NUTRIA HARVEST DISTRIBUTION 2004-2005

And

A SURVEY OF NUTRIA HERBIVORY DAMAGE IN COASTAL LOUISIANA IN 2005

Conducted by

Fur and Refuge Division
Louisiana Department of Wildlife and Fisheries

as part of the

Coastwide Nutria Control Program*
CWPPRA Project (LA-03b)

submitted by

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NUTRIA HARVEST DISTRIBUTION 2004-2005

Introduction

Since 2001, annual coast wide aerial surveys assessing herbivory in Louisiana has documented approximately 22,500 acres of marsh converted to open water due to nutria vegetative damage. (This acreage is actual observed acreage multiplied by a constant to account for land not seen from the transects.) This loss of the marsh in Louisiana is devastating to the people that depend on it for their livelihood as well as the people that use it for recreation. It is vital to the people of Louisiana to protect the wetlands from destruction whenever possible. In order to remove the threat of land loss due to nutria, the Coastwide Nutria Control Program was developed.

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 possible 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 (Fig. 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 1996-97 and in 1997-98, 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.

During the strong market period for nutria pelts, no wetland damage caused by nutria was reported. Before the market developed and after the market declined, nutria caused damage to agricultural operations and the wetlands that they inhabited. Reports of marsh vegetation damage from land managers became common again in 1987. Such complaints became more routine during the early 1990’s, so the Fur and Refuge Division of the Louisiana Department of Wildlife and Fisheries 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 acreages of damage increasing from approximately 45,000 to 80,000 acres within the basins. The first CWPRA funded coast wide survey, conducted in 1998, showed herbivory damage areas totaling approximately 90,000 acres. By 1999 this coast wide

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 Louisiana Department of Natural Resources (LDNR) with the LDWF as the lead implementing agency. Task number 2 of the LDNR 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) to count valid nutria tails and present participants with a receipt/voucher; 4) to 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 of origin of tails 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 resulting from 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 of $4.00 for each nutria tail delivered to established collection centers.

This section reports on the Nutria Harvest Distribution for 2004-2005.

Methods

The application for participation in the Coastwide Nutria Control Program (CNCP) was developed in July 2002 but was modified in June 2003 to obtain better information about the location of nutria harvest. The application 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 and 2004-2005 seasons. Tail collection

sites were established at Rockefeller Refuge, Abbeville, Morgan City, Houma, Luling and Chalmette. Collections were made once a week at each site, except for Rockefeller Refuge and Abbeville where collections were made once a month.

Louisiana's open trapping season began on November 20, 2004, and nutria tail collections began a week later. Collections were made utilizing a 16 foot x 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 for the number of tails delivered, checking to make sure the mailing address of the participant was correct. The participant was asked to provide the following information: 1) the method of taking the nutria, 2) the method in which the nutria carcass was used or abandoned, and 3) the month or months in which the nutria were harvested. When complete, the voucher was signed by the participant who also would indicate on a detailed map of their lease the location or locations where the nutria were harvested. The CEI representative recorded township and range of harvest, number of nutria harvested, and the transaction number on the map. One copy of the voucher was given to the participant while one copy was retained by the CEI representative. The information on the voucher was entered into a laptop computer and 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 day or multiple times a day 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 deposal 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.

At the end of the collection week, the maps were transported to CEI's office in Baton Rouge. At this time QA/QC of the data transferred for the entire week took place. The trapped/hunted areas that were outlined on the lease maps were digitized into ArcView GIS 3.2a. CEI sent a weekly report to LDWF detailing each transaction, including a digitized map 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 sent participants checks through the mail for the amount of tails turned in. Louisiana's open trapping season ended on March 31, 2005, and nutria tail collections continued for one week into 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 ArcView 3.2 project map with related information.

Results and Discussion

A total of 297,535 nutria tails, worth $1,190,140 in incentive payments, were collected from 310 participants. Seventy-nine participants (25 %) turned in less than 200 tails, 74 participants (24 %) turned in between 200 and 499 tails, 46 participants (15 %) turned in between 500 and 799 tails and 111 participants (36 %) turned in 800 or more tails. There were 23 parishes represented in the program with harvests ranging from 10 to 81,135 nutria per parish. Approximately 80 % of the harvest came from the southeast portion of Louisiana. The method of take for each nutria was identified as: 114,668 nutria (38 %), trapped 159,810 nutria (54 %) taken with a rifle, and 23,057 nutria (8 %) taken with a shotgun. February was the most active month for harvesting nutria (99,583 tails) while November (5,276 tails) was the least active month (Fig. 2).

Harvest by Marsh Type

Harvest data was classified by marsh type, which includes: fresh marsh, intermediate marsh, brackish marsh, salt marsh and other. The category of "other" includes swamp, mixed forest and agriculture land types. A majority of the nutria, 153,034 nutria (51 %) came from fresh marshes. This was followed by 77,852 nutria (27 %) being harvested from lands within the "other" category; 44,571 nutria (15 %) were harvested from intermediate marshes; a relatively small amount of the harvest, 17,694 nutria (6 %) and 4,384 nutria (2 %), came from brackish and salt marshes respectively (Fig. 3). The majority of the nutria damage in 2004, which results from high nutria populations, occurred in fresh (50 %) and intermediate (37 %) marsh.

During collection transactions, participants indicated what percentages of nutria were harvested by each method of take: trapped, shot with rifle, or shot with shotgun. Shooting with a rifle was the most popular method of taking nutria in the fresh and brackish marshes while trapping was the main method of harvest in the salt marsh. For the intermediate marsh, the method of take was split evenly for trapping and hunting (Fig. 4). In fresh marsh 60 % of the nutria were shot with a rifle, 6 % shot with a shotgun, while 34 % were trapped. In intermediate marsh, 49 % of the nutria were shot with a rifle, 49 % were trapped, and 2 % were shot with a shotgun. In brackish marsh, 62 % of the nutria were taken with a rifle and 38% were trapped. In salt marsh, 64 % of the nutria were trapped and 36 % were taken with a rifle. Method of take in 2004-2005 differed from that in 2003-2004 and was most likely due to poor trapping conditions. Throughout the 2004-2005 season trappers complained that unusually high water levels prevented them from placing traps along nutria trails.

Use or abandonment of the nutria carcasses, was recorded for each participant transaction. For the purpose of this survey, use categories include 1) harvested for meat and/or 2) harvested for fur. Carcass abandonment categories include: 1) buried carcasses,

2) placed in heavy overhead vegetation or 3) placed in water. Overall, nutria were abandoned nearly six times more frequently than removed from the marsh for meat or fur. A slight majority of the nutria were abandoned in the overhead vegetation compared to abandonment by burying of the carcass. Nutria use or abandonment was also separated by marsh type. In fresh marsh 13,424 of the nutria were used for fur while 5,402 nutria were used for their meat (Table 1). In the fresh marsh, a slight majority were abandoned in vegetation (66,981 nutria) over burying the carcasses (64,338 nutria). In intermediate marsh there was a greater amount of carcasses used for meat (12,499 nutria); however there were less nutria used for their fur (15,459 nutria). Of the 44,571 nutria harvested within intermediate marshes, 28,554 animals were abandoned by one of the three possible means. In brackish marshes, 14,688 nutria were abandoned while 2,636 nutria were used for fur and 1,644 nutria were used for meat.

All interested participants were supplied with a fur buyer/fur dealer list to encourage the use of animals for the fur and meat, and interested fur buyers/dealers were supplied with a list of program participants. The reason for the high percentage of abandonment of animals in fresh marsh could be a factor of fur quality and economics. Fur quality in the fresh marsh could have been affected by "fourchette" damage which is caused by the seeds of *Bidens laevis*. The seed is covered with small hook-like protrusions which help the plant with seed dispersal. Whenever a seed becomes entangled in the nutria's pelt and comes in contact with the skin, a small pustule is formed rendering the pelt useless. It's possible that while participants harvesting nutria in this habitat harvested the highest number of animals, they did not attempt to sell the fur due to poor pelt quality. The high amount of nutria vegetative damage found in the fresh marsh appears to confirm the higher nutria density estimates in this habitat as reported found in previous studies. The intermediate marsh may have a lower density of animals but better pelt quality, therefore participants in this area could have sold the carcasses for the meat and fur thereby increasing the value of each nutria.

Harvest by Parish

During the 2004-2005 season of the Coastwide Nutria Control Program, similar to the first year of the program, the parish with the highest harvest (27 %) was Terrebonne Parish. Thirteen percent of the harvest during the 2004-2005 season came from Plaquemines Parish, 11 % was within Lafourche Parish, 11 % was within St. Martin Parish and 7% of the nutria harvest came form St. Mary Parish (Table 2). These were the only 5 parishes in which at least 20,000 nutria were harvested, and their combined total equaled 70 % of the coast wide nutria harvest. The total number of nutria harvested within St Martin Parish more than doubled compared to last season. The harvest of the eastern most parishes of Plaquemines and St. Bernard combined for 56,647 less nutria in 2004-2005 than during the 2003-2004 season (-47,647 and -9,000 nutria, respectively) (Fig. 5). These are the parishes that experienced the highest flood waters during Hurricane Ivan. It is hypothesized that this tropical event decimated or possibly displaced the nutria populations within these parishes.

Method of take for 2004-2005, within each of the high nutria producing parishes, differed considerably, from the 2003-2004 season. Terrebonne Parish, the parish where the largest number of animals was harvested, had the highest number of nutria taken by trapping as well as highest number of taken with a rifle. For the 2004-2005 season, within Terrebonne Parish, 31,730 nutria (39 %) were taken by trapping, 45,893 (57 %) taken with a rifle, and 3,512 nutria (4 %) were taken with a shotgun (Table 3). Although Terrebonne Parish had the highest overall number of nutria taken with a rifle during the 2003-2004 season, a majority of nutria taken within the parish were done so by trapping (61 %). Within Plaquemines Parish, 18,121 nutria (46 %) were trapped, 20,642 nutria (53 %) where shot with a rifle, and 280 nutria (1 %) were shot with a shotgun. During the 2003-2004 season, Plaquemines Parish was the parish where the highest number of nutria were harvested by shooting with a rifle, 51,302 nutria. The percentage of animals taken by trapping, shooting with a rifle, and shooting with a shotgun in Lafourche Parish was 38 % (12,221 nutria), 56 % (18,212 nutria), and 6 % (1,977 nutria) respectively. The method of take in Lafourche Parish during the 2003-2004 season was 44 % taken with a rifle and 55 % trapped. In St. Bernard the preferred method of take was shooting with a rifle (58 %) while trapping accounted for 41 % of the harvest. St. Martin Parish, which had not been a top nutria producing parish within the CNCP prior to the 2004-2005 season, demonstrated the most even distribution of nutria take between the three methods of any of the top parishes; 39 % (10,684 nutria) were taken via trapping, 31 % (9,703 nutria) were taken via a rifle, and 35 % (11,269 nutria) were taken via a shotgun. St. Martin Parish was also the parish in which the most nutria were taken via a shotgun; nearly half (49 %) of all the nutria harvest throughout the entire state by means of a shotgun were harvested within St. Martin Parish. St. Mary Parish had 9,700 nutria (46 %) taken by trapping, 10,798 nutria (52 %) taken by means of a rifle, and 442 (2 %) were taken with a shotgun. Other noteworthy parishes include Iberville, where 78 % of the total 5,559 nutria harvested within this parish were taken by means of trapping; this parish had the highest percentage of nutria trapped. Of the 15,867 nutria harvested within St Charles Parish, 88 % were taken with a rifle.

The use or abandonment of the carcass varied by marsh type but not necessarily by parish. The majority of the harvest in Terrebonne Parish came from fresh marsh so the majority of the carcasses were abandoned. In Plaquemines Parish, the majority of the nutria harvest took place in the intermediate marsh and most of the carcasses were used for meat and/or fur (Table 4). As stated in the marsh type section, fur quality and economics plays a major role in the use or abandonment of the carcass.

Harvest by Township

For the 2002-2003 season, nutria harvest was tracked by township in an attempt to determine if the harvest areas coincided with the damage sites as identified by the 2002 and 2003 Nutria Damage Survey. Because a standard township contains 23,040 acres and damage sites and trapping/hunting leases are much smaller, it was determined in 2003 that tracking nutria harvest by township is not an effective method to determine if nutria were being harvested from damage sites. Therefore, beginning with the 2003-2004

season, nutria harvest was tracked using participant leases with actual harvest areas indicated by participants.

Harvest by Damage Site

In the 2004 Vegetative Damage Survey, there were 69 damage sites including 1 site that had converted to open water in 2004. The other 68 damage sites from the 2004 damage survey were overlaid onto a map of the 2004-05 harvest areas in order to determine which damaged sites were hunted/trapped and which sites received no hunting/trapping. Of the 68 damage sites, 43 sites containing 13,414 acres received some level of trapping or hunting while the other 25 sites containing 3,472 acres did not. Appendix A contains the 2004 damage sites along with the amount of nutria that were harvested from, or near, each site. Nutria were classified as being harvested from or near a damage site if they were harvested from an area which overlapped a damage site polygon.

Section 2

A SURVEY OF NUTRIA HERBIVORY DAMAGE IN COASTAL LOUISIANA IN 2005

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 amounting to over 15,000 acres of marsh impacted along the transects and 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. Of all the 1993 sites evaluated again in 1996, 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 coast wide 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 coast wide estimate of 89,850 acres. (The extrapolated coast wide estimate is derived by multiplying the observed acres by 3.75 to account for area not visible from the transect lines.) In 1999, the damaged increased to 27,356 acres located at 150 sites, with an extrapolated coast wide estimate of 102,585 acres. In 2000, the damage slightly decreased to 25,939 acres located at 132 sites, with an extrapolated coast wide estimate of 97,271 acres. In 2001, the damage decreased to 22,139 acres located at 124 sites, with an extrapolated coast wide 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 coast wide estimate of 79,444acres. 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 coast wide estimate of 82,080 acres. In summary, the

coast wide estimates of nutria herbivory damage prior to implementation of the CNCP incentive payments (from 1998 to 2003) range from 79,444 to 102,585 acres.

Vegetative damage caused by nutria has been documented in at least 11 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 to102,585 acres of marsh damaged was conservative because only the worse 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 three 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 coast wide aerial surveys during spring/summer to document the current year impact of nutria herbivory. Survey techniques followed Linscombe and Kinler (1997), and CNCP funded surveys have be conducted in the spring of 2003, 2004, and 2005. Results were analyzed and the numbers of acres impacted or recovered were determined.

This section reports on the 2005 Coastwide Nutria Herbivory Survey.

Methods

A coast wide nutria herbivory survey was conducted on April 21-23, and 27 and May 5-8 and 10-12, 2005. North-South transects were flown throughout the fresh, intermediate and brackish marshes of coastal Louisiana. Parishes included in the survey were Cameron, Vermilion, St. Mary, Terrebonne, Lafourche, Jefferson, Plaquemines, St. John, St. Charles, St. Bernard, Orleans, St. Tammany and Tangipahoa Parishes. A total of 155 transects (covering 2,354.7 miles) were 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. Depending upon visibility and vegetative conditions, an altitude of 300-400 feet was considered optimum. At this altitude, vegetative damage was identifiable and allowed for a survey transect width of about1/4 mile on each side of the helicopter. Flight speed was approximately 60 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 and the other observer recorded all pertinent data.

When vegetative damage was identified, the following information was recorded (Figure 5):

1) Location of each site was determined by recording latitude and longitude utilizing GPS equipment. A differential GPS (Trimble Ag 124) was utilized to allow for accurate location of damaged sites. The software used was GPS View, operating in ArcView 3.2a. The size of each damage site was recorded by logging polygons using stream digitizing with the GPS equipment.

2) The abundance of nutria was classified in one of the following nutria relative abundance rating (NRAR) categories: **no nutria sign visible (0)**, **nutria sign visible (1)**, **abundant feeding (2)**, **heavy feeding (3)**.

3) The extent of damage to the vegetation was classified in one of the following vegetative damage rating categories: **no vegetative damage (0)**; **minor vegetative damage (1)** which is defined as a site containing feeding holes, thinning vegetation and some visible soil; **moderate vegetative damage (2)** which is defined as a site that has large areas of exposed soil and covers less than 50% of the site; **severe vegetative damage (3)** which is defined as a site that has more than 50% of the soil exposed; or **converted to open water (4)**.

4) The dominant plant species were identified and recorded for the 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 classified in one of the following categories: **recovered (0), old recovering (1), old not recovering (2), recent recovering (3), recent not recovering (4) or current (occurring now)(5)**.

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 2005 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 is provided in Appendix B.

Results and Discussion

The total number of sites visited in 2005 was 105, of which 19 were new sites while 86 were previously classified as damaged in the 2004 survey. Neither the one damage site

that had converted to open water in 2004 nor the sites that recovered in 2004 were visited during the 2005 survey. Of the 19 new sites, 14 were identified as muskrat damage and 5 were identified as nutria damage. Of the 86 sites previously identified as having damage, 47 were identified as still having visible nutria herbivory impacts, 29 were classified as recovered nutria damage, 2 had been converted to open water, 8 were identified as muskrat damage, and 5 sites were identified as being recovered muskrat damage. The following discussion details the 78 sites that had nutria damage (Table 5).

A total of 14,260 acres (extrapolated to be 53,475 acres coast wide) were impacted by nutria feeding activity along transects (Table 6). This is a reduction from the 16,906 acres (extrapolated 63,397 acres coast wide) impacted by nutria in 2004. Of the 49 sites currently showing impact, Terrebonne Parish contained the largest number of damaged sites, 18 sites (37 %), encompassing a damaged area of 4,541 acres (31 %). This is also a decrease from the 27 sites and 7,679 acres in 2004, indicating that a number of sites have recovered in Terrebonne Parish. During the 2005 survey, Lafourche Parish accounted for only 2 sites (4 %) and 127 acres (2%) of damaged marsh compared to 5 sites (7 %) and 610 (3 %) acres in 2004. Seven sites (14 %) and 1,383 acres (10%) were located in Jefferson Parish. Plaquemines Parish accounted for 7 sites (14 %) and 1,850 acres (13 %); St. Bernard Parish had 4 sites (8%) with 1,882 acres (6%) impacted. St. Charles Parish, for the third straight year, had a large increase in the amount of damage, presently amounting to 4,690 acres (33 %) on 6 damage sites (12%). This acreage increased from 2,564 acres on 9 damage sites in 2004. Although the number of sites in St. Charles Parish decreased, the total number of acres increased, and is partially due to the fact that 2 sites grew in acreage and merged into one site. St Charles Parish had the highest number of damaged acres of the parishes surveyed. Nutria vegetation damage was observed within Iberia Parish for the first time during 2005 survey. It had 1 site of 158 acres. The final two damage sites were located within Vermillion Parish encompassing 389 acres. In 2005, Terrebonne, Jefferson, St. Charles and Plaquemines are the parishes most affected by nutria herbivory.

Marsh vegetative type (based on the Linscombe and Chabreck 2001 survey) was recorded at each damage site (Table 7). Fresh marsh continued to be the most affected by nutria herbivory with 26 sites (53 %), covering 9,811 acres (63 %). Intermediate marsh contained 19 sites (39 %), accounting for 3,789 (26 %) of the damaged acres. Brackish marsh had only 4 sites (8 %) and 660 (5 %) damaged acres. The typical vegetation impacted in fresh marsh was *Eleocharis* spp. and *Hydrocotyle* spp., while *Schoenoplectus americanus* (formerly *Scirpus olneyi*) and *Eleocharis* spp. were commonly impacted species in intermediate and brackish marshes.

The nutria relative abundance rating (NRAR) is used to classify the abundance of nutria at a site (Table 8). The categories were: (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. During the 2005 survey, 14 sites (20 %) covering 2,992 acres (21 %) showed no nutria sign visible. Twenty-eight sites (59 %) covering 6,748 acres (48 %) showed nutria sign visible. Four sites (9 %) covering 4,113 acres (29 %) had abundant feeding signs and 1 site (2 %) covering only 273 acres (2 %) had heavy feeding signs.

The number of heavy feeding sites has decreased considerably over the past three years, beginning with 14 sites covering 5,599 acres in 2003. Although the number of sites with nutria sign visible decreased by 1 site since the 2004 survey, the number of damaged acres with nutria sign visible increased from 6,040 acres. The increase in the nutria sign visible category is most likely due to the reduction in the number of sites with heavy feeding sign.

The vegetative damage rating was developed in order to classify damage to vegetation by nutria (Table 9). The vegetative damage rating (VDR) has five categories. They are as follows: (0) no vegetative damage, (1) minor vegetative damage, (2) moderate vegetative damage, (3) severe vegetative damage, (4) converted to open water. Thirty-four sites (69 %) covering 8,070 acres (57 %) were classified as having minor vegetative damage in 2005 as compared to 35 sites covering 6,675 acres in 2004. Twenty-four sites (24 %) covering 5,905 acres (41 %) had moderate vegetative damage in 2005 as compared to 29 sites covering 9,536 acres in 2004. There was a shift from the majority of the sites having moderate damage to the majority of the sites having minor damage. The classification of severe vegetative damage, which has the best chance of being converted to open water, had only 1 site (2 %) covering only 151 acres (1 %) in 2005. The number of severe vegetative damage sites and acreage has decreased dramatically since the 2003 survey when there were 14 sites covering 3,862 acres. Although the number of severe and moderate sites decreased, unfortunately, the worst category, converted to open water, had 2 sites (4%) and covered 134 (1 %) acres in 2005 versus 1 site covering 20 acres in 2004.

The age of damage and condition rating was used to characterize each of the damage sites (Table 10). The six classifications included (1) current damage, (2) recent damage-recovering, (3) recent damage not recovering, (4) old damage-recovering, (5) old damage-not recovering, and (0) recovered. During the 2005 survey, 5 sites comprising 2,582 acres were classified as having current, ongoing nutria herbivory impacts, which was a slight decrease from the 2004 figure. A promising observation was the category 'old recovering' which had 39 sites containing 10,878 acres. These are the sites that have the highest likelihood of recovering over the next growing season. Only 2 sites, covering 656 acres, were classified as old damage not recovering in 2005 as compared to 5 sites covering 2,898 acres in 2004. A total of 29 sites, encompassing 4,169 acres, out of the 78 sites visited were classified as recovered.

For each site with current damage, the degree of recovery by the end of the 2005 growing season was predicted (Table 11). These ratings were (1) full recovery, (2) partial recovery, (3) increased damage and (4) no recovery predicated. The majority of the sites were projected to recover partially by the end of the 2005 growing season (36 sites and 10,073 acres). Six sites, totaling 443 acres, were predicted to fully recover by next year, while 5 damaged sites, totaling 3,610 acres, were predicted to increase in damage.

During the survey, several marsh areas that were damaged by muskrat were observed. Information was also collected for these. In addition to the 84 nutria damage sites, a total of 27 muskrat sites were observed. Of these 27 sites, 22 sites, covering 15,757 acres,

were determined to be damaged while 5 sites, covering 1,406 aces were determined to be recovered. This is a slight increase in the number of muskrat damaged sites and nearly triples the muskrat damage acreage from last year (25 sites covering 5,768 acres in 2004). Due to computer errors, a vegetative damage rating was collected for only 14 of the 22 current muskrat damaged sites: 3 sites had minor vegetative damage covering 593 acres; there were no sites classified as having moderate vegetative damage; 11 sites covering 6,343 acres showed severe vegetative damage. The severe vegetative damage sites were in southern Vermilion and Cameron Parishes where there is a long history of muskrat damage and subsequent recovery.

Conclusion

The 2005 vegetative damage survey yielded a total of 14,260 acres of damage along transect lines. This figure, when extrapolated, shows that 53,475 acres were impacted coast wide at the time of survey. When compared to 2004 (16,906 acres or 63,397 acres extrapolated coast wide), the present damage is a 15.6 % decrease in the number of damaged acres. The recovered sites in 2005 had a combined area of 4,169 acres.

Due to the distance between survey lines, all areas impacted by nutria herbivory could not be identified. Additionally, there were survey miles where nutria activity was observed but marsh conditions did not warrant a damage classification. Again, only the most obvious impacted areas were detected so the total impact of nutria was probably underestimated, however the trend in decreasing damage acreage and increased marsh recovery is significant. The majority of the nutria damage is located in southeastern Louisiana with only isolated small areas of nutria damage in southwestern Louisiana. By comparison, the bulk of the muskrat damage occurs within the intermediate marshes of southwestern Louisiana (Appendix B).

Successive years of nutria damage data collection have yielded some general patterns of recovery:

1. If the vegetative damage rating is minor or moderate in a given year, that damage site has a greater chance of recovery in the following year.
2. Conversely, if the vegetative damage rating is severe in a given year, that damage site has a low chance of recovery and a higher chance of being converted to open water in the following year.
3. A similar pattern has emerged regarding the nutria relative abundance rating (NRAR). The lower the NRAR, the greater the chance a damage site has to recover.

During the 2005 survey, there were 34 sites that were rated as having minor damage. Of these 34 minor damage sites, 12 (2,487 acres) had no nutria sign visible, 20 (5,197 acres) had nutria sign visible, 1 site (113 acres) had abundant feeding, and 1 site (273 acres) had heavy feeding. If the recovery for next season follows the same pattern, 32 sites with little or no nutria sign visible have the best chance of recovery.

Another significant finding in 2005 is that only 1 site (151 acres) had severe vegetative damage and 2 sites (134 acres) were converted to open water. Over the past three years, 6 sites (227 acres) have been converted to open water. This acreage is only 20 % of that which was converted to open water in 2002, the year before the CNCP began.

Finally, 24 % (12 sites) of the damage is still rated as moderate damage. Of those 12 sites, 2 sites (505 acres) had no nutria sign visible, 7 sites (1,400 acres) had nutria sign visible, and 3 sites (4,000 acres) had abundant feeding signs. Whereas the 2 sites with no nutria sign visible should improve in damage rating, the sites with the more sever relative abundance rating should have a concentrated effort to remove nutria from the area to prevent further deterioration of the marsh. Eight of the 12 moderately damaged sites (2,436 of 5,905 acres) are predicted to have partial recovery by the end of the 2005 growing season, but 3 sites (3,469 acres) are predicted to increase in damage

Section 3

CNCP: Summary of Initial Results (2002-2005) and Adaptive Management

For the 3 years prior to implementation of CNCP incentive payments, the coast wide nutria harvest was 20,110 (1999-2000), 29,544 (2000-2001), and 24,683 (2001-2002); the coast wide estimate of nutria herbivory damage season was 97,271 acres (2000), 83,021 acres (2001), and 79,444 acres (2002).

For the first 3 years of CNCP incentive payment implementation, the coast wide nutria harvest was 308,160 (2002-2003), 332,396 (2003-2004), and 297,535 (2004-2005) the coast wide estimate of nutria herbivory damage was 82,080 (2003), 63,398 (2004), and 53,475 (2005).

The CNCP has served to drastically increase the nutria harvest in coastal Louisiana to about 300,000 animals per years. Thus far, this increase appears to have resulted in fewer nutria-damaged acres in coastal Louisiana.

Two closely related adaptive management actions have been implemented in the CNCP: 1) tracking nutria harvest at the lease level versus the township level and 2) encouraging increased harvesting effort on and in the vicinity of damage sites.

In the CNCP's first year (2002-2003), harvest location was tracked at a township level. Because townships include 23,040 acres and damage sites are much smaller (5 – 5000 acres) this level of tracking did not allow a determination whether nutria were being harvested from or near damage sites. Beginning with the 2003-2004 season, more complete land descriptions and maps outlining property / lease boundaries were required and harvest data is now tracked at lease level, allowing a more accurate determination of whether nutria were harvested on or near damage sites. This approach provides three benefits: 1) Tracking nutria harvest and site recovery over time should allow a determination of what amount of harvest is needed for a damaged site to recover. 2) For those damage sites that received no hunting/trapping pressure, LDWF makes a concerted effort to contact landowners, advises the landowners of the damage observed on their properties, and strongly encourages their participation in the CNCP. These landowners will be provide a CNCP application and a map showing the location of the damage sites The goal of this adaptive management action is to increase the harvest pressure on and near damage site, thereby increasing the probability of vegetative recovery. By gaining more participants, there would be a coast wide increase in harvesting pressure and this should, over time, decrease the amount and severity of nutria damage across the Louisiana coast. 3) The improved harvest location tracking also helps assure that the participant accurately indicates the location of nutria harvest from his registered lease and not accidentally indicating a harvest where none occurred.

Other ongoing adaptive management actions being performed by LDWF include the sending out of CNCP applications to all participants who submitted applications over the last three years and the coordination with trappers and fur buyers / dealers to encourage the maximum use of the entire animal.

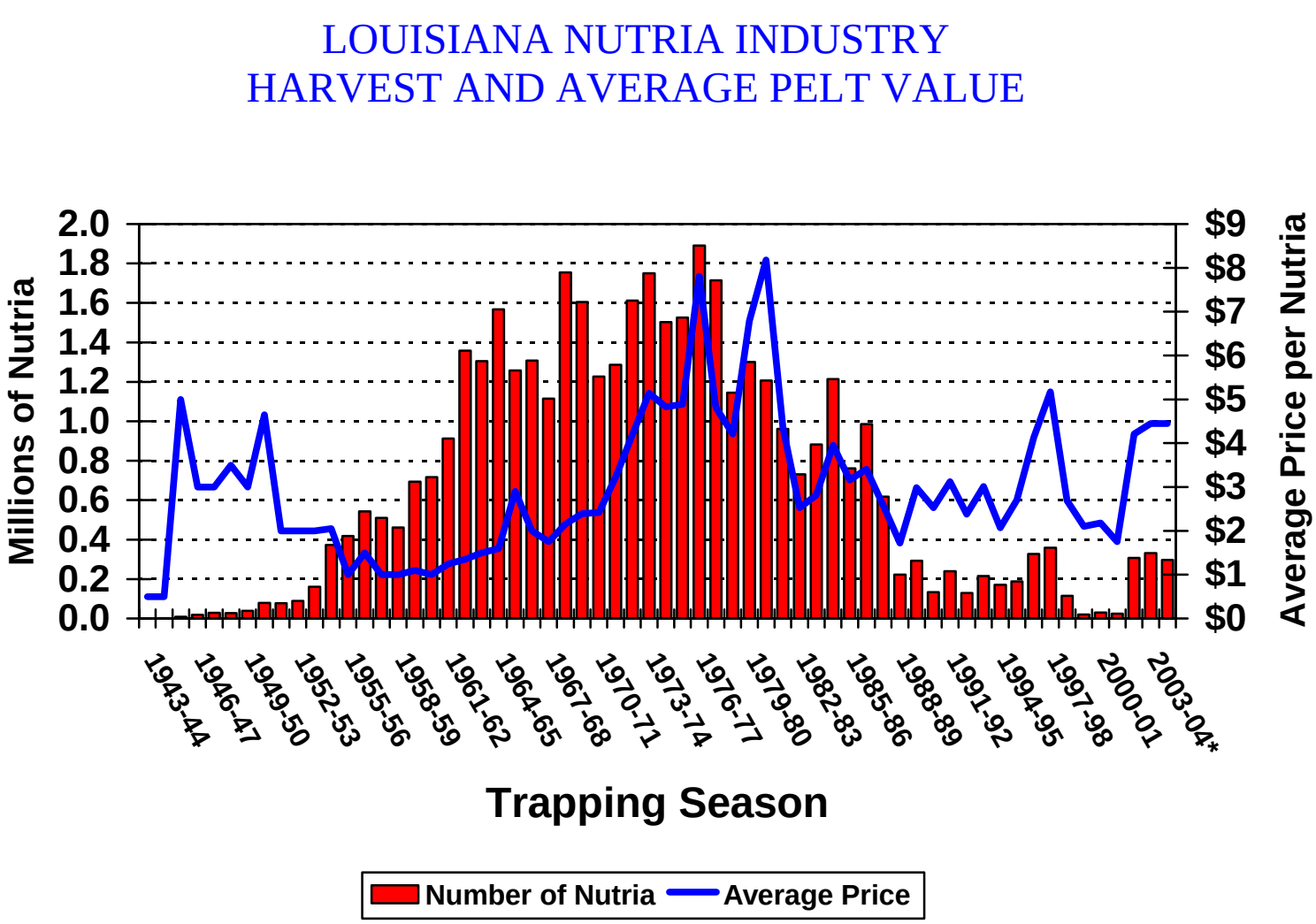


Figure 1. Annual harvest and average price of nutria from 1943-2005.
* In 2002 – 2003 as well as the 3 subsequent seasons, this figure includes the CNCP $4.00 incentive payment.

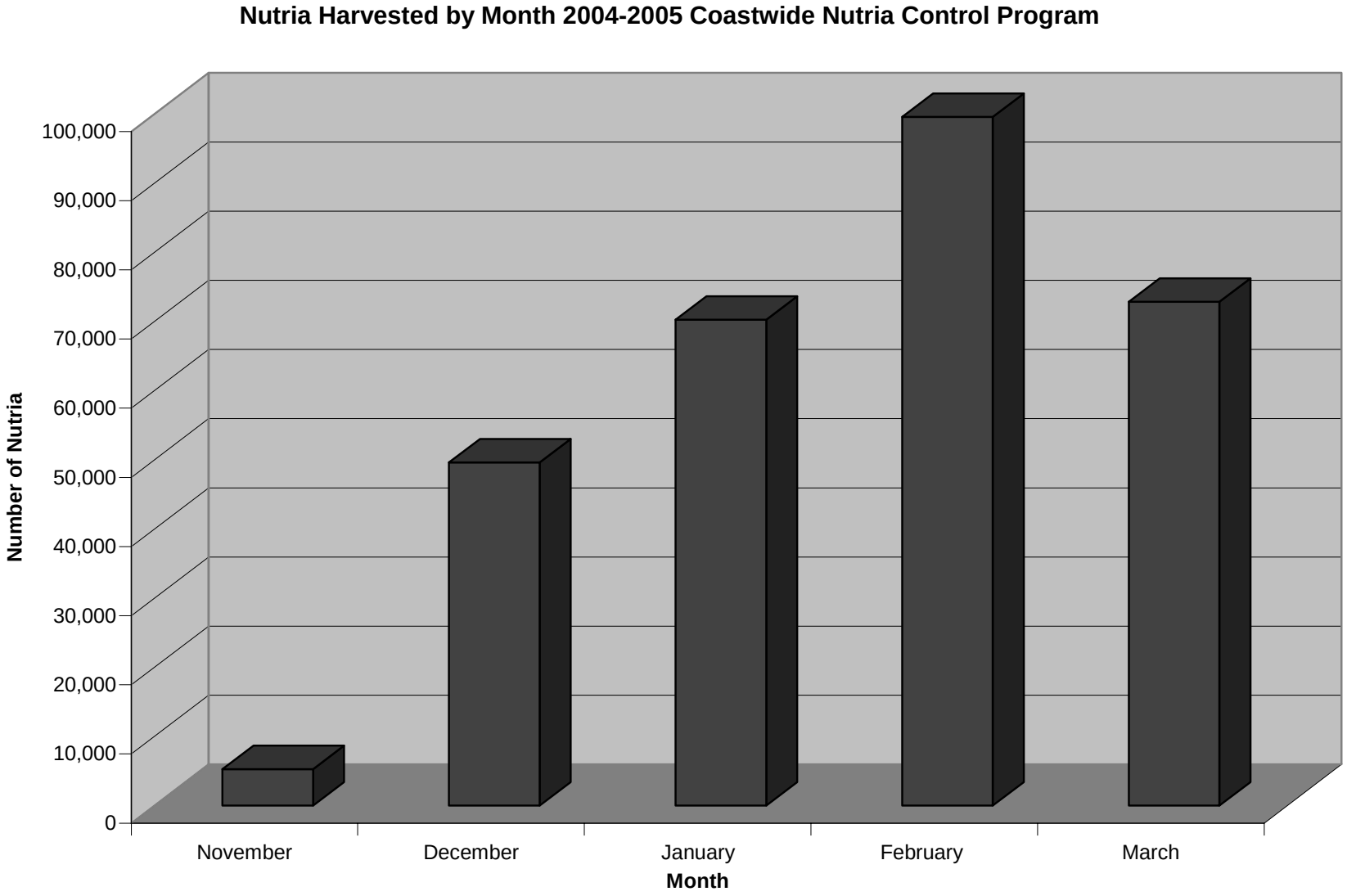


Figure 2. The number of nutria tails harvested by month as indicated by participants during the 2004-2005 Coastwide Nutria Control Program.

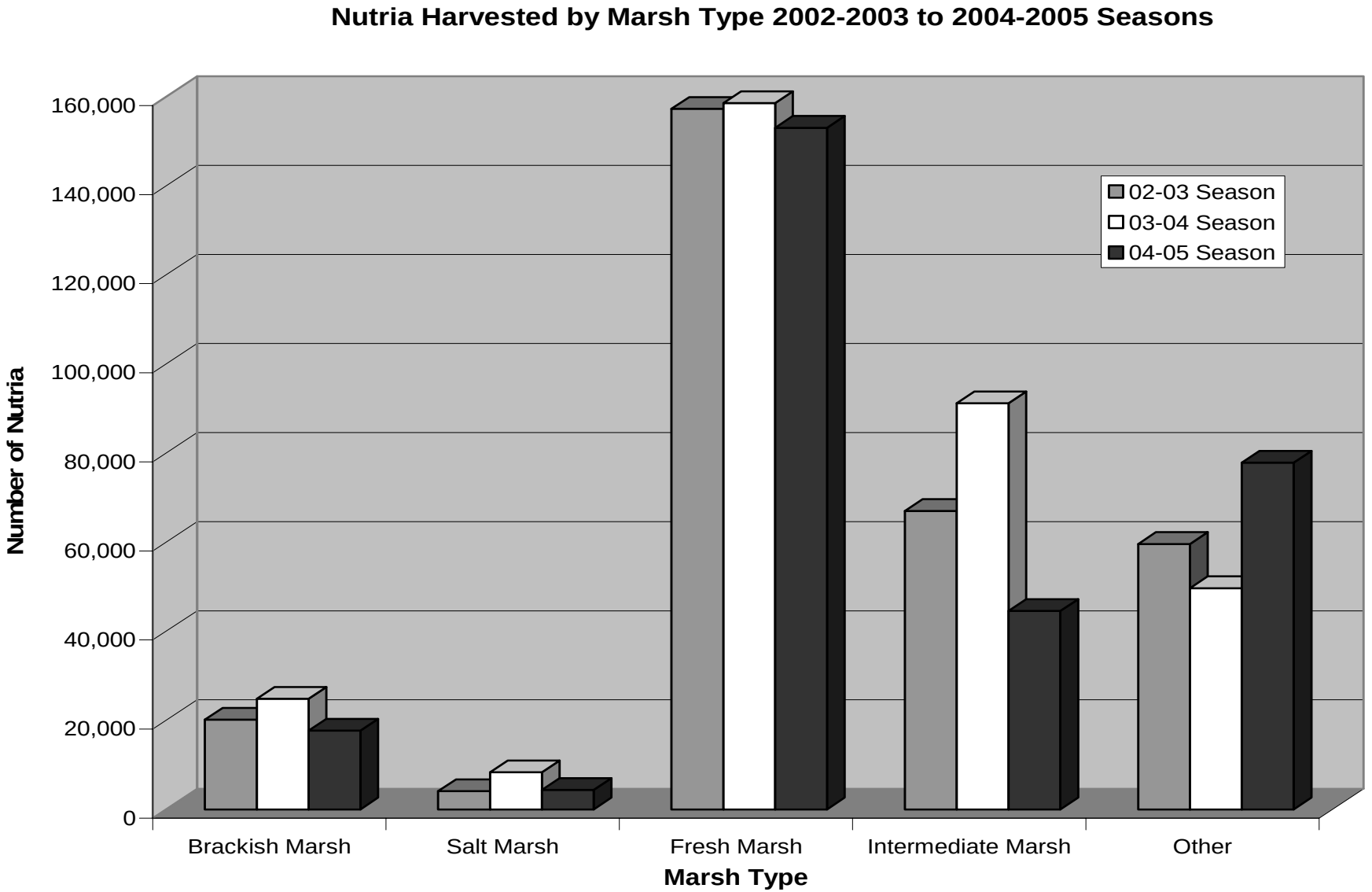


Figure 3. Number of nutria taken by marsh type from coastal Louisiana during the 2002-2003, 2003-2004 and 2004-2005 Coastwide Nutria Control Program.

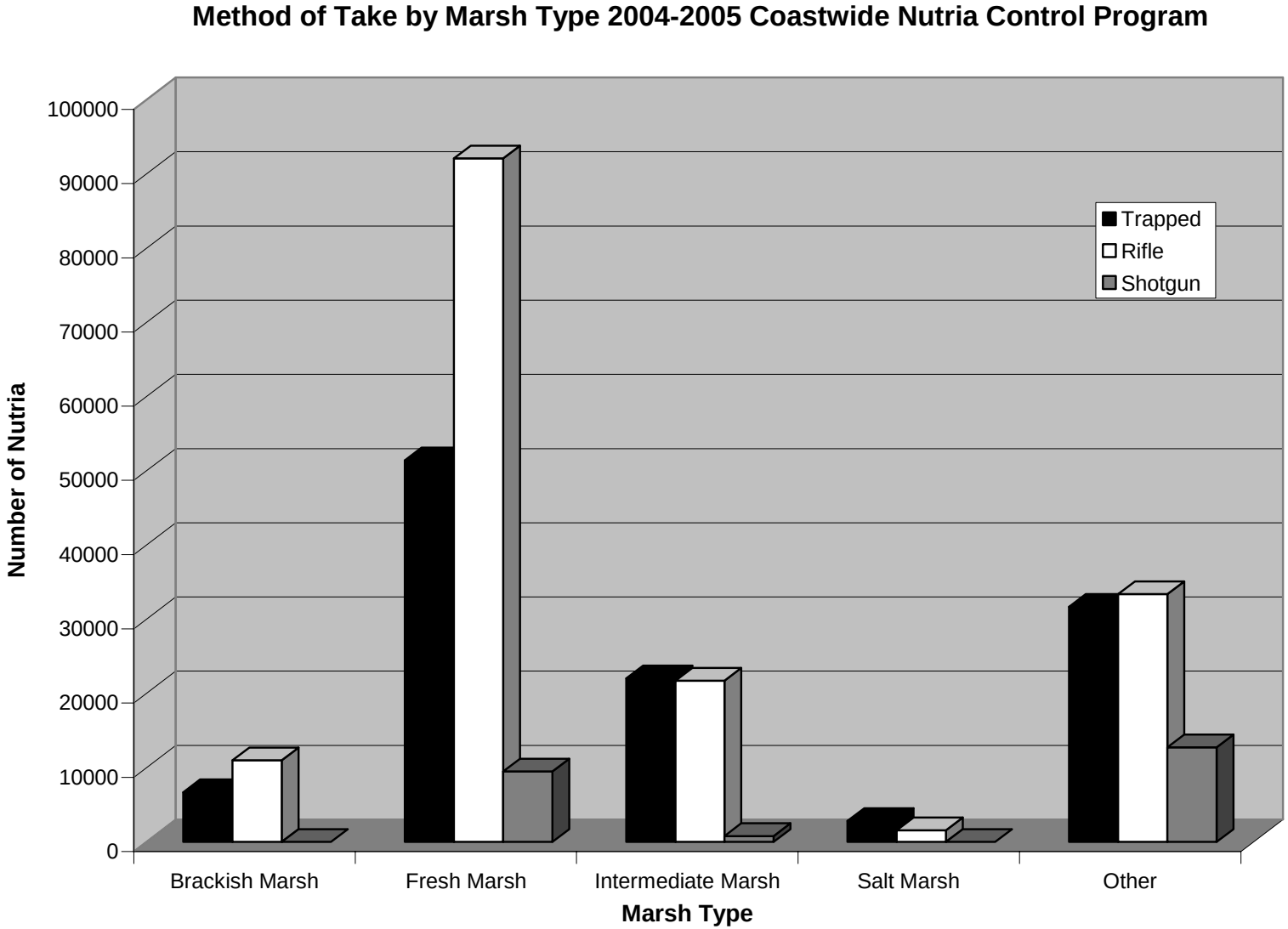


Figure 4. The method of take by marsh type during the 2004-2005 Coastwide Nutria Control Program.

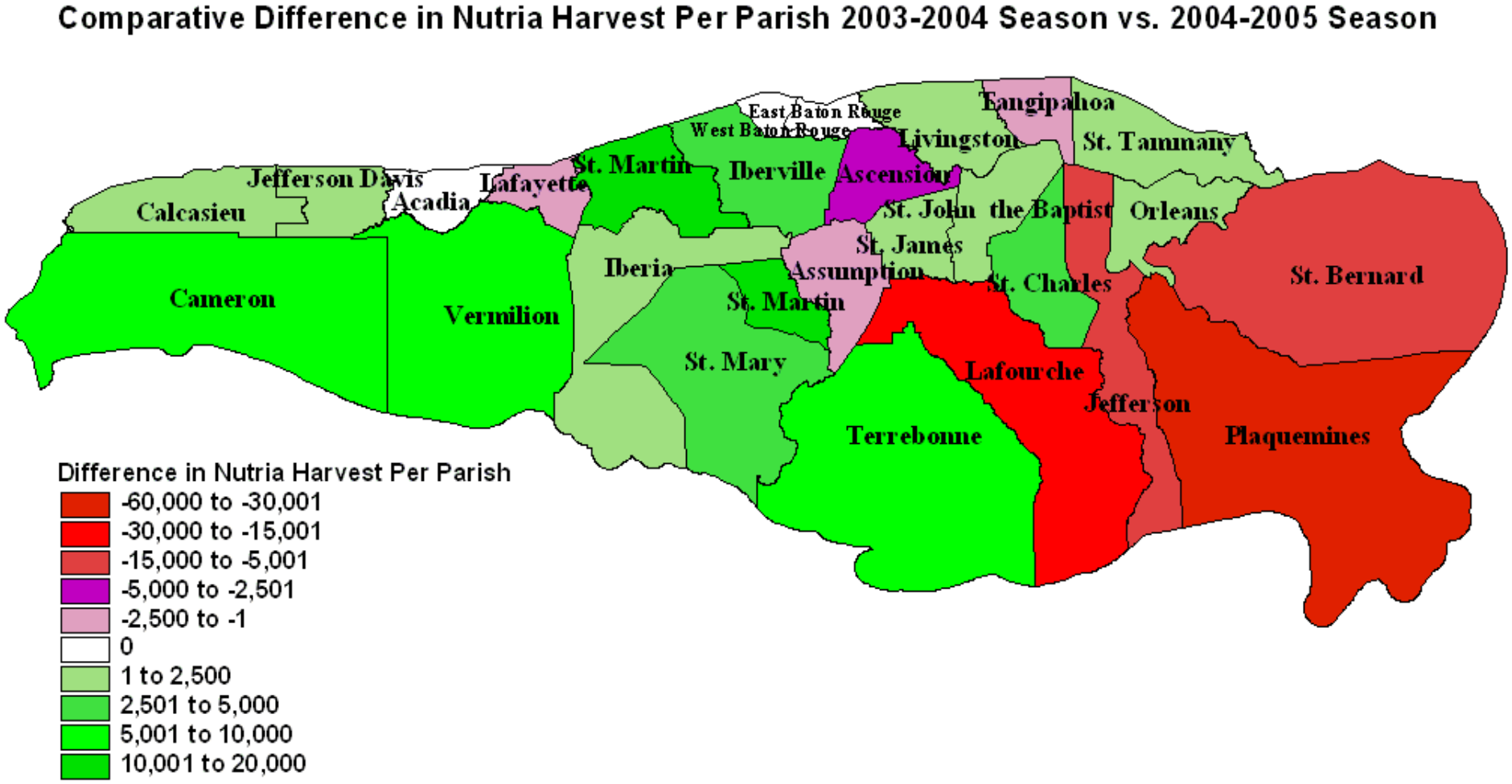


Figure 5. The comparative difference in nutria harvested per parish during the 2003-2004 season vs. the 2004-2005 season of the Coastwide Nutria Control Program.

Figure 6. Data Sheet utilized for 2005 nutria herbivory survey.

2005 NUTRIA VEGETATIVE DAMAGE SURVEY

DATE:_____
TRANSECT#:_____ PHOTOGRAPHY

MARSH TYPE:_____ FRAME #_____

LAT:_____ LAT:_____

LON:_____ LON:_____

LOCATION DESCRIPTION
ON TRANSECT_____
EAST OF TRANSECT_____
WEST OF TRANSECT_____ SITE#_____

DAMAGE TYPE

_____DAMAGE NOT RELATED TO NUTRIA FEEDING
_____DAMAGE - STORM RELATED
_____DAMAGE - MUSKRAT
_____DAMAGE – NUTRIA
_____DAMAGE – OTHER_____
_____DAMAGED AREA SUBJECT TO TIDAL ACTION:____YES____NO
_____**ESTIMATED SIZE OF AREA (ACRES)**

NUTRIA RELATIVE ABUNDANCE RATING

_____ NO NUTRIA SIGN VISIBLE (0)
_____NUTRIA SIGN VISIBLE (1)
_____ABUNDANT FEEDING (2)
_____ HEAVY FEEDING (3)

VEGETATIVE DAMAGE RATING

_____NO VEGETATIVE DAMAGE (0)
_____MINOR VEGETATIVE DAMAGE (1)
_____MODERATE VEGETATIVE DAMAGE (2)
_____SEVERE VEGETATIVE DAMAGE (3)
_____CONVERTED TO OPEN WATER (4)

NUTRIA VISIBLE IN AREA

_____WERE NUTRIA SIGHTED:_____YES_____NO
_____IF YES, HOW MANY?_____

PLANT SPECIES IMPACTED

PLANT SPECIES RECOVERING
PLANT SPECIES ADJACENT

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)

PREDICTION OF RECOVERY BY END OF 2005 GROWING SEASON

_____NO RECOVERY PREDICTED (0)
_____FULL RECOVERY (1)
_____PARTIAL RECOVERY (2)
_____INCREASED DAMAGE (3) **_____CHECK NEXT YEAR**

Table 1. Carcass use by marsh type for 2004-2005 Coastwide Nutria Control Program.

MARSH TYPE	Meat	Fur	Abandon Buried	Abandon Vegetation	Abandon Water
Fresh	5,402	13,424	64,338	66,981	5,134
Intermediate	12,499	14,329	13,125	15,062	367
Brackish	1,644	2,636	9,094	5,544	50
Salt	2,522	2,596	1,091	675	22
Other	7,261	8,129	30,478	36,293	84
Total	29,328	41,114	118,126	124,555	5,657

Table 2. Nutria harvested by parish for the 2002-2003 to 2004-2005 Coastwide Nutria Control Program.

PARISH	2002-2003		2003-2004		2004-2005	
	Nutria Harvested	Percentage	Nutria Harvested	Percentage	Nutria Harvested	Percentage
Ascension	2,710	0.9%	5,474	1.6%	1,858	0.6%
Assumption	3,128	1.0%	814	0.2%	428	0.1%
Calcasieu	143	-	374	0.1%	448	0.2%
Cameron	7,851	2.6%	8,701	2.6%	16,617	5.6%
Iberia	1,412	0.5%	1,960	0.6%	3,521	1.2%
Iberville	0	-	1,567	0.5%	5,559	1.9%
Jefferson	20,529	6.7%	24,896	7.5%	11,036	3.7%
Jefferson Davis	121	-	85	-	175	0.1%
Lafayette	39	-	25	-	10	0.0%
Lafourche	28,852	9.4%	51,736	15.6%	32,411	10.9%
Livingston	2,631	0.9%	357	0.1%	911	0.3%
Orleans	597	0.2%	0	-	538	0.2%
Plaquemines	63,208	20.5%	86,720	26.1%	39,043	13.1%
St. Bernard	5,769	1.8%	13,344	4.0%	4,344	1.5%
St. Charles	11,169	3.6%	12,672	3.8%	15,867	5.3%
St. James	95	-	487	0.2%	2,841	1.0%
St. John the Baptist	18,450	6.0%	6,137	1.8%	8,404	2.8%
St. Martin	11,425	3.7%	15,039	4.5%	31,656	10.6%
St. Mary	26,004	8.4%	16,277	4.9%	20,940	7.0%
St. Tammany	4,638	1.5%	3,756	1.1%	5,175	1.7%
Tangipahoa	1,245	0.4%	745	0.2%	565	0.2%
Terrebonne	92,831	30.1%	72,846	21.9%	81,135	27.3%
Vermilion	5,313	1.7%	8,584	2.6%	14,503	4.7%
Total	308,160	99.9%	332,596	99.9%	297,535	100.0%

Table 3. Method of take by parish for the 2002-2003 to 2004-2005 Coastwide Nutria Control Program

PARISH	2002-2003			2003-2004			2004-2005		
	Trapped	Rifle	Shotgun	Trapped	Rifle	Shotgun	Trapped	Rifle	Shotgun
Ascension	0	2,306	404	0	4,093	1,381	100	1,678	80
Assumption	284	2,786	58	47	767	0	188	106	134
Calcasieu	0	143	0	0	374	0	213	24	212
Cameron	3,611	4,210	30	4,974	3,639	89	5,779	8,961	1,877
Iberia	0	1,353	59	636	1,324	0	1,286	1,310	926
Iberville	0	0	0	717	850	0	4,348	1,211	0
Jefferson	5,869	14,094	566	12,991	11,835	70	6,286	4,307	443
Jefferson Davis	121	0	0	85	0	0	158	18	0
Lafayette	19	10	10	0	25	0	0	10	0
Lafourche	11,807	16,826	219	28,516	22,780	440	12,221	18,212	1,977
Livingston	0	2,631	0	0	336	21	0	911	0
Orleans	287	219	91	0	0	0	538	0	0
Plaquemines	9,899	52,933	376	34,683	51,302	735	18,121	20,642	280
St. Bernard	2,877	2,892	0	5,412	7,783	149	727	3,617	0
St. Charles	2,099	8,706	364	2,801	9,543	329	1,279	13,958	631
St. James	48	47	0	97	350	40	32	2,752	57
St. John the Baptist	1,505	11,132	5,813	2,517	2,200	1,420	2,971	4,788	645
St. Martin	1,497	9,593	335	5,784	8,790	465	10,684	9,703	11,269
St. Mary	11,073	14,849	82	6,616	9,619	42	9,700	10,798	442
St. Tammany	3,088	1,529	21	2,687	1,069	0	2,692	2,483	0
Tangipahoa	335	894	16	577	169	0	35	530	0
Terrebonne	46,761	45,317	753	44,419	26,335	2,092	31,730	45,893	3,512
Vermilion	2,370	2,729	214	5,119	3,435	30	5,580	7,900	572
Total	103,550	195,199	9,411	158,678	166,618	7,303	114,668	159,810	23,057

Table 4. Carcass use by parish for the 2004-2005 Coastwide Nutria Control Program.

PARISH	2004-2005				
	Meat	Fur	Abandon Buried	Abandon Vegetation	Abandon Water
Ascension	0	0	0	1,858	0
Assumption	0	0	175	253	0
Calcasieu	235	278	0	0	0
Cameron	915	5,348	1,642	8,850	0
Iberia	0	55	1,529	1,931	0
Iberville	0	0	1,604	3,955	0
Jefferson	0	58	6,221	4,087	670
Jefferson Davis	175	175	0	0	0
Lafayette	10	10	0	0	0
Lafourche	6,445	7,968	11,880	10,352	454
Livingston	0	0	0	911	0
Orleans	55	283	133	123	0
Plaquemines	12,126	13,599	14,901	9,842	201
St. Bernard	337	771	863	2,585	0
St. Charles	318	315	12,410	1,812	1,283
St. James	0	0	1,562	1,280	0
St. John the Baptist	616	714	2,953	3,858	264
St. Martin	1,638	2,084	11,490	17,755	84
St. Mary	3,158	3,335	11,787	4,061	0
St. Tammany	816	401	1,261	2,740	54
Tangipahoa	0	0	185	380	0
Terrebonne	416	2,888	35,591	40,118	2,366
Vermilion	2,069	2,838	1,942	7,804	282
Total	29,328	41,114	118,126	124,555	5,657

Table 5. Status and number of nutria herbivory sites surveyed from 2002 to 2005.

Year	Number of sites surveyed	Number of sites with current damage	Number of site 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

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

Table 6. Number of damaged sites and acres damaged along transects by parish in coastal Louisiana, 2002 - 2005.

PARISH	2002		2003		2004		2005	
	Number of		Number of		Number of		Number of	
	Sites	Acres	Sites	Acres	Sites	Acres	Sites	Acres
Terrebonne	41	12,951	34	12,521	27	7,679	18	4,541
Lafourche	8	1,222	7	610	5	381	2	127
Jefferson	17	3,003	10	1,805	9	1,718	7	1,383
Plaquemines	10	882	13	2,540	7	2,494	7	1,850
St. Charles	6	768	6	1,266	9	2,564	6	4,690
Cameron	0	0	0	0	0	0	0	0
St. Bernard	6	921	5	918	5	1,035	4	882
St. John	0	0	1	20	2	111	2	240
Iberia	0	0	0	0	0	0	1	158
St. Tammany	4	752	2	360	0	0	0	0
Orleans	2	686	2	962	0	0	0	0
St. Mary	0	0	0	0	0	0	0	0
Vermilion	0	0	4	886	5	924	2	389
Total	94	21,185[1]	84	21,888[1]	69	16,906[1]	49	14,260[1]

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

Table 7. Number of damaged sites and acres damaged by marsh type along transects in coastal Louisiana during 2002 to 2005; number includes sites converted to open water.

HABITAT TYPE	2002		2003		2004		2005	
	NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF	
	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES
Fresh	41	11,593	36	10,871	37	10,565	26	9,811
Intermediate	39	7,416	31	8,086	25	5,128	19	3,789
Brackish	14	2,176	17	2,931	7	1,213	4	660
Total	94	21,185	84	21,888	69	16,906	49	14,260

Table 8. Number of nutria damage sites and acres damaged by revised nutria relative abundance rating in coastal Louisiana during 2002 to 2005; numbers do not include sites converted to open water.

NUTRIA RELATIVE ABUNDANCE RATING	2002		2003		2004		2005	
	NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF	
	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES
NO NUTRIA SIGN VISIBLE	21	5,990	23	5,972	13	3,569	14	2,992
NUTRIA SIGN VISIBLE	31	4,379	26	3,562	29	6,040	28	6,748
ABUNDANT FEEDING	17	4,198	19	6,682	19	5,251	4	4,113
HEAVY FEEDING	17	5,568	14	5,599	7	2,026	1	273
TOTAL	86	20,135	81	21,815	69	16,886	47	14,126

Table 9. Number of nutria damage sites and number of acres by the vegetative damage rating in coastal Louisiana 2002 to 2005.

VEGETATIVE DAMAGE RATING	2002		2003		2004		2005	
	NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF	
	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES
NO VEGETATIVE DAMAGE	1	30	0	0	0	0	0	0
MINOR VEGETATIVE DAMAGE	28	3,498	26	8,732	35	6,675	34	8,070
MODERATE VEGETATIVE DAMAGE	44	13,156	41	9,221	29	9,536	12	5,905
SEVERE VEGETATIVE DAMAGE	13	3,451	14	3,862	4	675	1	151
CONVERTED TO OPEN WATER	8	1,050	3	73	1	20	2	134
TOTAL	94	21,185	84	21,888	69	16,906	49	14,260

Table 10. Number of damage sites by age of damage and condition rating in coastal Louisiana in 2002 to 2005.

AGE OF DAMAGE AND CONDITION RATING	2002		2003		2004		2005	
	NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF	
	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES
Old Recovering	51	7,694	51	14,382	53	12,338	39	10,878
Old Not Recovering	31	11,449	17	5,375	5	2,898	2	656
Recent Recovering	0	0	0	0	1	35	1	10
Recent Not Recovering	0	0	0	0	0	0	0	0
Current Damage	4	992	13	2,058	9	1,615	5	2,582
Total	86	20,135	81	21,815	68	16,886	47	14,126
Converted to Open Water	8	1,050	3	73	1	20	2	134
Recovered	12	1,119	16	1,674	24	6,049	29	4,169

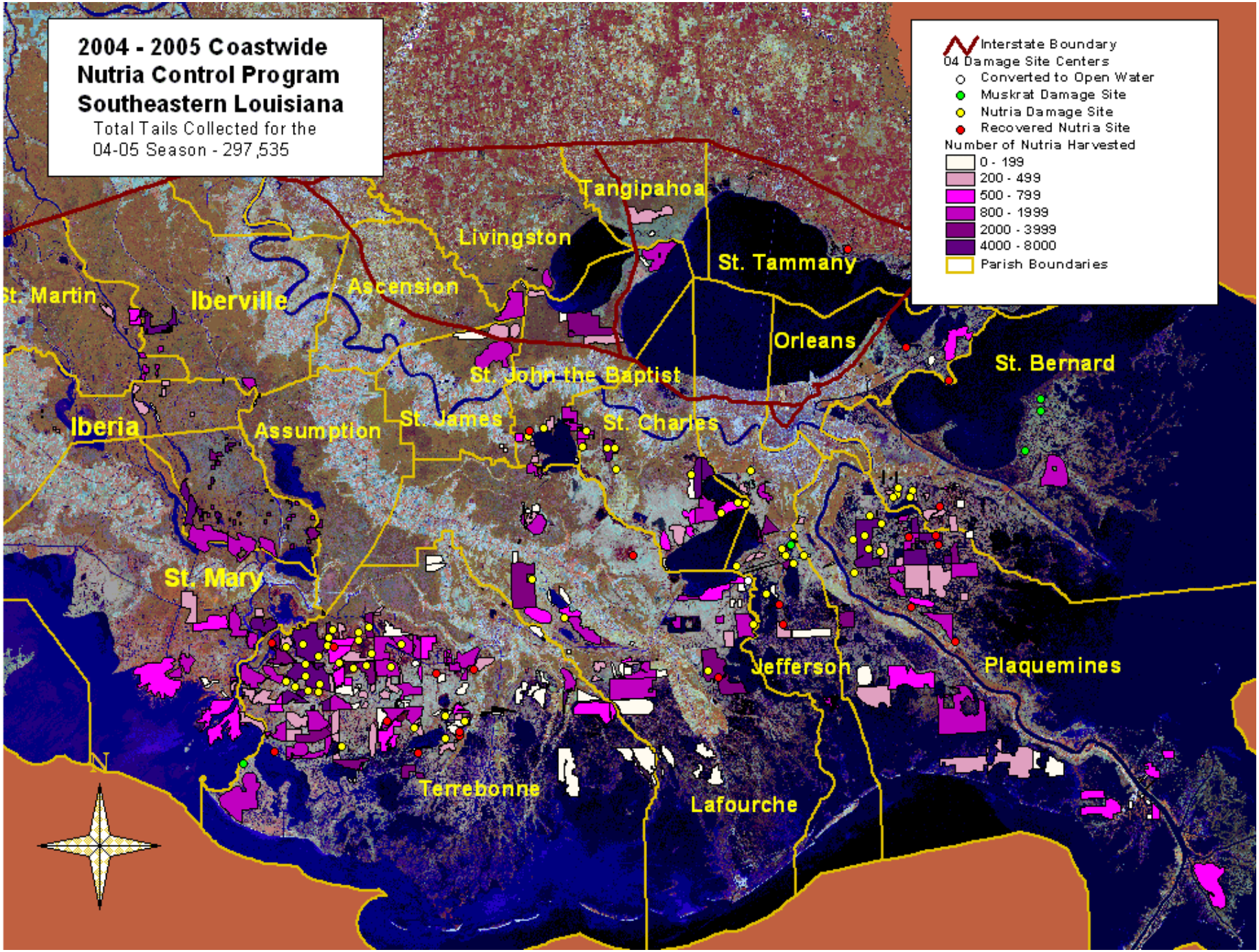
Table 11. Number of damage sites and acres damaged by prediction of recovery rating in coastal Louisiana in 2002 to 2005.

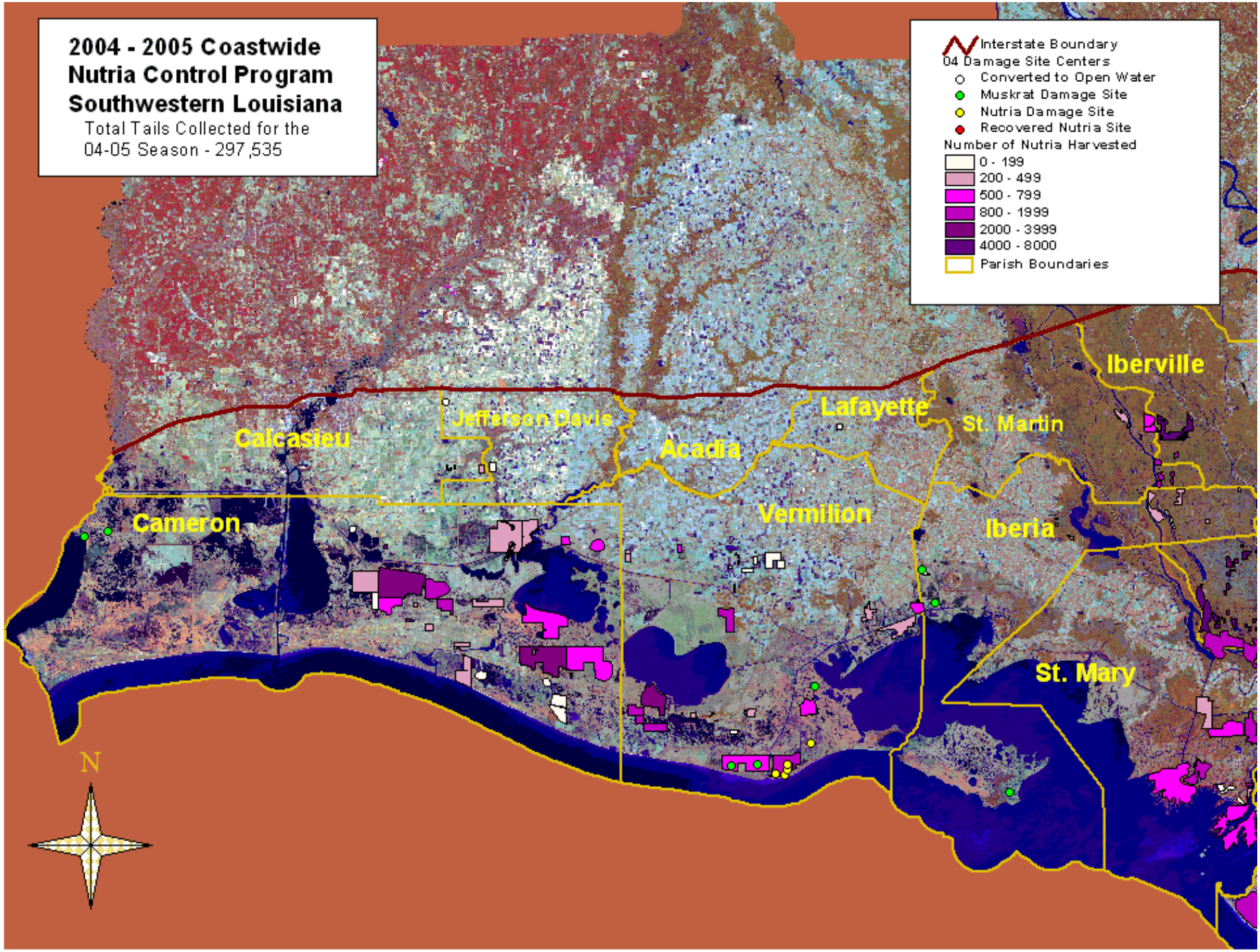
PREDICTION OF RECOVERY BY END OF GROWING SEASON	2002		2003		2004		2005	
	NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF	
	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES
Full Recovery	7	919	8	4,238	10	338	6	443
Partial Recovery	59	13,950	64	14,497	50	13,440	36	10,073
Increased Damage	5	1,086	6	1,646	6	2,811	5	3,610
No Recovery Predicated	15	4,180	3	1,434	2	297	0	0
TOTAL	94	21,185	84	21,888	69	16,906	49	14,260

APPENDIX A. 2004 Nutria vegetative damage sites with tails harvested.

SITE	MARSH TYPE	LATITUDE	LONGITUDE	DAMAGE TYPE	DAMAGED ACRES	ACRES TO OPEN WATER	VDR	AGE OF DAMAGE	PREDICTION	RECLASS	PARISH	TOWNSHIP AND RANGE	NUTRIA HARVESTED BY SITE
8	F	29.56970	-91.16380	Nutria	607	0	1	1	2	Nutria Damage Site	Terrebonne	T17SR13E	389
9	F	29.57370	-91.12960	Nutria	141	0	2	1	2	Nutria Damage Site	Terrebonne	T17SR13E	2917
17	F	29.53970	-91.05040	Nutria	273	0	1	1	2	Nutria Damage Site	Terrebonne	T18SR14E	863
40	I	29.81550	-90.17400	Nutria	123	0	2	1	2	Nutria Damage Site	St Charles	T14SR23E	182
49	B	29.64969	-90.13397	Nutria	200	0	1	1	2	Nutria Damage Site	Jefferson	T16SR23E	0
60	I	29.71800	-90.05267	Nutria	258	0	2	1	2	Nutria Damage Site	Jefferson	T16SR24E	92
92	I	29.70200	-90.07333	Nutria	687	0	2	1	2	Nutria Damage Site	Jefferson	T16SR24E	0
94	F	29.86960	-90.28850	Nutria	594	0	2	2	3	Nutria Damage Site	St Charles	T14SR21E	3512
97	I	29.70120	-90.19650	Nutria	151	0	3	2	0	Nutria Damage Site	Jefferson	T16SR22E	0
104	F	29.41620	-90.89330	Nutria	13	0	1	1	1	Nutria Damage Site	Terrebonne	T19SR15E	420
107	F	29.53050	-90.94200	Nutria	31	0	1	1	2	Nutria Damage Site	Terrebonne	T18SR15E	776
109	F	29.53280	-90.99290	Nutria	117	0	2	1	3	Nutria Damage Site	Terrebonne	T18SR14E	526
111	I	29.39783	-90.82633	Nutria	20	0	1	1	1	Nutria Damage Site	Terrebonne	T19SR16E	0
117	F	29.38460	-91.04790	Nutria	572	0	2	1	2	Nutria Damage Site	Terrebonne	T19SR14E	460
120	F	29.60060	-91.06480	Nutria	1747	0	2	2	3	Nutria Damage Site	Terrebonne	T17SR14E	4729
139	F	29.55100	-91.09650	Nutria	106	0	1	1	1	Nutria Damage Site	Terrebonne	T17SR13E	2117
140	F	29.48500	-91.09830	Nutria	117	0	1	1	3	Nutria Damage Site	Terrebonne	T18SR13E	0
142	F	29.59490	-91.00900	Nutria	120	0	1	1	2	Nutria Damage Site	Terrebonne	T17SR14E	0
171	F	29.91920	-90.46960	Nutria	634	0	1	1	2	Nutria Damage Site	St Charles	T13SR20E	4721
178	I	29.71733	-90.09117	Nutria	97	0	3	1	2	Nutria Damage Site	Jefferson	T16SR23E	0
233	F	29.60430	-90.98740	Nutria	242	0	2	1	2	Nutria Damage Site	Terrebonne	T17SR14E	2948
238	F	29.92470	-90.52030	Nutria	163	0	2	5	3	Nutria Damage Site	St Charles	T13SR19E	1268
242	B	29.59390	-90.16320	Nutria	25	0	1	1	2	Nutria Damage Site	Lafourche	T17SR23E	475
244	I	29.73080	-90.09700	Nutria	5	0	2	1	1	Nutria Damage Site	Jefferson	T15SR23E	80
245	F	29.75400	-90.07240	Nutria	281	0	3	1	2	Nutria Damage Site	Jefferson	T15SR24E	0
250	I	29.78660	-89.90640	Nutria	1214	0	2	1	2	Nutria Damage Site	Plaquemines	T14SR13E	2141
252	I	29.74990	-89.91860	Nutria	342	0	2	1	2	Nutria Damage Site	Plaquemines	T15SR13E	2687
256	I	29.77060	-89.88370	Nutria	292	0	2	1	2	Nutria Damage Site	Plaquemines	T15SR13E	0
258	I	29.83730	-89.84390	Nutria	396	0	2	1	2	Nutria Damage Site	St Bernard	T14SR13E	0
259	I	29.82450	-89.84700	Nutria	149	0	1	1	2	Nutria Damage Site	St Bernard	T14SR13E	0
260	I	29.81860	-89.85650	Nutria	277	0	1	1	2	Nutria Damage Site	St Bernard	T14SR13E	281
272	F	29.51520	-91.12540	Nutria	201	0	1	1	2	Nutria Damage Site	Terrebonne	T18SR13E	1352
278	F	29.50160	-91.09470	Nutria	252	0	1	1	2	Nutria Damage Site	Terrebonne	T18SR13E	2266
306	F	29.53650	-91.12470	Nutria	302	0	1	1	2	Nutria Damage Site	Terrebonne	T18SR13E	606

SITE	MARSH TYPE	LATITUDE	LONGITUDE	DAMAGE TYPE	DAMAGED ACRES	ACRES TO OPEN WATER	VDR	AGE OF DAMAGE	PREDICTION	RECLASS	PARISH	TOWNSHIP AND RANGE	NUTRIA HARVESTED BY SITE
307	F	29.49550	-91.14580	Nutria	508	0	1	1	2	Nutria Damage Site	Terrebonne	T18SR13E	696
310	F	29.57950	-91.01000	Nutria	146	0	3	2	0	Nutria Damage Site	Terrebonne	T17SR14E	0
311	F	29.55360	-90.98250	Nutria	1361	0	1	1	2	Nutria Damage Site	Terrebonne	T17SR14E	1321
314	F	29.43830	-90.82470	Nutria	19	0	1	1	1	Nutria Damage Site	Terrebonne	T19SR16E	87
315	I	29.42830	-90.78520	Nutria	90	0	1	1	1	Nutria Damage Site	Terrebonne	T19SR16E	287
329	B	29.51060	-90.26340	Nutria	102	0	2	1	2	Nutria Damage Site	Lafourche	T18SR22E	1811
331	I	29.79960	-90.22870	Nutria	34	0	1	1	1	Nutria Damage Site	St Charles	T15SR22E	0
332	I	29.81830	-90.19150	Nutria	71	0	1	1	2	Nutria Damage Site	St Charles	T14SR22E	245
336	i	29.72520	-89.91260	Nutria	5	0	1	1	2	Nutria Damage Site	Plaquemines	T15SR13E	2687
337	I	29.68270	-89.94430	Nutria	154	0	2	1	2	Nutria Damage Site	Plaquemines	T16SR12E	0
338	I	29.81790	-89.81940	Nutria	10	0	1	1	1	Nutria Damage Site	St Bernard	T14SR14E	0
344	F	29.52830	-91.02000	Nutria	260	0	2	2	2	Nutria Damage Site	Terrebonne	T18SR14E	236
345	F	29.61360	-90.56680	Nutria	188	0	1	1	2	Nutria Damage Site	Lafourche	T17SR19E	0
346	F	29.87470	-90.16170	Nutria	34	0	2	1	2	Nutria Damage Site	Jefferson	T14SR23E	0
360	I	29.72160	-89.88820	Nutria	74	0	1	1	2	Nutria Damage Site	Plaquemines	T15SR13E	349
364	B	29.55990	-92.26100	Nutria	50	0	2	1	2	Nutria Damage Site	Vermilion	T17SR2E	0
365	B	29.55020	-92.26060	Nutria	454	0	2	1	2	Nutria Damage Site	Vermilion	T17SR2E	1662
366	B	29.54050	-92.26590	Nutria	31	0	2	1	2	Nutria Damage Site	Vermilion	T17SR2E	361
367	B	29.54150	-92.28630	Nutria	351	0	1	1	2	Nutria Damage Site	Vermilion	T17SR2E	1662
372	F	29.50520	-91.16600	Nutria	3	0	1	1	1	Nutria Damage Site	Terrebonne	T18SR13E	0
375	F	29.68510	-90.63310	Nutria	46	0	1	1	2	Nutria Damage Site	Lafourche	T16SR18E	0
377	I	29.74290	-89.94520	Nutria	413	0	2	1	2	Nutria Damage Site	Plaquemines	T15SR12E	1662
380	I	29.59770	-92.21080	Nutria	38	0	2	1	1	Nutria Damage Site	Vermilion	T16SR2E	0
382	F	29.48790	-91.12010	Nutria	104	0	1	5	2	Nutria Damage Site	Terrebonne	T18SR13E	0
383	F	29.58500	-91.07360	Nutria	135	0	2	5	2	Nutria Damage Site	Terrebonne	T17SR14E	3881
384	F	29.57000	-91.07630	Nutria	157	0	1	5	2	Nutria Damage Site	Terrebonne	T17SR14E	862
385	F	29.57170	-90.91640	Nutria	35	0	1	3	2	Nutria Damage Site	Terrebonne	T17SR15E	992
386	F	29.94600	-90.63610	Nutria	73	0	2	5	3	Nutria Damage Site	St John	T13SR18E	0
387	F	29.95900	-90.60380	Nutria	38	0	1	5	2	Nutria Damage Site	St John	T13SR18E	0
388	F	29.95380	-90.51110	Nutria	210	0	1	5	2	Nutria Damage Site	St Charles	T13SR19E	1279
389	F	29.92080	-90.45260	Nutria	691	0	2	5	2	Nutria Damage Site	St Charles	T13SR20E	5014
390	F	29.88350	-90.45170	Nutria	44	0	1	5	2	Nutria Damage Site	St Charles	T14SR20E	0
391	I	29.72380	-90.09470	Nutria	5	0	2	1	2	Nutria Damage Site	Jefferson	T16SR23E	60
393	I	29.82970	-89.81380	Nutria	203	0	2	1	2	Nutria Damage Site	St Bernard	T14SR14E	322


2004 - 2005 Coastwide
Nutria Control Program
Southeastern Louisiana
Total Tails Collected for the
04-05 Season - 297,535
Interstate Boundary
04 Damage Site Centers
Converted to Open Water
Muskrat Damage Site
Nutria Damage Site
Recovered Nutria Site
Number of Nutria Harvested
0 - 199
200 - 499
500 - 799
800 - 1999
2000 - 3999
4000 - 8000
Parish Boundaries
Tangipahoa
Livingston
St. Tammany
Ascension
Iberville
St. Martin
Orleans
St. Bernard
St. John the Baptist
St. James
St. Charles
Iberia
Assumption
St. Mary
Jefferson
Plaquemines
Terrebonne
Lafourche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200 - 499
500 - 799
800 - 1999
2000 - 3999
4000 - 8000
Parish Boundaries
Iberville
Lafayette
Jefferson Davis
St. Martin
Calcasieu
Acadia
Vermilion
Iberia
Cameron
St. Mary
N

APPENDIX B. Data collected at each damage site during the 2005 vegetative damage survey.

SITE	MARSH TYPE	LATITUDE	LONGITUDE	DAMAGE TYPE	DAMAGED ACRES	ACRES TO OPEN WATER	NRAR	VDR	AGE OF DAM	PREDICTION	PARISH	TOWNSHIP AND RANGE	NUTRIA HARVESTED BY SITE
8	F	29.5697	-91.1638	Nutria	607	0	1	1	1	2	Terrebonne	T17SR13E	389
9	F	29.5737	-91.1296	Nutria	141	0	1	1	1	2	Terrebonne	T17SR13E	2917
17	F	29.5397	-91.0504	Nutria	273	0	3	1	1	2	Terrebonne	T17SR14E	863
40	I	29.8155	-90.1740	Nutria	123	0	99	99	0	99	St. Charles	T14SR23E	182
49	B	29.6531	-90.1375	Nutria	182	0	1	2	1	2	Jefferson	T16SR23E	0
60	I	29.7180	-90.0527	Nutria	258	0	1	1	1	1	Jefferson	T16SR24E	92
92	I	29.7121	-90.0750	Nutria	317	0	1	1	1	2	Jefferson	T16SR24E	0
94	F	29.8696	-90.2885	Nutria	1187	0	2	2	1	2	St. Charles	T14SR21E	3512
97	I	29.7012	-90.1965	Nutria	151	0	1	3	1	2	Jefferson	T16SR22E	0
104	F	29.4162	-90.8933	Nutria	6	0	0	1	1	1	Terrebonne	T19SR15E	420
107	F	29.5305	-90.9420	Nutria	31	0	1	99	0	99	Terrebonne	T18SR15E	974
109	F	29.5328	-90.9929	Nutria	117	0	1	99	0	99	Terrebonne	T18SR14E	526
111	I	29.3978	-90.8263	Nutria	20	0	99	99	0	99	Terrebonne	T19SR16E	0
117	F	29.3846	-91.0479	Nutria	572	0	99	99	0	99	Terrebonne	T19SR14E	0
120	F	29.6006	-91.0648	Nutria	1747	0	1	1	1	2	Terrebonne	T17SR14E	4729
139	F	29.5510	-91.0965	Nutria	106	0	99	99	0	99	Terrebonne	T17SR13E	2117
140a	F	29.4850	-91.0983	Nutria	78	0	1	99	0	99	Terrebonne	T18SR13E	0
140b	F	29.4850	-91.0983	Nutria	116	116	99	4	99	99	Terrebonne	T18SR13E	0
142	F	29.5984	-91.0081	Nutria	56	0	1	1	1	1	Terrebonne	T17SR14E	0
171	F	29.9204	-90.4624	Nutria	2215	0	2	2	5	3	St. Charles	T13SR20E	5014
178	I	29.7173	-90.0912	Nutria	97	0	0	1	1	2	Jefferson	T16SR23E	0
233	F	29.6043	-90.9874	Nutria	242	0	1	99	0	99	Terrebonne	T17SR14E	2948
238	F	29.9280	-90.5236	Nutria	598	0	2	2	1	3	St. Charles	T13SR19E	1268
242	B	29.5939	-90.1632	Nutria	25	0	0	1	1	2	Lafourche	T17SR23E	475
244	I	29.7308	-90.0970	Nutria	5	0	0	1	1	2	Jefferson	T15SR23E	140
245	F	29.7499	-90.0735	Nutria	373	0	1	2	1	2	Jefferson	T15SR24E	461
250a	I	29.7866	-89.9064	Nutria	352	0	99	99	0	99	Plaquemines	T14SR13E	1863
250b	I	29.7949	-89.9160	Nutria	863	0	0	1	1	2	Plaquemines	T14SR13E	0
252	I	29.7499	-89.9186	Nutria	242	0	99	99	0	99	Plaquemines	T15SR13E	1662
256	I	29.7706	-89.8837	Nutria	292	0	0	1	1	2	Plaquemines	T15SR13E	0
258	I	29.8372	-89.8393	Nutria	253	0	0	1	1	2	St. Bernard	T14SR14E	0
259	I	29.8245	-89.8470	Nutria	149	0	0	1	1	2	St. Bernard	T14SR13E	0
260	I	29.8186	-89.8565	Nutria	277	0	0	1	1	2	St. Bernard	T14SR13E	281

SITE	MARSH TYPE	LATITUDE	LONGITUDE	DAMAGE TYPE	DAMAGED ACRES	ACRES TO OPEN WATER	NRAR	VDR	AGE OF DAM	PREDICTION	PARISH	TOWNSHIP AND RANGE	NUTRIA HARVESTED BY SITE
270	F	29.5761	-91.1959	Nutria	10	0	1	1	3	1	Terrebonne	T17SR12E	225
272	F	29.5152	-91.1254	Nutria	201	0	99	99	0	99	Terrebonne	T18SR13E	522
274	F	29.5690	-91.0618	Nutria	290	0	1	1	1	2	Terrebonne	T17SR14E	1055
275	F	29.6851	-90.6331	Nutria	46	0	99	99	0	99	Terrebonne	T16SR18E	0
278	F	29.5016	-91.0947	Nutria	252	0	1	1	1	2	Terrebonne	T18SR13E	2088
306	F	29.5365	-91.1247	Nutria	302	0	99	99	0	99	Terrebonne	T18SR13E	588
307	F	29.4955	-91.1458	Nutria	508	0	1	99	0	99	Terrebonne	T18SR13E	696
310	F	29.5795	-91.0100	Nutria	146	0	1	99	0	99	Terrebonne	T17SR14E	0
311	F	29.5562	-90.9866	Nutria	296	0	1	1	1	2	Terrebonne	T17SR14E	0
314	F	29.4383	-90.8247	Nutria	19	0	99	99	0	99	Terrebonne	T19SR16E	87
315	F	29.4283	-90.7852	Nutria	90	0	99	99	0	99	Terrebonne	T19SR16E	287
329	B	29.5106	-90.2634	Nutria	102	0	1	2	1	2	Lafourche	T18SR22E	1811
331	I	29.7996	-90.2287	Nutria	34	0	0	1	1	2	St. Charles	T15SR22E	0
332	I	29.8183	-90.1915	Nutria	71	0	99	99	0	99	St. Charles	T14SR22E	245
336	I	29.7252	-89.9126	Nutria	5	0	1	1	1	2	Plaquemines	T15SR13E	1662
337	I	29.6827	-89.9443	Nutria	154	0	0	2	1	2	Plaquemines	T16SR12E	0
338	I	29.8179	-89.8194	Nutria	10	0	99	99	0	99	St. Bernard	T14SR14E	0
344	F	29.5283	-91.0200	Nutria	260	0	1	1	1	2	Terrebonne	T18SR14E	236
345	F	29.6134	-90.5673	Nutria	109	0	1	1	1	2	Terrebonne	T17SR19E	0
346	F	29.8747	-90.1617	Nutria	34	0	99	99	0	99	Jefferson	T14SR23E	0
349	B	29.5040	-91.7900	Muskrat/Storm	1375	0	99	3	2	0	Iberia	T17SR7E	0
352	B	29.5107	-91.8470	Muskrat/Storm	196	0	99	3	2	2	Iberia	T18SR6E	0
357	B	29.8943	-89.5686	Muskrat	184	0	0	1	1	2	St. Bernard	T13SR16E	0
358	B	29.9671	-89.5335	Muskrat	327	0	0	1	1	2	St. Bernard	T12SR17E	0
360	I	29.7216	-89.8882	Nutria	74	0	0	1	1	2	Plaquemines	T15SR13E	99
362	I	29.9137	-91.9718	Nutria	158	0	1	1	1	2	Iberia	T13SR5E	0
363	B	29.7018	-92.2008	Muskrat	61	0	99	99	0	99	Vermillion	T15SR2E	0
364	B	29.5599	-92.2610	Nutria	50	0	99	99	0	99	Vermillion	T17SR2E	0
365	B	29.5502	-92.2606	Nutria	454	0	99	99	0	99	Vermillion	T17SR2E	1662
366	B	29.5404	-92.2659	Nutria	31	0	99	99	0	99	Vermillion	T17SR2E	1517
367	B	29.5415	-92.2863	Nutria	351	0	0	2	1	2	Vermillion	T17SR2E	1662
368	B	29.5564	-92.3396	Muskrat	926	0	99	3	1	2	Vermillion	T17SR1E	582
369	B	29.5584	-92.3780	Muskrat	613	0	99	3	2	2	Vermillion	T17SR1E	582
370	I	29.9881	-93.7092	Muskrat	67	0	99	99	0	99	Cameron	T12SR13W	0

SITE	MARSH TYPE	LATITUDE	LONGITUDE	DAMAGE TYPE	DAMAGED ACRES	ACRES TO OPEN WATER	NRAR	VDR	AGE OF DAM	PREDICTION	PARISH	TOWNSHIP AND RANGE	NUTRIA HARVESTED BY SITE
371	B	29.9764	-93.7593	Muskrat	325	0	99	99	0	99	Cameron	T12SR14W	0
372	F	29.5052	-91.1660	Nutria	3	0	99	99	0	99	Terrebonne	T18SR13E	0
377	I	29.7429	-89.9452	Nutria	413	0	0	1	1	2	Plaquemines	T15SR12E	1662
378	B	29.9898	-89.5326	Muskrat	859	0	99	99	0	99	St. Bernard	T12SR17E	0
379	F	29.8534	-91.9455	Muskrat	94	0	99	99	0	99	Iberia	T13SR4E	0
380	I	29.5977	-92.2108	Nutria	38	0	1	2	1	2	Vermillion	T16SR2E	0
381	I	29.3572	-91.2548	Muskrat	10	0	0	3	5	2	Terrebonne	T20SR12E	120
382	F	29.4879	-91.1201	Nutria	104	0	1	99	0	99	Terrebonne	T18SR13E	0
383	F	29.5850	-91.0736	Nutria	135	0	1	1	1	2	Terrebonne	T17SR14E	3881
384	F	29.5700	-91.0763	Nutria	157	0	99	99	0	99	Terrebonne	T17SR14E	862
385a	F	29.5717	-90.9164	Nutria	18	0	0	99	0	99	Terrebonne	T17SR15E	626
385b	F	29.5717	-90.9164	Nutria	18	18	0	4	99	99	Terrebonne	T17SR15E	626
386	F	29.9472	-90.6395	Nutria	99	0	1	1	1	2	St. John the Baptist	T13SR18E	0
387	F	29.9590	-90.9604	Nutria	38	0	1	99	0	99	Assumption	T13SR15E	0
388	F	29.9509	-90.5152	Nutria	448	0	1	2	2	3	St. Charles	T13SR19E	1835
390	F	29.8843	-90.4464	Nutria	208	0	1	2	2	3	St. Charles	T14SR20E	0
391	I	29.7238	-90.0947	Nutria	5	0	99	99	0	99	Jefferson	T16SR23E	180
392	F	29.7380	-90.0774	Muskrat	82	0	0	1	1	2	Jefferson	T15SR24E	0
393	I	29.8297	-89.8138	Nutria	203	0	1	1	1	2	St. Bernard	T14SR14E	322
394	B	29.5638	-92.2467	Muskrat	846	0	99	3	2	2	Vermillion	T17SR2E	1662
395	B	29.5602	-92.3132	Muskrat	308	0	99	3	2	2	Vermillion	T17SR1E	582
396	B	29.5438	-91.8801	Muskrat	312	0	99	3	2	2	Iberia	T17SR6E	0
397	B	29.5427	-91.7466	Muskrat	517	0	99	3	1	2	Iberia	T17SR7E	0
398	F	29.4600	-91.2325	Nutria/Hog	79	0	1	1	5	1	Terrebonne	T17SR12E	0
399	F	29.5149	-91.2287	Nutria	34	0	1	1	5	1	Terrebonne	T18SR12E	371
400	F	29.5802	-91.1073	Nutria	113	0	2	1	5	2	Terrebonne	T17SR13E	2410
401	B	29.6328	-92.7313	Muskrat	159	0	99	99	99	99	Cameron	T16SR3W	0
402	F	29.8998	-90.6210	Nutria	141	0	1	1	5	3	St. John the Baptist	T13SR18E	261
403	I	29.7150	-89.8216	Nutria	49	0	1	2	1	2	Plaquemines	T15SR13E	400
404	B	29.5417	-91.8147	Muskrat	121	0	99	3	2	2	Iberia	T17SR6E	0
405	I	29.3021	-91.2074	Muskrat	1119	0	0	3	5	2	Terrebonne	T20SR12E	0
406	I	29.8631	-92.7665	Muskrat	1013	0	99	99	99	99	Cameron	T14SR4W	0
407	I	29.8542	-93.7319	Muskrat	653	0	99	99	99	99	Cameron	T13SR14W	0
408	I	29.8950	-93.2160	Muskrat	5569	0	99	99	99	99	Cameron	T13SR8W	0

SITE	MARSH TYPE	LATITUDE	LONGITUDE	DAMAGE TYPE	DAMAGED ACRES	ACRES TO OPEN WATER	NRAR	VDR	AGE OF DAM	PREDICTION	PARISH	TOWNSHIP AND RANGE	NUTRIA HARVESTED BY SITE
409	I	29.7742	-93.0555	Muskrat	499	0	99	99	99	99	Cameron	T15SR7W	0
410	I	29.8315	-93.1977	Muskrat		0	99	99	99	99	Cameron	T14SR8W	0
411	I	29.7741	-93.5331	Muskrat	207	0	99	99	99	99	Cameron	T15SR12W	0
412	I	29.8444	-93.0959	Muskrat	721	0	99	99	99	99	Cameron	T14SR7W	657

CODES FOR NUTRIA HERBIVORY SURVEY DATA

[1]Marsh Type

Fresh	F
Intermediate	I
Brackish	B

[2]Nutria Relative Abundance Rating

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

[3]Vegetative Damage Rating

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

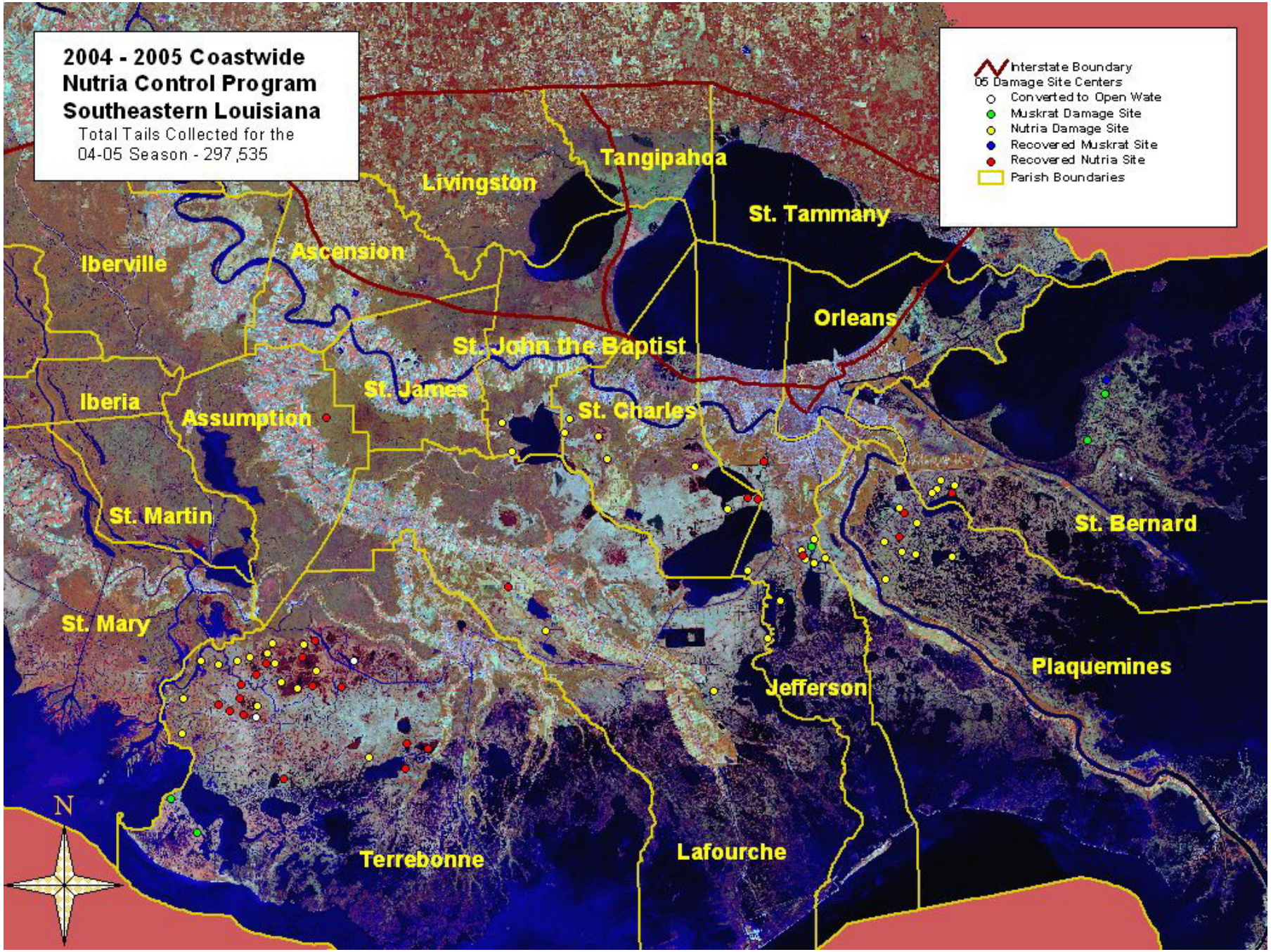
[4]Age of Damage and Condition

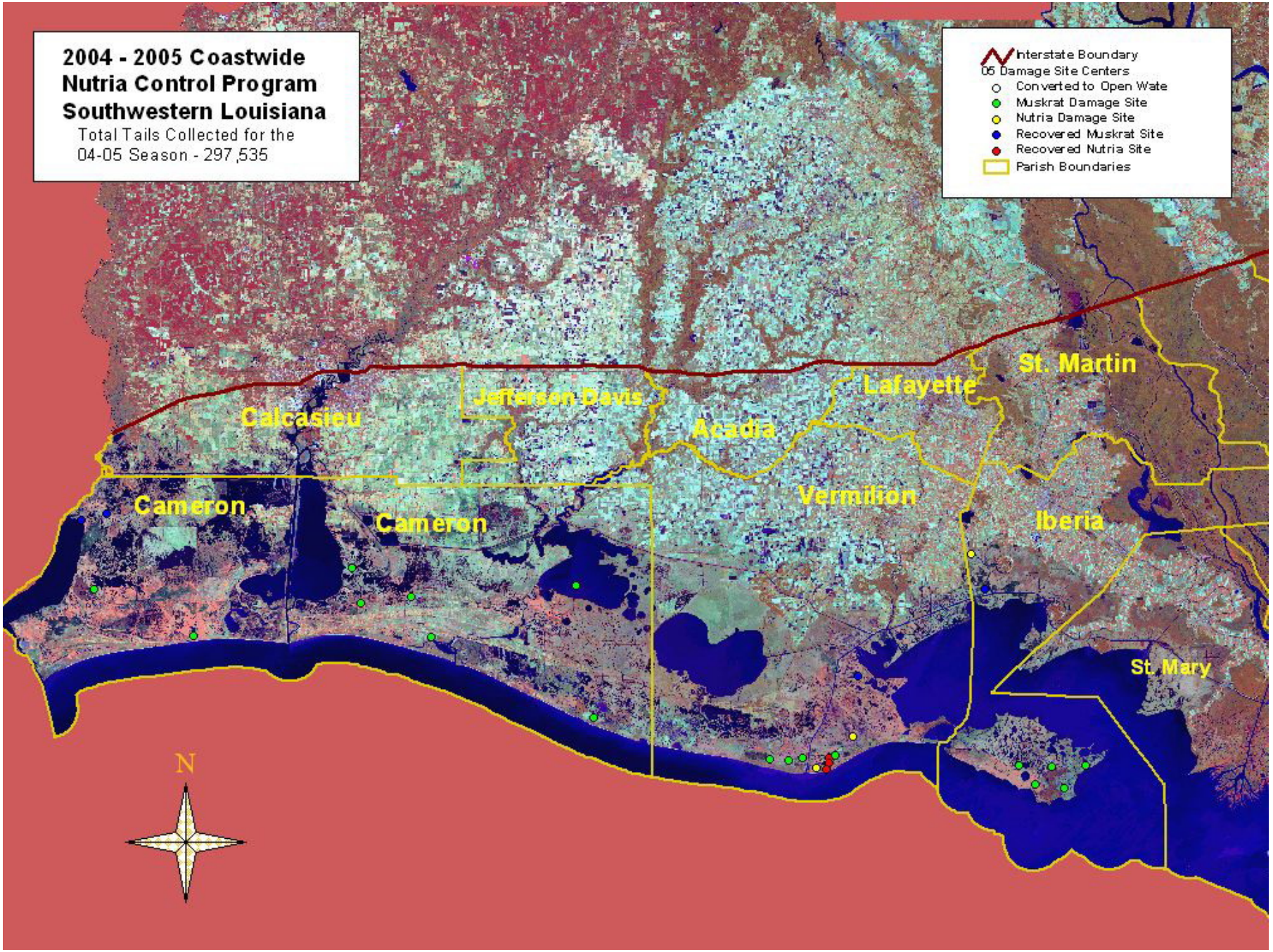
Recovered	0
Old Recovering	1
Old Not Recovering	2
Recent Recovering	3
Recent Not Recovering	4
Current (Occurring Now)	5

[5]Prediction of Recovery by End of 2004 Growing Season

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

99 – Entry does not apply to this site.


2004 - 2005 Coastwide
Nutria Control Program
Southeastern Louisiana
Total Tails Collected for the
04-05 Season - 297,535
Interstate Boundary
05 Damage Site Centers
Converted to Open Wate
Muskrat Damage Site
Nutria Damage Site
Recovered Muskrat Site
Recovered Nutria Site
Parish Boundaries
Tangipahoa
Livingston
St. Tammany
Ascension
Iberville
Orleans
St. John the Baptist
St. James
Iberia
Assumption
St. Charles
St. Martin
St. Bernard
St. Mary
Plaquemines
Jefferson
N
Terrebonne
Lafourche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Recovered Nutria Site
Parish Boundaries
Calcasieu
Jefferson Davis
Acadia
Lafayette
St. Martin
Cameron
Cameron
Vermilion
Iberia
St. Mary
N