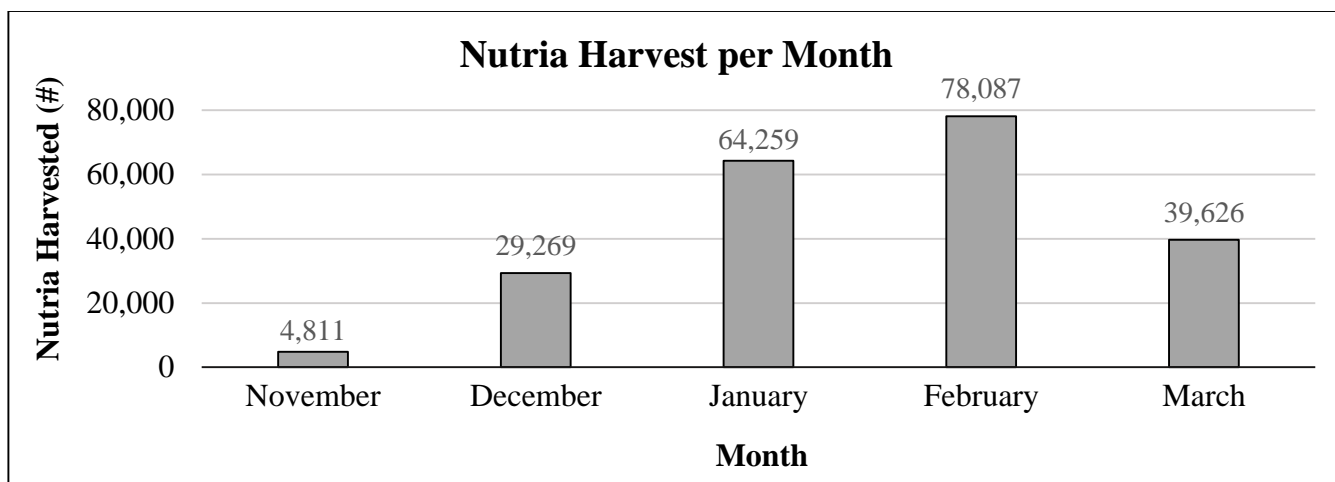


Figure 3. CNCP nutria harvest per month.

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 2016-2017 season, 37% of nutria were harvested from Fresh Marsh, followed by Swamp (21%), Brackish (18%), Intermediate (16%), Salt (5%), and Other (3%; Figure 4). In prior seasons, we have reported harvests for a category called Open Water, which were leases having more acres of open water than land acres. We eliminated Open Water this 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.

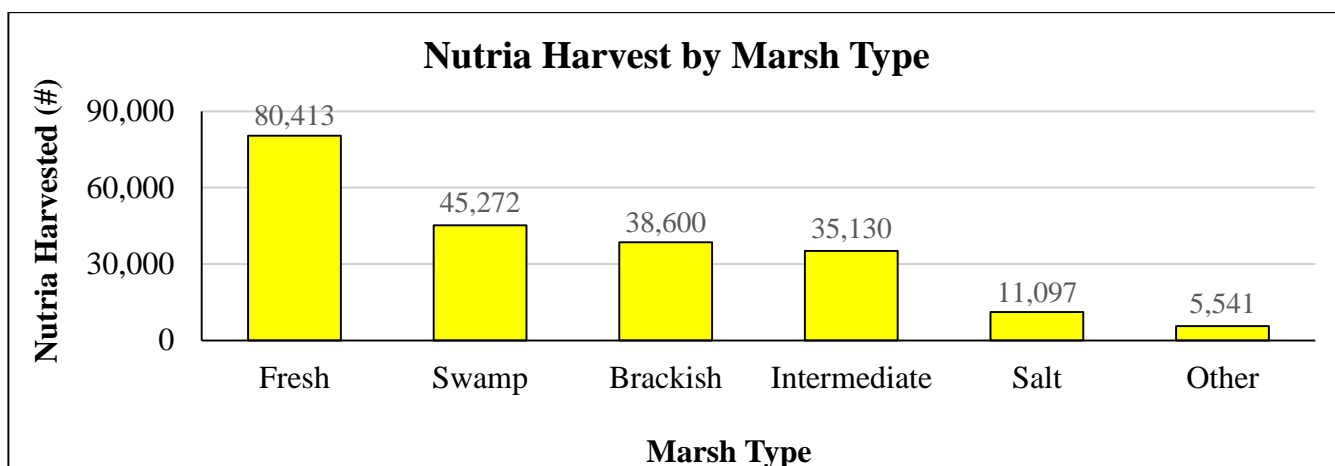


Figure 4. CNCP nutria harvest by marsh type.

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 2016-2017 season was shooting with a rifle (Figure 5.)

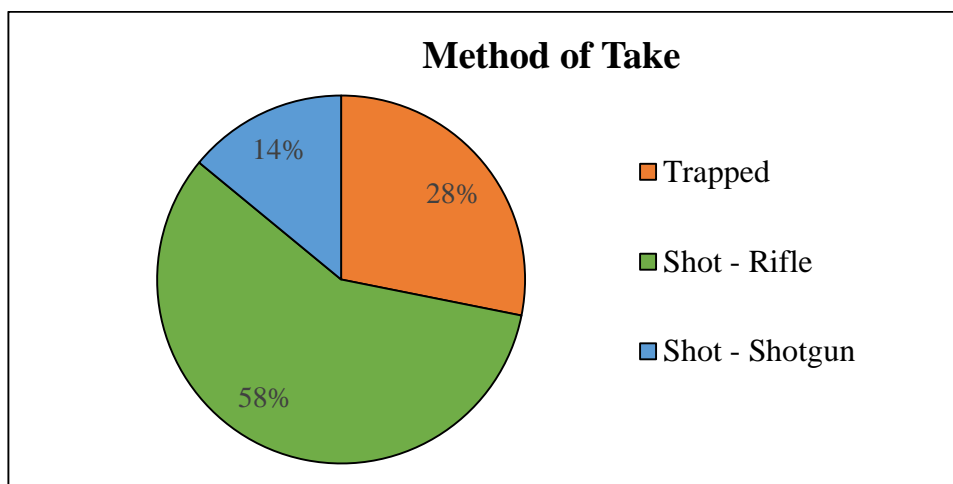


Figure 5. Method of take.

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

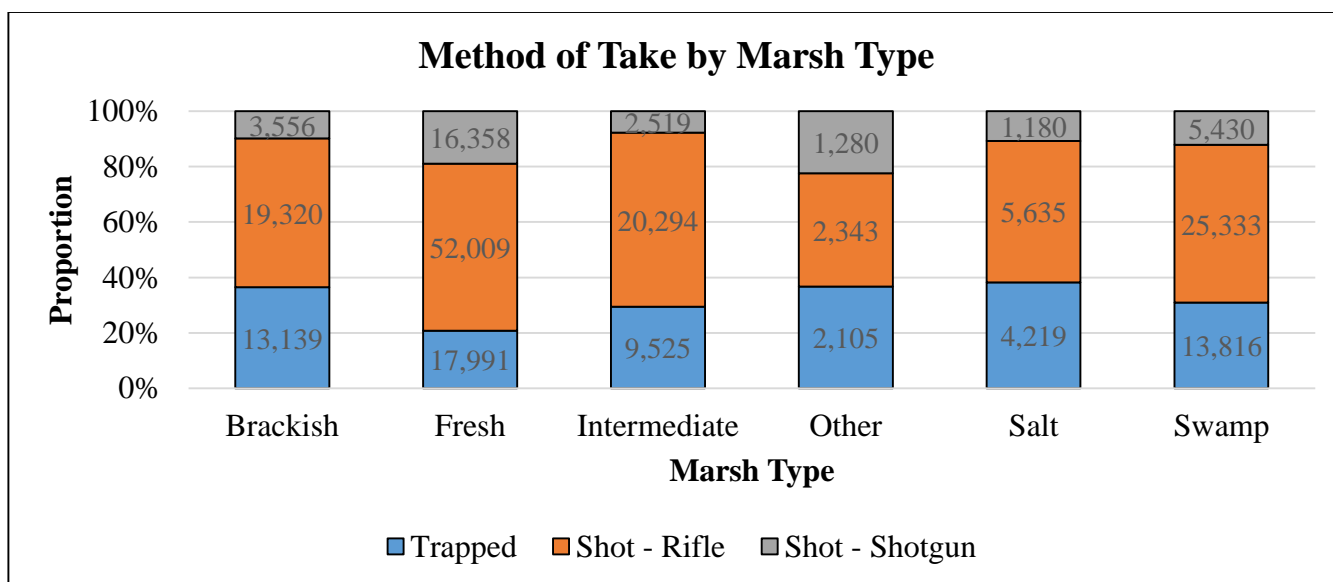


Figure 6. Method of take within each marsh type.

Carcass Use/Disposal

Use or method of disposal for nutria carcasses was recorded for each participant transaction. Overall, 3% of the nutria harvested were kept as whole carcass, which in the past has indicated they were used for meat and/or fur. However, there was a recording error and therefore we are unable to determine the number of carcasses used for meat and/or fur during the 2016-2017 season. If all 7,000 carcasses were used for meat and/or fur, then it was increased from 0.7% during the 2015-2016 season and 0.2% during the 2014-2015 season. The remaining 97% of nutria carcasses were disposed of by approved methods, which include burying carcasses, placing carcasses in heavy overhead vegetation, or leaving 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 | Meat | Fur | Abandoned - Buried | Abandoned - Vegetation | Abandoned - Waterway |
|--------------|---------------|----------|----------|--------------------|------------------------|----------------------|
| Brackish | 1,561 | 0 | 0 | 32,937 | 329 | 1,162 |
| Fresh | 2,343 | 0 | 0 | 73,896 | 2,711 | 7,088 |
| Intermediate | 788 | 0 | 0 | 25,754 | 885 | 4,843 |
| Other | 109 | 0 | 0 | 5,286 | 325 | 8 |
| Salt | 1,560 | 0 | 0 | 6,336 | 174 | 2,143 |
| Swamp | 639 | 0 | 0 | 40,777 | 2,969 | 174 |
| Total | 7,000 | 0 | 0 | 184,985 | 7,394 | 15,419 |

Table 1. CNCP nutria carcas use or disposal.

Harvest by Parish

Twenty parishes were represented in the 2016-2017 season of the CNCP, with nutria harvests ranging from 419 to 48,411 nutria. Terrebonne Parish reported the highest number of tails with 48,411 followed by Plaquemines and St. Mary Parishes with 33,684 and 32,102, respectively (Figure 7).

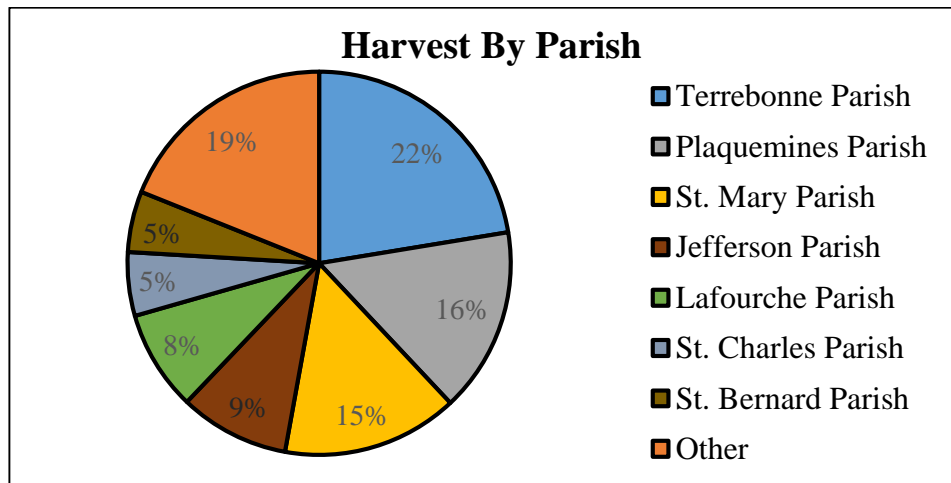


Figure 7. CNCP harvest by parish.

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 2017 coastwide nutria herbivory survey was conducted May 23th – June 8th. 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 16 sites of observed nutria herbivory damage included in the 2017 vegetative damage survey. Ten (10) of the damaged sites were old nutria damage observed in previous years' surveys and 1 site had recovered since 2016, but there were 6 sites identified as new damage (Figure 8.)

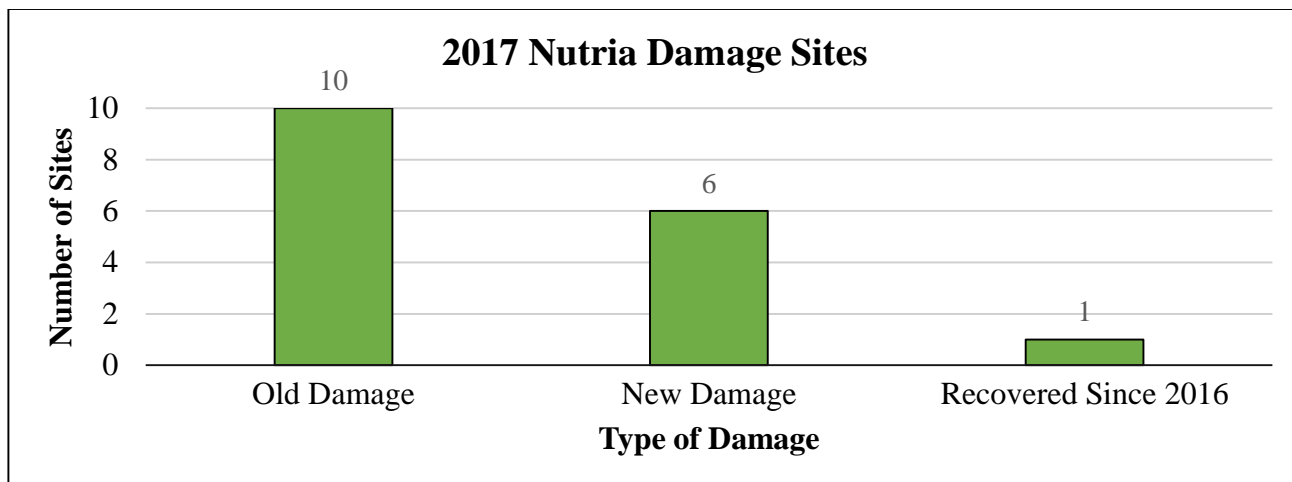


Figure 8. 2017 vegetation survey damage sites located along transect lines.

Nutria Damage

The following discussion details the 16 sites that had observable nutria damage during the 2017 survey (Appendix A). A total of 1,564 acres along transects, extrapolated to 5,866 acres coastwide were identified as impacted by nutria feeding activity. This represents approximately a 9.7% decrease in acres impacted by nutria since 2016 (1,732 acres, extrapolated 6,496 acres coastwide.) There were 5 damage sites documented during the 2015-2016 survey that have since partially converted to open water with a total of 76 observed acres converted (Tables 10A-10C).

Damage by Parish

Four (4) parishes were observed to have damage in 2017. Most of the observed damaged acres were in Terrebonne Parish (82%, 13 sites), followed by Jefferson Parish (11%, 1 site), St. Charles Parish (5%, 1 site), and Cameron Parish (2%, 1 site; Figure 9).

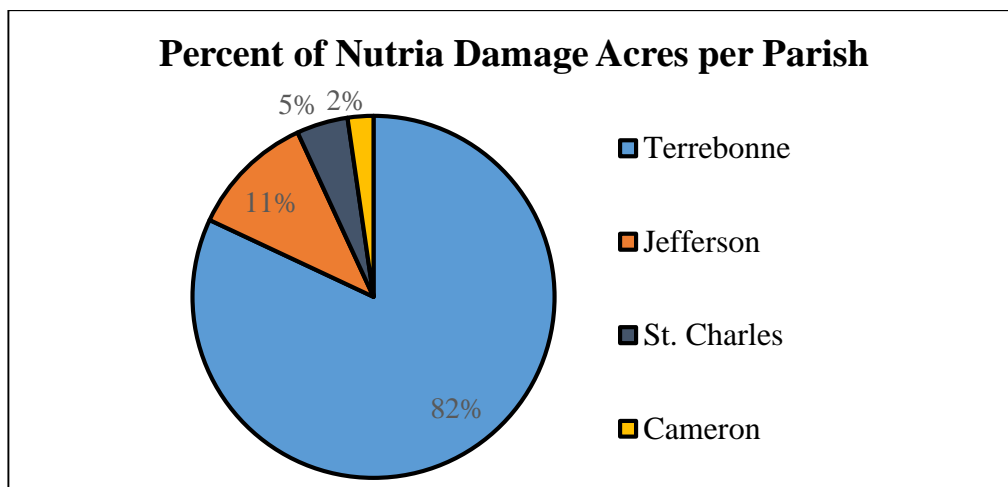


Figure 9. 2017 vegetation survey damaged acres by parish.

Damage by Marsh Type

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

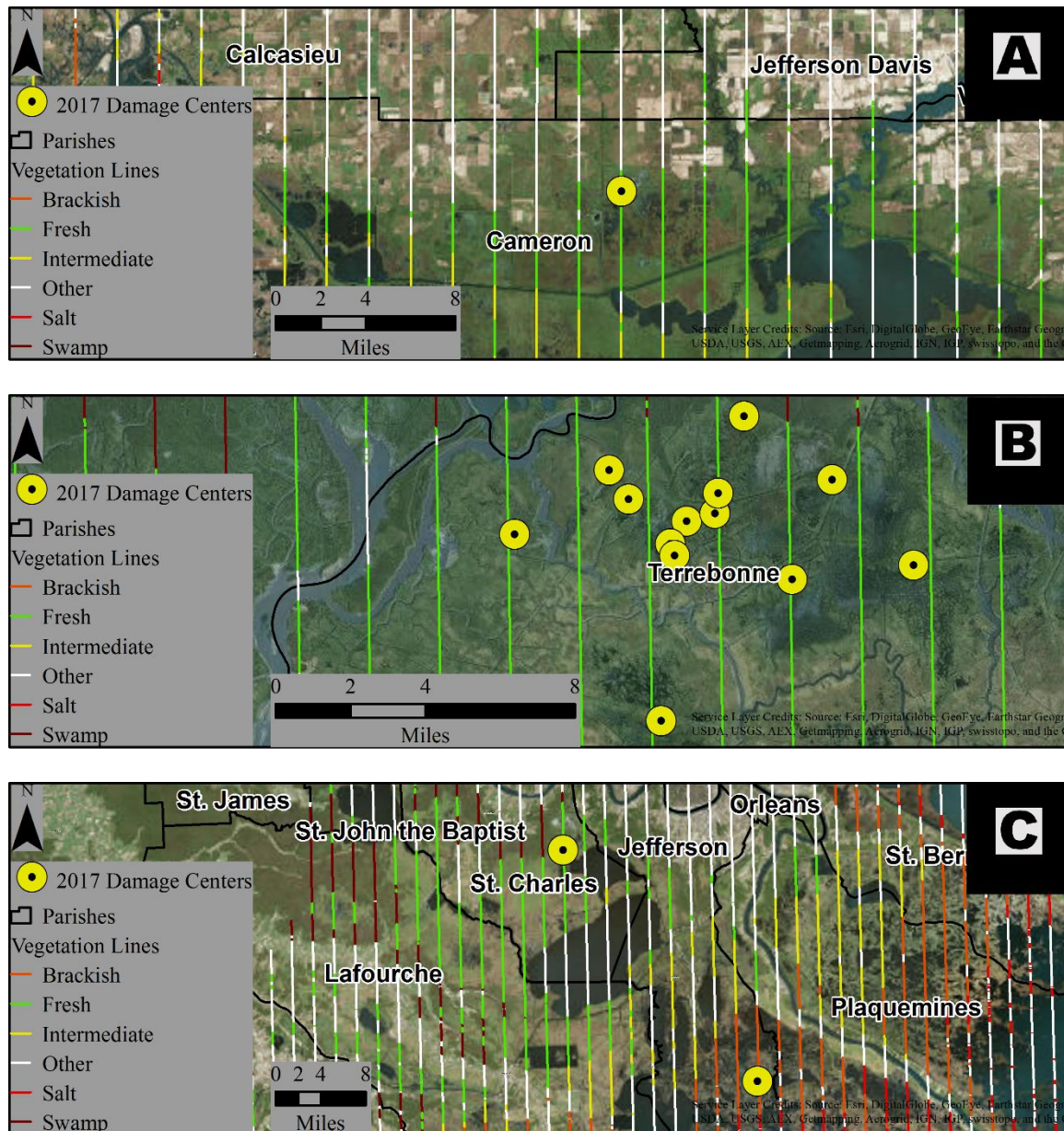


Figure 10. 2017 Vegetation survey damage centers. (A) 1 site in Cameron Parish (B) 13 sites in Terrebonne Parish (C) 1 site in each of St. Charles and Jefferson Parishes

Fresh marsh continued to be the most affected by nutria herbivory (89% of damaged acres) followed by brackish marsh (11% of damaged acres). The typical vegetation impacted in fresh marsh was *Eleocharis* spp., *Hydrocotyle* spp, and *Bidens laevis* and the predominant vegetation impacted in brackish marsh was *Spartina patens*.

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.)

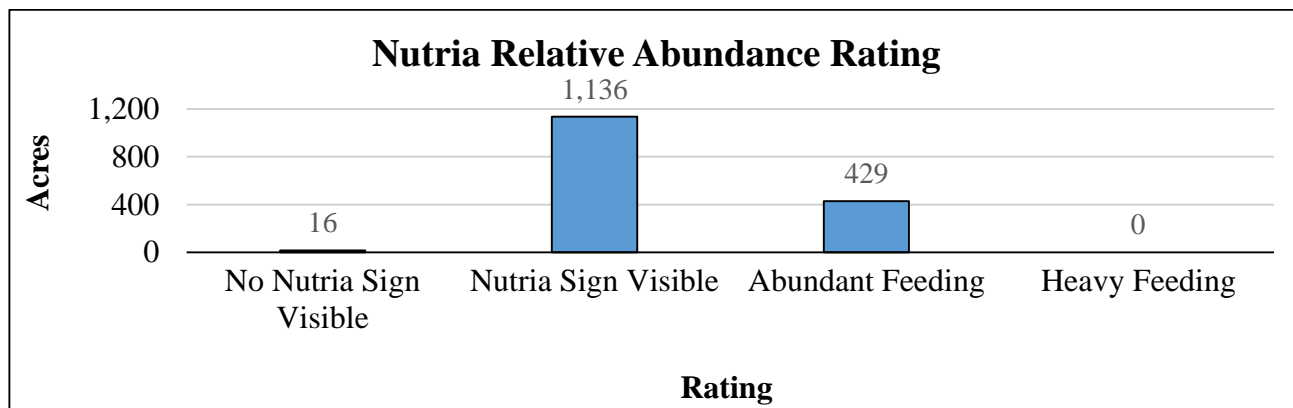


Figure 11. Nutria relative abundance ratings for 2017 nutria damaged sites. The 16 acres of No Nutria Sign Visible was Site 433 from 2016 that was completely recovered during the 2017 survey.

Vegetative Damage Rating

Vegetative damage was also evaluated at each site. A rating system was developed in order 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.)

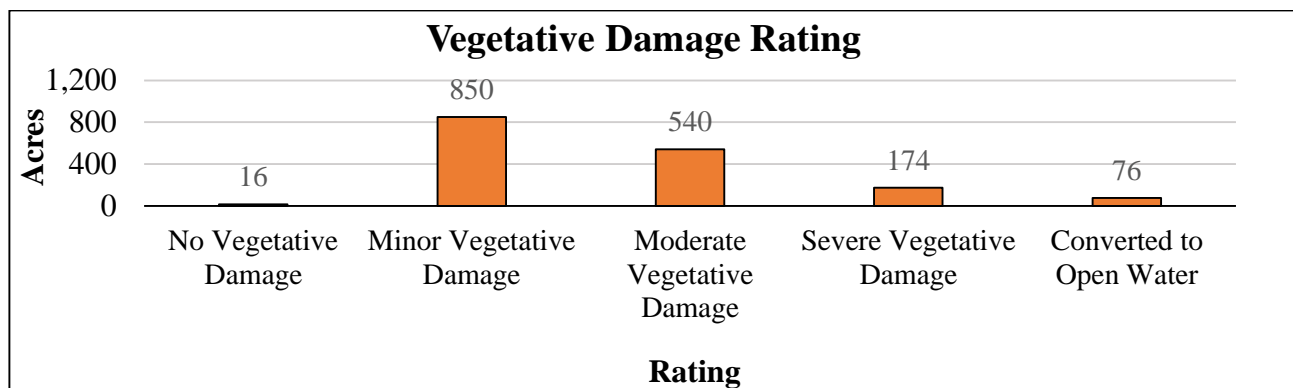


Figure 12. Vegetative damage ratings for 2017 nutria damaged sites. The 16 acres of No Vegetative Damage was Site 433 from 2016 that was completely recovered during the 2017 survey.

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.)

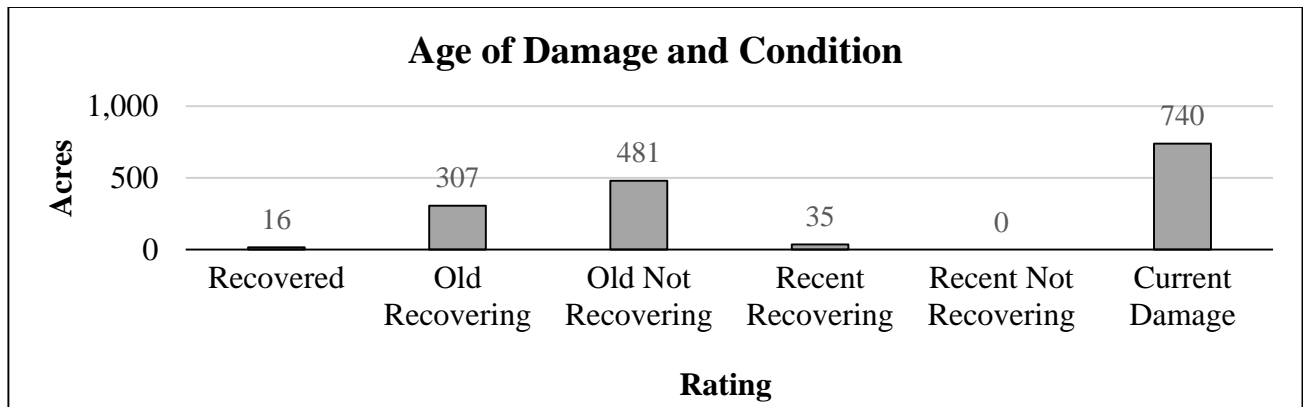


Figure 13. Age of damage and condition of 2017 nutria damaged sites.

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 predicated (Figure 14.)

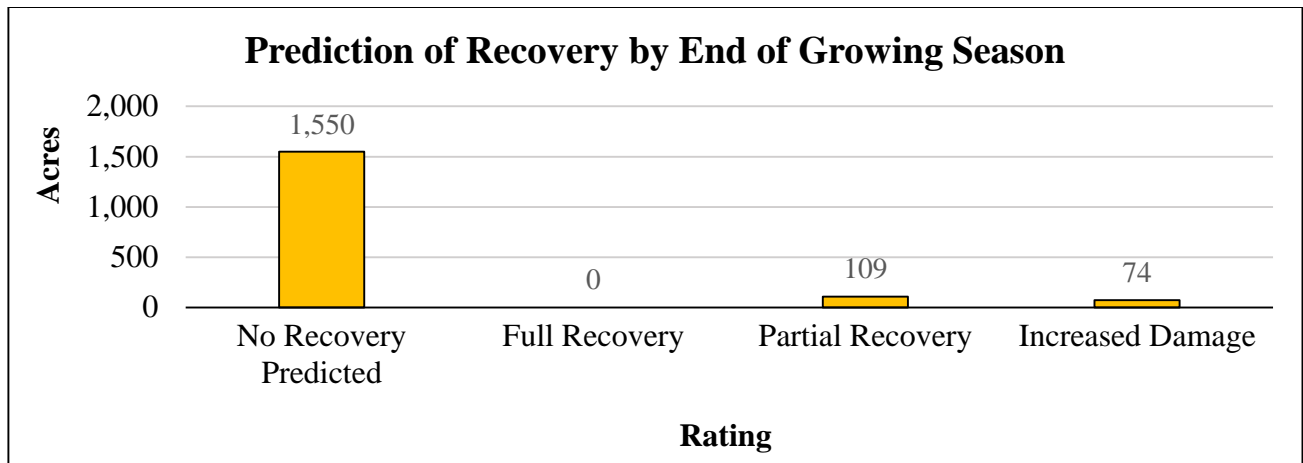


Figure 14. Prediction of recovery by the end of the growing season for the 2017 nutria damaged sites.

Conclusions

The 2017 vegetative damage survey yielded a total of 1,564 acres of nutria damage along transect lines. When extrapolated to the entire program area, an estimated 5,866 acres were impacted coastwide at the time of survey. When compared to the 2016 survey (1,732 acres or 6,496 acres extrapolated coastwide), there was approximately a 9.7% decrease 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, however the overall downward trend in damaged acres observed over the 15 seasons of the program is significant.

Section 3

Summary of Results (2002-2017) and Adaptive Management

Since implementation of the CNCP, the seasonal harvest of nutria has stabilized and the number of acres damaged by nutria herbivory as observed by aerial surveys has trended downwards (Figure 15.)

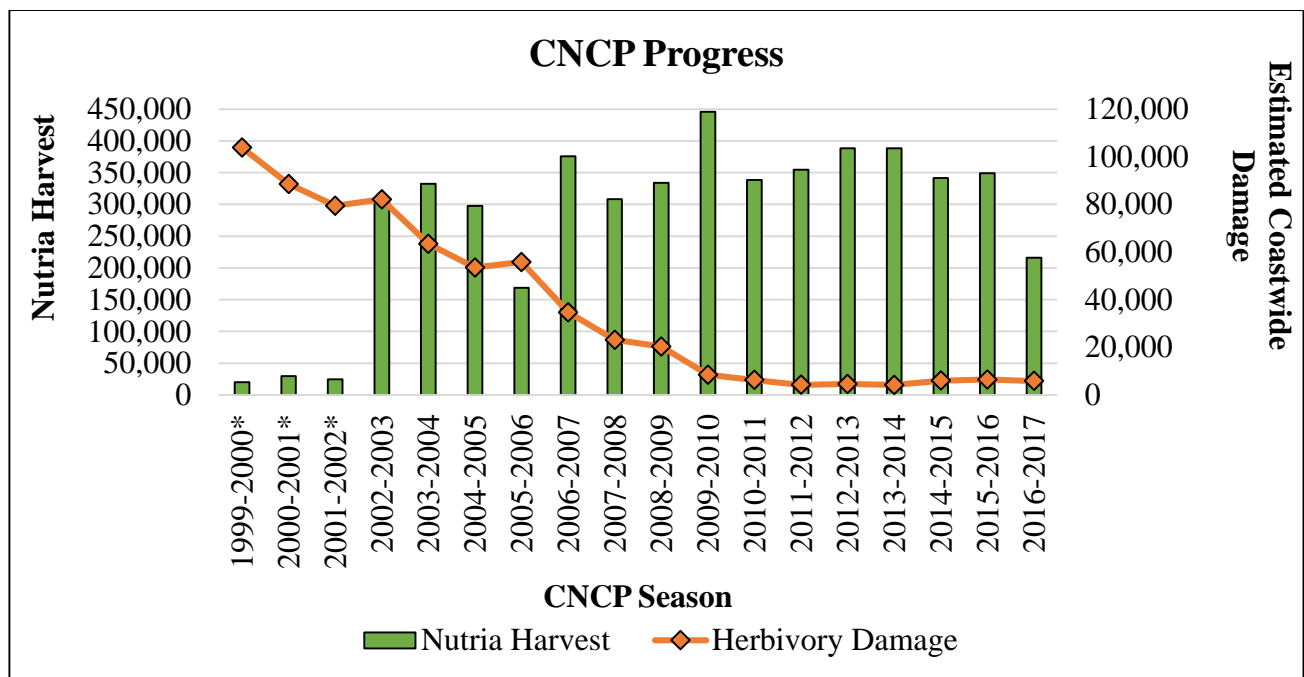


Figure 15. Nutria harvest and coastwide nutria herbivory damage.

* indicates years prior to implementation of the CNCP.

Three seasons prior to implementation of CNCP incentive payments.

| 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.

Fifteen seasons of CNCP incentive payment implementation.

| Harvest Season | Nutria Harvested | Year of Survey | Herbivory Damage (acres) |
|-----------------------|-------------------------|-----------------------|---------------------------------|
| 2002-2003 | 308,160 | 2003 | 82,080 |
| 2003-2004 | 332,396 | 2004 | 63,398 |
| 2004-2005 | 297,535 | 2005 | 53,475 |
| 2005-2006 | 168,843 | 2006 | 55,755 |
| 2006-2007 | 375,683 | 2007 | 34,665 |
| 2007-2008 | 308,212 | 2008 | 23,141 |
| 2008-2009 | 334,038 | 2009 | 20,333 |
| 2009-2010 | 445,963 | 2010 | 8,475 |
| 2010-2011 | 338,512 | 2011 | 6,296 |
| 2011-2012 | 354,354 | 2012 | 4,233 |
| 2012-2013 | 388,160 | 2013 | 4,624 |
| 2013-2014 | 388,264 | 2014 | 4,181 |
| 2014-2015 | 341,708 | 2015 | 6,008 |
| 2015-2016 | 349,235 | 2016 | 6,496 |
| 2016-2017 | 216,052 | 2017 | 5,866 |

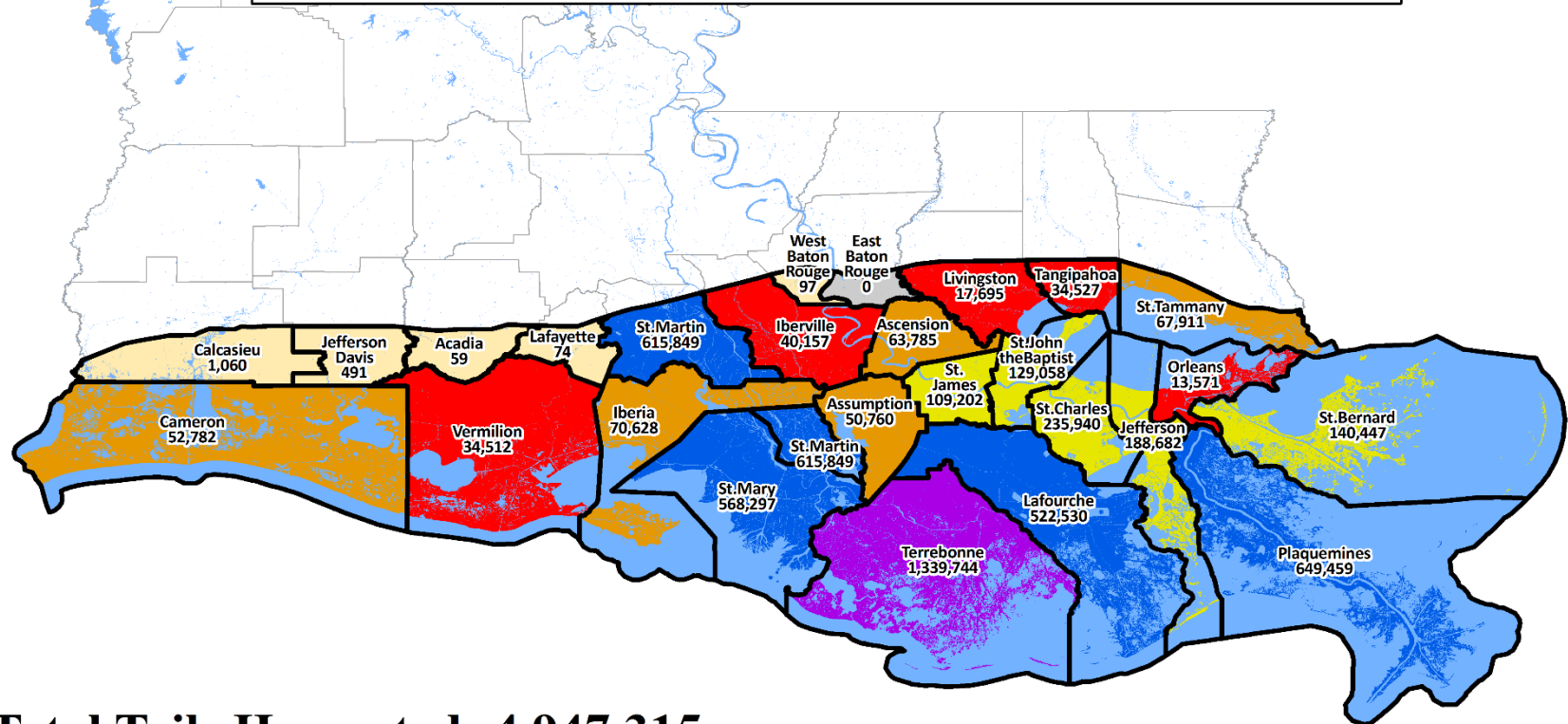
Table 3. Nutria harvest and herbivory throughout 15 seasons of the CNCP.

Since beginning the program in 2002-2003, nutria harvest in coastal Louisiana averages $329,821 \pm 65,558$ SD animals per season. In total, 4,947,315 nutria have been harvested from coastal Louisiana through 15 seasons of this program. Even though the CNCP 2016-2017 season ended with below average harvest (216,052) and, compared to the 2015-2016 season, an increase in the number of sites damaged by nutria herbivory (from 11 to 16), the number of acres impacted by damage decreased 9% (from 6,496 to 5,866).

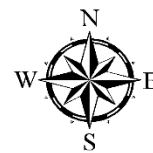
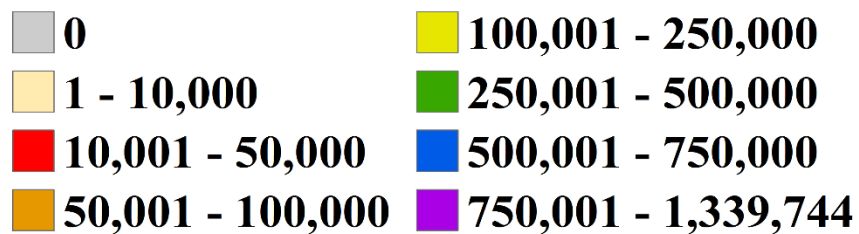
As in the past, CNCP applications will be sent to all participants who submitted applications over the last two years. LDWF will also continue the coordination with trappers and fur buyers/dealers to encourage the maximum use of the entire animal, and landowners will be encouraged to trap/hunt the existing damage sites.

Coastwide Nutria Control Program 2002-2017

Total Tails by Parish



Total Tails Harvested: 4,947,315



0 10 20 40 60 80 Miles

0 15 30 60 90 120 Kilometers

Figure 16. 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 %
 # of days trapped avg # of traps/day
☐ Shot, rifle %
☐ Shot, shotgun %
 # 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 17. Screenshot of the digital datasheet used by Coastal Environments Inc. during the tail collections.

Appendix A.
A Comparison of Seasons 1-15
(2002-2017)

| PARISH | 2002-2003 | | 2003-2004 | | 2004-2005 | | 2005-2006 | | 2006-2007 | |
|----------------------|------------------|------------|------------------|------------|------------------|------------|------------------|------------|------------------|------------|
| | Nutria Harvested | Percentage | Nutria Harvested | Percentage | Nutria Harvested | Percentage | Nutria Harvested | Percentage | Nutria Harvested | Percentage |
| Acadia | 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% |
| Assumption | 3,128 | 1.02% | 814 | 0.24% | 427 | 0.14% | 2,307 | 1.37% | 2,095 | 0.56% |
| Calcasieu | 143 | 0.05% | 374 | 0.11% | 447 | 0.15% | 58 | 0.03% | 19 | 0.01% |
| Cameron | 7,851 | 2.55% | 8,701 | 2.62% | 16,592 | 5.58% | 3,744 | 2.22% | 1,725 | 0.46% |
| East Baton Rouge | 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% |
| Iberville | 0 | - | 1,567 | 0.47% | 5,551 | 1.87% | 2,360 | 1.40% | 9,172 | 2.44% |
| Jefferson | 20,529 | 6.66% | 24,896 | 7.49% | 11,019 | 3.70% | 2,875 | 1.70% | 10,405 | 2.77% |
| Jefferson Davis | 121 | 0.04% | 85 | 0.03% | 175 | 0.06% | 110 | 0.07% | 0 | - |
| Lafayette | 39 | 0.01% | 25 | 0.01% | 10 | 0.00% | 0 | - | 0 | - |
| Lafourche | 28,852 | 9.36% | 51,736 | 15.56% | 32,362 | 10.88% | 24,668 | 14.61% | 28,038 | 7.46% |
| Livingston | 2,631 | 0.85% | 357 | 0.11% | 910 | 0.31% | 1,921 | 1.14% | 1,250 | 0.33% |
| Orleans | 597 | 0.19% | 0 | - | 537 | 0.18% | 0 | - | 575 | 0.15% |
| Plaquemines | 63,208 | 20.51% | 86,720 | 26.07% | 38,984 | 13.10% | 1,816 | 1.08% | 5,815 | 1.55% |
| St. Bernard | 5,769 | 1.87% | 13,344 | 4.01% | 4,337 | 1.46% | 0 | - | 291 | 0.08% |
| St. Charles | 11,169 | 3.62% | 12,672 | 3.81% | 15,843 | 5.32% | 13,807 | 8.18% | 18,690 | 4.97% |
| St. James | 95 | 0.03% | 487 | 0.15% | 2,837 | 0.95% | 4,912 | 2.91% | 7,111 | 1.89% |
| St. John the Baptist | 18,450 | 5.99% | 6,137 | 1.85% | 8,391 | 2.82% | 6,384 | 3.78% | 15,786 | 4.20% |
| St. Martin | 11,425 | 3.71% | 15,039 | 4.52% | 31,608 | 10.62% | 15,903 | 9.42% | 113,629 | 30.25% |
| St. Mary | 26,004 | 8.44% | 16,277 | 4.89% | 20,908 | 7.03% | 21,023 | 12.45% | 34,693 | 9.23% |
| St. Tammany | 4,638 | 1.51% | 3,756 | 1.13% | 5,167 | 1.74% | 1,423 | 0.84% | 2,067 | 0.55% |
| Tangipahoa | 1,245 | 0.40% | 745 | 0.22% | 564 | 0.19% | 826 | 0.49% | 1,843 | 0.49% |
| Terrebonne | 92,831 | 30.12% | 72,846 | 21.90% | 81,012 | 27.23% | 57,756 | 34.21% | 99,433 | 26.47% |
| Vermilion | 5,313 | 1.72% | 8,584 | 2.58% | 14,481 | 4.87% | 2,258 | 1.34% | 1,813 | 0.48% |
| West Baton Rouge | 0 | - | 0 | - | 0 | - | 0 | - | 97 | 0.03% |
| Total | 308,160 | 1 | 332,596 | 1 | 297,535 | 1 | 168,843 | 1 | 375,683 | 1 |

Table 4. Nutria harvested by parish seasons 1-15, Coastwide Nutria Control Program.

| PARISH | 2007-2008 | | 2008-2009 | | 2009-2010 | | 2010-2011 | | 2011-2012 | |
|----------------------|------------------|------------|------------------|------------|------------------|------------|------------------|------------|------------------|------------|
| | Nutria Harvested | Percentage | Nutria Harvested | Percentage | Nutria Harvested | Percentage | Nutria Harvested | Percentage | Nutria Harvested | Percentage |
| Acadia | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - |
| Ascension | 1,957 | 0.63% | 7,029 | 2.10% | 7,049 | 1.58% | 3,435 | 1.01% | 0 | - |
| Assumption | 3,863 | 1.25% | 1,093 | 0.33% | 2,930 | 0.66% | 3,244 | 0.96% | 3,582 | 1.01% |
| Calcasieu | 19 | 0.01% | 0 | - | 0 | - | 0 | - | 0 | - |
| Cameron | 649 | 0.21% | 1,245 | 0.37% | 1,177 | 0.26% | 1,076 | 0.32% | 413 | 0.12% |
| East Baton Rouge | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - |
| Iberia | 6,119 | 1.99% | 978 | 0.29% | 1,206 | 0.27% | 286 | 0.08% | 1,384 | 0.39% |
| Iberville | 2,105 | 0.68% | 231 | 0.07% | 6,065 | 1.36% | 886 | 0.26% | 1,688 | 0.48% |
| Jefferson | 11,299 | 3.67% | 12,515 | 3.75% | 11,506 | 2.58% | 5,945 | 1.76% | 6,178 | 1.74% |
| Jefferson Davis | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - |
| Lafayette | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - |
| Lafourche | 25,473 | 8.26% | 48,252 | 14.45% | 39,564 | 8.87% | 37,137 | 10.97% | 37,415 | 10.56% |
| Livingston | 695 | 0.23% | 444 | 0.13% | 2,186 | 0.49% | 738 | 0.22% | 0 | - |
| Orleans | 1,333 | 0.43% | 656 | 0.20% | 1,756 | 0.39% | 2,279 | 0.67% | 1,238 | 0.35% |
| Plaquemines | 41,072 | 13.33% | 42,212 | 12.64% | 69,294 | 15.54% | 80,241 | 23.70% | 71,879 | 20.28% |
| St. Bernard | 4,150 | 1.35% | 13,965 | 4.18% | 3,543 | 0.79% | 29,278 | 8.65% | 27,053 | 7.63% |
| St. Charles | 18,271 | 5.93% | 21,215 | 6.35% | 27,221 | 6.10% | 16,069 | 4.75% | 10,830 | 3.06% |
| St. James | 9,604 | 3.12% | 8,990 | 2.69% | 19,226 | 4.31% | 9,167 | 2.71% | 15,450 | 4.36% |
| St. John the Baptist | 6,728 | 2.18% | 10,189 | 3.05% | 6,642 | 1.49% | 9,447 | 2.79% | 2,678 | 0.76% |
| St. Martin | 54,726 | 17.76% | 44,972 | 13.46% | 63,619 | 14.27% | 23,551 | 6.96% | 36,562 | 10.32% |
| St. Mary | 34,210 | 11.10% | 34,811 | 10.42% | 67,631 | 15.17% | 43,533 | 12.86% | 45,859 | 12.94% |
| St. Tammany | 4,356 | 1.41% | 5,680 | 1.70% | 8,855 | 1.99% | 6,562 | 1.94% | 6,417 | 1.81% |
| Tangipahoa | 2,323 | 0.75% | 4,974 | 1.49% | 267 | 0.06% | 448 | 0.13% | 141 | 0.04% |
| Terrebonne | 78,934 | 25.61% | 74,587 | 22.33% | 106,226 | 23.82% | 65,190 | 19.26% | 85,587 | 24.15% |
| Vermilion | 326 | 0.11% | 0 | - | 0 | - | 0 | - | 0 | - |
| West Baton Rouge | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - |
| Total | 308,212 | 1 | 334,038 | 1 | 445,963 | 1 | 338,512 | 1 | 354,354 | 1 |

Table 4 (Continued). Nutria harvested by parish seasons 1-15, Coastwide Nutria Control Program.

| PARISH | 2012-2013 | | 2013-2014 | | 2014-2015 | | 2015-2016 | | 2016-2017 | |
|----------------------|------------------|------------|------------------|------------|------------------|------------|------------------|------------|------------------|------------|
| | Nutria Harvested | Percentage | Nutria Harvested | Percentage | Nutria Harvested | Percentage | Nutria Harvested | Percentage | Nutria Harvested | Percentage |
| Acadia | 59 | 0.02% | 0 | - | 0 | - | 0 | - | 0 | - |
| Ascension | 0 | - | 7,889 | 2.03% | 16,013 | 4.69% | 4,693 | 1.34% | 1,777 | 0.82% |
| Assumption | 6,302 | 1.62% | 7,904 | 2.04% | 7,603 | 2.22% | 3,096 | 0.89% | 2,372 | 1.10% |
| Calcasieu | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - |
| Cameron | 174 | 0.04% | 1,446 | 0.37% | 2,848 | 0.83% | 2,607 | 0.75% | 2,534 | 1.17% |
| East Baton Rouge | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - |
| Iberia | 5,360 | 1.38% | 12,157 | 3.13% | 7,296 | 2.14% | 4,516 | 1.29% | 2,514 | 1.16% |
| Iberville | 3,062 | 0.79% | 3,046 | 0.78% | 1,076 | 0.31% | 2,930 | 0.84% | 419 | 0.19% |
| Jefferson | 16,152 | 4.16% | 10,244 | 2.64% | 12,855 | 3.76% | 12,239 | 3.50% | 20,025 | 9.27% |
| Jefferson Davis | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - |
| Lafayette | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - |
| Lafourche | 47,723 | 12.29% | 42,061 | 10.83% | 29,190 | 8.54% | 31,810 | 9.11% | 18,249 | 8.45% |
| Livingston | 0 | - | 3,405 | 0.88% | 1,279 | 0.37% | 0 | 0.00% | 1,879 | 0.87% |
| Orleans | 1,006 | 0.26% | 929 | 0.24% | 485 | 0.14% | 1,103 | 0.32% | 1,077 | 0.50% |
| Plaquemines | 22,171 | 5.71% | 21,808 | 5.62% | 23,883 | 6.99% | 46,672 | 13.36% | 33,684 | 15.59% |
| St. Bernard | 4,073 | 1.05% | 5,201 | 1.34% | 5,410 | 1.58% | 12,939 | 3.70% | 11,094 | 5.13% |
| St. Charles | 14,347 | 3.70% | 14,164 | 3.65% | 16,355 | 4.79% | 13,685 | 3.92% | 11,602 | 5.37% |
| St. James | 14,455 | 3.72% | 5,443 | 1.40% | 769 | 0.23% | 7,651 | 2.19% | 3,005 | 1.39% |
| St. John the Baptist | 6,832 | 1.76% | 3,237 | 0.83% | 3,394 | 0.99% | 18,412 | 5.27% | 6,351 | 2.94% |
| St. Martin | 40,356 | 10.40% | 54,027 | 13.92% | 50,392 | 14.75% | 50,202 | 14.37% | 9,838 | 4.55% |
| St. Mary | 64,386 | 16.59% | 58,229 | 15.00% | 40,045 | 11.72% | 28,585 | 8.19% | 32,102 | 14.86% |
| St. Tammany | 1,217 | 0.31% | 1,485 | 0.38% | 1,481 | 0.43% | 9,562 | 2.74% | 5,244 | 2.43% |
| Tangipahoa | 1,864 | 0.48% | 4,637 | 1.19% | 6,758 | 1.98% | 4,894 | 1.40% | 2,998 | 1.39% |
| Terrebonne | 138,305 | 35.63% | 130,952 | 33.73% | 114,373 | 33.47% | 93,301 | 26.72% | 48,411 | 22.41% |
| Vermilion | 316 | 0.08% | 0 | - | 203 | 0.06% | 341 | 0.10% | 877 | 0.41% |
| West Baton Rouge | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - |
| Total | 388,160 | 1 | 388,264 | 1 | 341,708 | 1 | 349,235 | 1 | 216,052 | 1 |

Table 4 (Continued). Nutria harvested by parish seasons 1-15, 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 |
| Total | 103,550 | 195,199 | 9,411 | 158,675 | 166,618 | 7,303 | 114,668 | 159,810 | 23,057 | 65,204 | 80,962 | 22,677 |

Table 5. Method of take by parish for seasons 1-15, 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 |
| Total | 137,114 | 164,124 | 74,445 | 130,329 | 149,735 | 28,148 | 142,354 | 172,532 | 19,152 | 173,455 | 252,373 | 20,135 |

Table 5 (continued). Method of take by parish for seasons 1-15, 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 |
| Total | 103,129 | 221,819 | 13,564 | 116,061 | 219,232 | 19,061 | 115,866 | 229,338 | 42,956 | 104,588 | 261,951 | 21,725 |

Table 5 (continued). Method of take by parish for seasons 1-15, Coastwide Nutria Control Program. Totals may not be exact due to reporting of percentages.

| PARISH | 2014-2015 | | | 2015-2016 | | | 2016-2017 | | |
|----------------------|---------------|----------------|---------------|---------------|----------------|---------------|---------------|----------------|---------------|
| | Trap | Rifle | Shotgun | Trap | Rifle | Shotgun | Trap | Rifle | Shotgun |
| Acadia | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ascension | 551 | 15,259 | 202 | 257 | 4,226 | 209 | 159 | 1,505 | 112 |
| Assumption | 1,088 | 5,555 | 959 | 1,263 | 1,117 | 716 | 41 | 1,996 | 335 |
| Calcasieu | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cameron | 2,848 | 0 | 0 | 2,607 | 0 | 0 | 2,310 | 224 | 0 |
| Iberia | 3,464 | 3,148 | 684 | 1,321 | 2,854 | 341 | 60 | 1,394 | 1,060 |
| Iberville | 229 | 809 | 39 | 0 | 2,420 | 510 | 63 | 136 | 220 |
| Jefferson | 2,913 | 9,481 | 462 | 3,228 | 8,590 | 421 | 5,188 | 11,403 | 3,435 |
| Jefferson Davis | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lafayette | 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 |
| Livingston | 0 | 1,279 | 0 | 0 | 0 | 0 | 192 | 1,587 | 99 |
| Orleans | 485 | 0 | 0 | 1,045 | 58 | 0 | 1,077 | 0 | 0 |
| Plaquemines | 6,570 | 17,193 | 120 | 12,362 | 33,110 | 1,200 | 6,052 | 25,136 | 2,496 |
| St. Bernard | 4,346 | 1,064 | 0 | 7,828 | 4,995 | 116 | 7,028 | 3,892 | 175 |
| St. Charles | 3,592 | 12,659 | 104 | 2,682 | 9,047 | 1,956 | 4,772 | 6,205 | 626 |
| St. James | 133 | 635 | 0 | 790 | 6,059 | 802 | 264 | 2,550 | 191 |
| St. John the Baptist | 1,055 | 2,226 | 113 | 3,794 | 13,511 | 1,107 | 1,043 | 5,280 | 28 |
| St. Martin | 20,118 | 25,891 | 4,384 | 23,973 | 22,706 | 3,523 | 5,562 | 2,002 | 2,274 |
| St. Mary | 6,003 | 29,024 | 5,019 | 1,363 | 24,494 | 2,729 | 6,029 | 20,622 | 5,450 |
| St. Tammany | 1,282 | 69 | 131 | 726 | 8,229 | 607 | 1,142 | 1,092 | 3,010 |
| Tangipahoa | 28 | 6,731 | 0 | 23 | 4,870 | 0 | 784 | 2,185 | 29 |
| Terrebonne | 36,381 | 65,519 | 12,471 | 21,032 | 57,978 | 14,291 | 12,517 | 25,830 | 10,064 |
| Vermilion | 101 | 101 | 0 | 73 | 268 | 0 | 159 | 718 | 0 |
| West Baton Rouge | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 98,924 | 218,096 | 24,688 | 92,186 | 228,316 | 28,733 | 60,794 | 124,934 | 30,324 |

Table 5 (continued). Method of take by parish for seasons 1-15, 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 ¹ | 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 ² |
| 2008 | 23 | 16 | 1 (partial site) | 6 |
| 2009 | 24 | 19 | 1 (partial site) | 5 ² |
| 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 |

Table 6. Status and number of nutria herbivory sites surveyed from 2002 to 2017.

¹ Two sites could not be evaluated due to high water.

² Total includes 1 site with partial recovery.

| 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 |
| Total | 94 | 21,185¹ | 84 | 21,888¹ | 69 | 16,906¹ | 49 | 14,260¹ | 40 | 14,868^{1,2} |

Table 7. Number of nutria damaged sites and acres damaged along transects by parish in coastal Louisiana, 2002 - 2017.

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

²This 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.

³These 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 ³ | 2 | 69 | 1 | 29 | 0 | 0 | 0 | 0 |
| Plaquemines | 0 | 0 | 1 | 11 | 1 | 9 | 0 | 0 | 0 | 0 |
| St. Charles | 4 | 2,216 ³ | 5 ³ | 2,215 ³ | 4 | 1,895 | 0 | 0 | 0 | 0 |
| Cameron | 1 | 167 | 0 | 0 | 1 | 120 | 0 | 0 | 0 | 0 |
| St. Bernard | 1 | 225 ³ | 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 |
| Total | 25 | 9,244^{1,3} | 23 | 6,471^{1,3} | 19 | 5,422¹ | 11 | 2,260¹ | 10 | 1,679¹ |

Table 7 (Continued). Number of nutria damaged sites and acres damaged along transects by parish in coastal Louisiana, 2002 - 2017.

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

²This 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.

³These 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 |
| Total | 11 | 1,129¹ | 12 | 1,233¹ | 11 | 1,115¹ | 11 | 1,602¹ | 11 | 1,732¹ |

Table 7 (Continued). Number of nutria damaged sites and acres damaged along transects by parish in coastal Louisiana, 2002 - 2017.

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

²This 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.

³These figures include acres from sites that were partially converted to open water.

| PARISH | 2017 | |
|----------------------|-----------|--------------------|
| | NUMBER OF | |
| | SITES | ACRES |
| Terrebonne | 13 | 1,283 |
| Lafourche | 0 | 0 |
| Jefferson | 1 | 174 |
| Plaquemines | 0 | 0 |
| St. Charles | 1 | 72 |
| Cameron | 1 | 35 |
| St. Bernard | 0 | 0 |
| St. John | 0 | 0 |
| Iberia | 0 | 0 |
| St. Tammany | 0 | 0 |
| Orleans | 0 | 0 |
| St. Mary | 0 | 0 |
| Vermilion | 0 | 0 |
| Jefferson Davis | 0 | 0 |
| St. John the Baptist | 0 | 0 |
| Total | 16 | 1,564 ¹ |

Table 7 (Continued). Number of nutria damaged sites and acres damaged along transects by parish in coastal Louisiana, 2002 - 2017.

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

²This 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.

³These 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 |
| Total | 94 | 21,185 | 84 | 21,888 | 69 | 16,906 | 49 | 14,260 | 40 | 14,868 | 251 | 92,441 |

Table 8A. Number of nutria damaged sites and acres damaged, by marsh type along transects in coastal Louisiana during 2002 to 2017; numbers include sites converted to open water. Continued through Tables 8A-8C.

¹ 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 |
| Total | 23 | 6,471¹ | 19 | 5,422 | 11 | 2,260 | 10 | 1,679 | 11 | 1,129 | 12 | 1,233 |

Table 8B.

| MARSH TYPE | 2014 | | 2015 | | 2016 | | 2017 | |
|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|
| | NUMBER OF | | NUMBER OF | | NUMBER OF | | NUMBER OF | |
| | SITES | ACRES | SITES | ACRES | SITES | ACRES | SITES | ACRES |
| Fresh | 11 | 1,115 | 11 | 1,602 | 11 | 1,716 | 15 | 1,390 |
| Intermediate | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Brackish | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 174 |
| Total | 11 | 1,115 | 11 | 1,602 | 11 | 1,716 | 16 | 1,564 |

Table 8C.

| 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 |
| Total | 86 | 20,135 | 81 | 21,815 | 69 | 16,886 | 47 | 14,126 | 31 | 12,315 | 23 | 8,628 |

Table 9A. Number of nutria damage sites and acres damaged by revised nutria relative abundance rating in coastal Louisiana during 2002 to 2017; 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 |
| Total | 23 | 6,171 | 19 | 5,422 | 11 | 2,260 | 10 | 1,679 | 11 | 1,129 | 12 | 1,233 |

Table 9B.

| NUTRIA RELATIVE ABUNDANCE RATING | 2014 | | 2015 | | 2016 | | 2017 | |
|---|-----------|--------------|-----------|--------------|-------------|--------------|-------------|--------------|
| | NUMBER OF | | NUMBER OF | | NUMBER OF | | NUMBER OF | |
| | SITES | ACRES | SITES | ACRES | SITES | ACRES | SITES | ACRES |
| No nutria sign visible | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nutria sign visible | 2 | 22 | 3 | 59 | 7 | 581 | 14 | 1,136 |
| Abundant feeding | 9 | 1,093 | 7 | 741 | 6 | 1,077 | 3 | 429 |
| Heavy feeding | 0 | 0 | 1 | 802 | 1 | 74 | 0 | 0 |
| Total | 11 | 1,115 | 11 | 1,602 | 3193 | 1,732 | 3193 | 1,564 |

Table 9C.

| 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 ¹ | 616 ¹ |
| TOTAL | 94 | 21,185 | 84 | 21,888 | 69 | 16,906 | 49 | 14,260 | 40 | 14,868 | 26¹ | 9,244¹ |

Table 10A. Number of nutria damage sites and number of acres by the vegetative damage rating in coastal Louisiana 2002 to 2017. Continued through Tables 10A-10C.

¹ 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 ¹ | 300 ¹ | 1 ¹ | 90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 24¹ | 6,471¹ | 20¹ | 5,512 | 11 | 2,260 | 10 | 1,679 | 11 | 1,129 | 12 | 1,233 |

Table 10B.

| VEGETATIVE DAMAGE RATING | 2014 | | 2015 | | 2016 | | 2017 | |
|----------------------------|-----------|--------------|-----------|--------------|-----------------------|--------------------------|-----------------------|--------------------------|
| | NUMBER OF | | NUMBER OF | | NUMBER OF | | NUMBER OF | |
| | SITES | ACRES | SITES | ACRES | SITES | ACRES | SITES | ACRES |
| No vegetative damage | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| Minor vegetative damage | 8 | 898 | 9 | 772 | 2 | 39.93 | 10 ¹ | 850 ¹ |
| Moderate vegetative damage | 3 | 217 | 2 | 830 | 6 ¹ | 558 ¹ | 5 ¹ | 540 ¹ |
| Severe vegetative damage | 0 | 0 | 0 | 0 | 3 | 1134 | 1 | 174 |
| Converted to open water | 0 | 0 | 0 | 0 | 4 ¹ | 125 ¹ | 5 ¹ | 76 ¹ |
| TOTAL | 11 | 1,115 | 11 | 1,602 | 15¹ | 1,857¹ | 16¹ | 1,656¹ |

Table 10C.

| 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 ¹ | 1,341 ¹ | 11 ¹ | 1,783 ¹ |
| 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 |
| Total | 98 | 21,254 | 97 | 23,489 | 92 | 22,935 | 76 | 18,295 | 44¹ | 136,56¹ | 34¹ | 104,11¹ |

Table 11A. Number of nutria damage sites by age of damage and condition rating in coastal Louisiana in 2002 to 2016. Continued through Tables 11A-11C.

¹ 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 ¹ | 673 ¹ | 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 |
| Total | 29 | 6,907 | 23¹ | 60,95¹ | 20 | 4,174 | 11 | 1,741 | 12¹ | 1,165¹ | 14¹ | 1,329¹ |

Table 11B.

| AGE OF DAMAGE AND CONDITON RATING | 2014 | | 2015 | | 2016 | | 2017 | |
|---|-----------------------|--------------------------|-----------------------|--------------------------|-----------------------|--------------------------|-----------------------|--------------------------|
| | NUMBER OF | | NUMBER OF | | NUMBER OF | | NUMBER OF | |
| | SITES | ACRES | SITES | ACRES | SITES | ACRES | SITES | ACRES |
| Recovered | 2 | 34 | 1 | 23 | 0 | 0 | 1 | 16 |
| Old Recovering | 7 | 259 | 3 | 60 | 3 | 109 | 4 | 307 |
| Old Not Recovering | 3 | 833 | 7 | 1,481 | 8 | 1,624 | 6 | 481 |
| Recent Recovering | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 35 |
| Recent Not Recovering | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Current Damage | 1 | 23 | 1 | 61 | 0 | 0 | 5 | 740 |
| Total | 13¹ | 1,149¹ | 12¹ | 1,625¹ | 11¹ | 1,732¹ | 17¹ | 1,580¹ |

Table 11C.

| 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 |
| TOTAL | 94 | 21,185 | 84 | 21,888 | 69 | 16,906 | 49 | 14,260 | 31 | 12,315 | 23 | 8,628 |

Table 12A. Number of nutria damage sites and acres damaged, by prediction of recovery rating in coastal Louisiana in 2002 to 2017.
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 |
| TOTAL | 23 | 6,171 | 19 | 5,422 | 11 | 2,260 | 10 | 1,679 | 11 | 1,129 | 12 | 1,233 |

Table 12B.

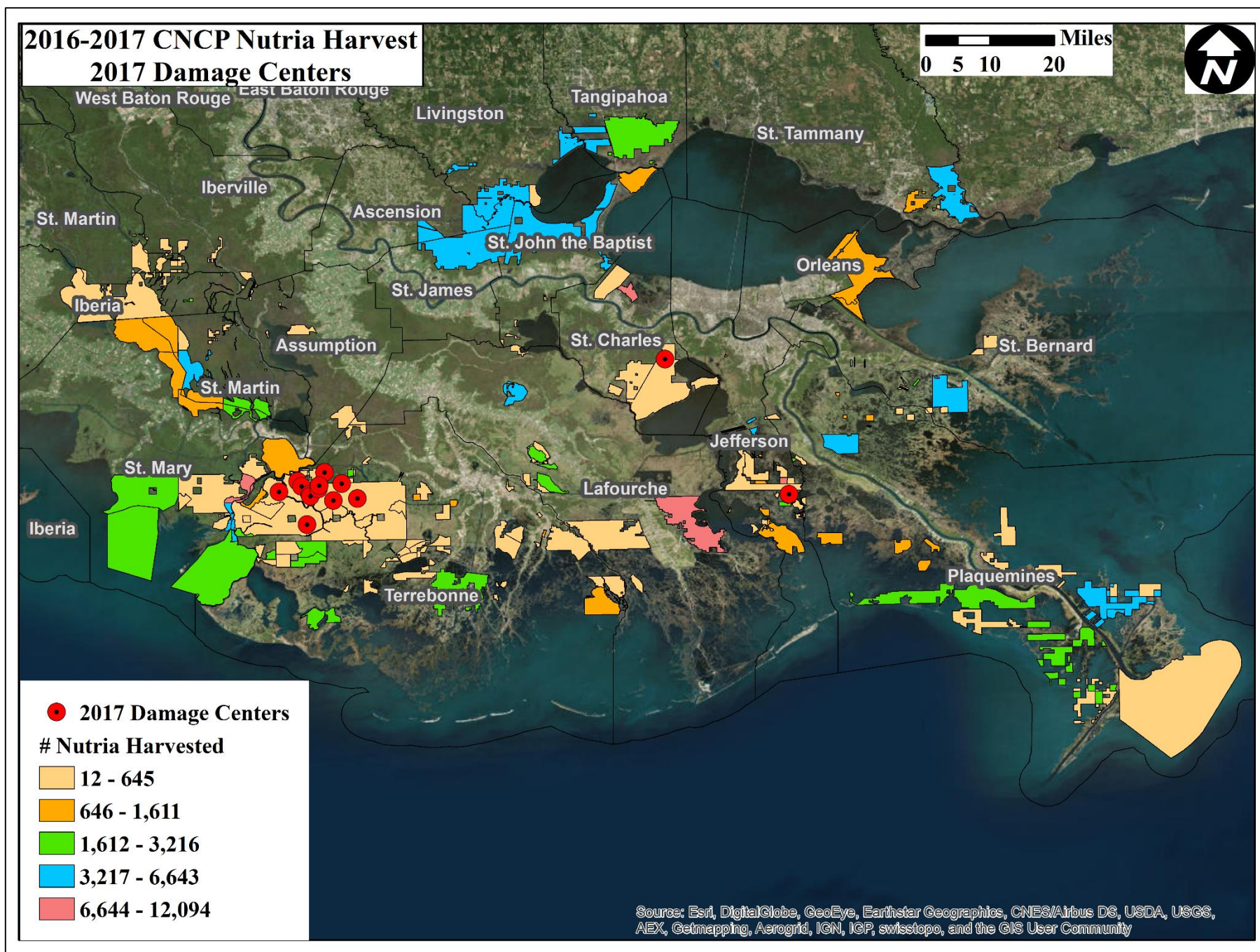
| PREDICTION OF RECOVERY BY END OF GROWING SEASON | 2014 | | 2015 | | 2016 | | 2017 | |
|--|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|
| | NUMBER OF | | NUMBER OF | | NUMBER OF | | NUMBER OF | |
| | SITES | ACRES | SITES | ACRES | SITES | ACRES | SITES | ACRES |
| Full Recovery | 0 | 0 | 1 | 16 | 7 | 1,550 | 3 | 107 |
| Partial Recovery | 2 | 22 | 3 | 61 | 0 | 0 | 1 | 122 |
| Increased Damage | 9 | 1,093 | 7 | 1,525 | 3 | 109 | 1 | 159 |
| No Recovery Predicated | 0 | 0 | 0 | 0 | 1 | 74 | 12 | 1,176 |
| TOTAL | 11 | 1,115 | 11 | 1,602 | 11 | 1,732 | 17 | 1,564 |

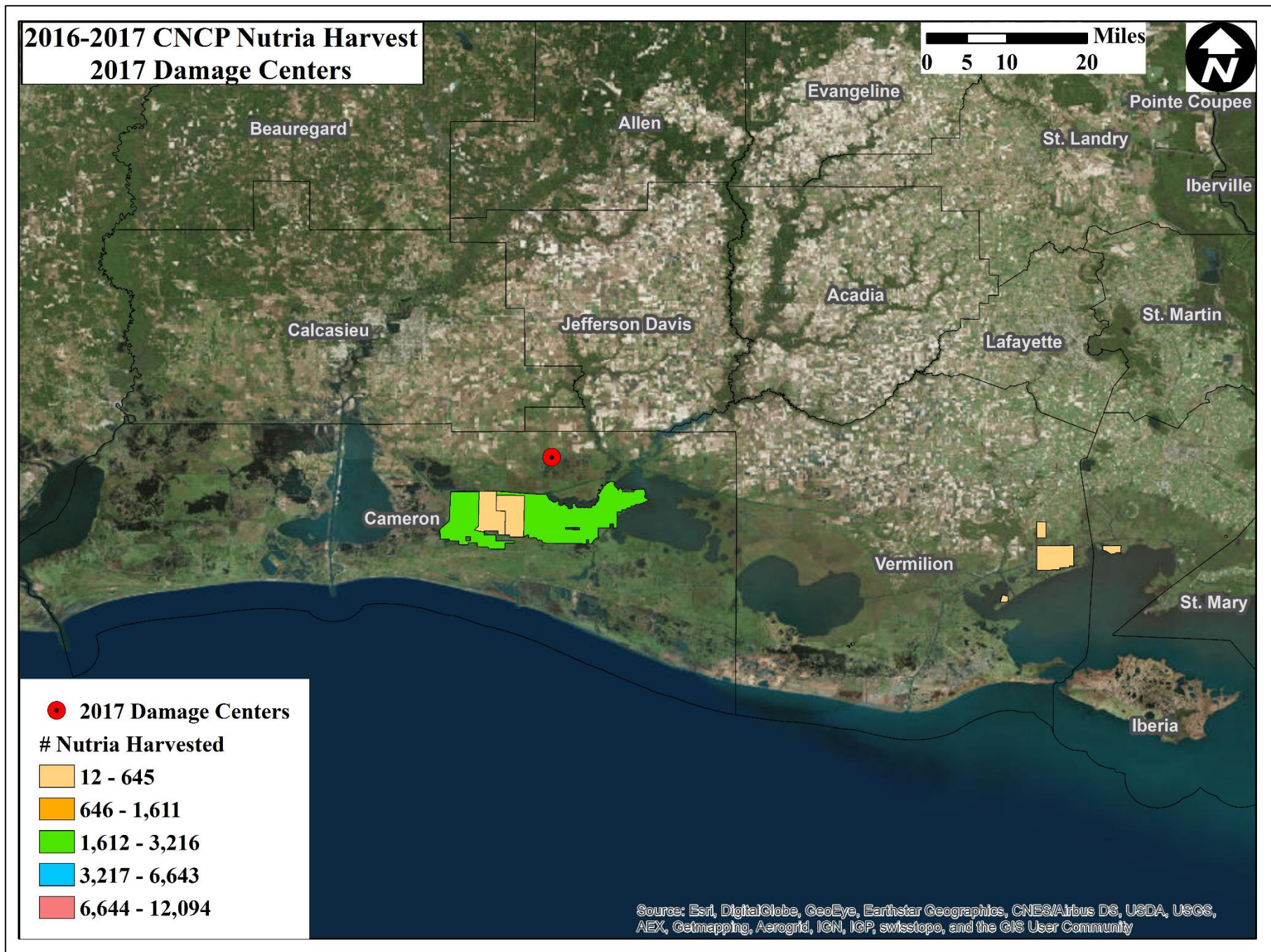
Table 12C.

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 | -91.17 | Nutria | | 23.96 | 0.0 | 1 | 1 | 1 | 2 |
| 9 | Fresh | 29.59 | -91.12 | Nutria | | 20.73 | 5.1 | 1 | 2 | 2 | 0 |
| 17 | Fresh | 29.55 | -91.04 | Nutria | | 235.76 | 0.0 | 1 | 2 | 2 | 0 |
| 120 | Fresh | 29.61 | -91.06 | Nutria | Hog | 897.11 | 0.0 | 2 | 3 | 2 | 0 |
| 274 | Fresh | 29.57 | -91.09 | Nutria | | 73.63 | 81.2 | 3 | 3 | 2 | 3 |
| 400 | Fresh | 29.58 | -91.11 | Nutria | | 163.72 | 38.3 | 2 | 3 | 2 | 0 |
| 418 | Fresh | 29.58 | -91.02 | Nutria | | 18.40 | 0.0 | 1 | 2 | 2 | 0 |
| 425 | Fresh | 29.56 | -91.10 | Nutria | | 16.63 | 1.0 | 2 | 2 | 2 | 0 |
| 433 | Fresh | 29.53 | -91.35 | Nutria | | 15.97 | 0.0 | 1 | 1 | 1 | 2 |
| 434 | Fresh | 29.50 | -91.11 | Nutria | | 197.72 | 0.0 | 1 | 2 | 2 | 0 |
| 436 | Fresh | 29.56 | -91.10 | Nutria | | 68.73 | 0.0 | 1 | 2 | 1 | 2 |

Table 13. 2016 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.**





APPENDIX C.
Data collected at each damage site during the 2017
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 |
|-------------|------------|----------|-----------|-------------|------------------|---------------|---------------------|------|-----|---------------------------|------------|
| 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 14. 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.

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

___ DAMAGE – STORM

___ DAMAGE – MUSKRAT

___ DAMAGE – NUTRIA

___ DAMAGE – OTHER _____

___ SUBJECT TO TIDAL ACTION: ___Y___N

___ NO VEG DAMAGE (0)

___ MINOR VEG DAMAGE (1)

___ MODERATE VEG DAMAGE (2)

___ SEVERE VEG DAMAGE (3)

___ CONVERTED TO OPEN WATER (4)

| 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)

___ OLD RECOVERING (1)

___ OLD NOT RECOVERING (2)

___ RECENT RECOVERING (3)

___ RECENT NOT RECOVERING (4)

___ CURRENT (OCCURRING NOW) (5)

GROWING SEASON

___ NO RECOVERY PREDICTED (0)

___ FULL RECOVERY (1)

___ PARTIAL RECOVERY (2)

___ INCREASED DAMAGE (3)

_____ **CHECK NEXT YEAR**

CODES FOR NUTRIA HERBIVORY SURVEY DATA

¹Marsh Type

| | |
|--------------|---|
| Fresh | F |
| Intermediate | I |
| Brackish | B |

²Nutria Relative Abundance Rating

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

³Vegetative Damage Rating

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

⁴Age of Damage and Condition

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

⁵Prediction of Recovery by End of 2016 Growing Season

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