NUTRIA HARVEST DISTRIBUTION 2005-2006

And

A SURVEY OF NUTRIA HERBIVORY DAMAGE IN COASTAL LOUISIANA IN 2006

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

Jeb Linscombe and Edmond Mouton

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NUTRIA HARVEST DISTRIBUTION 2005-2006

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-1950's 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 1996-97 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-1950's. 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 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. 2511-05-05 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 reporting of the distribution of harvest has been improved through tracking the harvest by section and individual lease.

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 2005-2006.

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 through 2006-2007, with the option to renew for 3 years thereafter. Tail collection sites were established at Rockefeller Refuge, Abbeville, Berwick (Morgan City), Houma, Luling and Chalmette. Collections were made once a week at each site, except for Rockefeller Refuge and Chalmette, where collections were made by appointment only due to impacts to these collection sites from Hurricanes Katrina and Rita.

Louisiana's open trapping season began on November 20, 2005, 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 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.

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, 2006, 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 168,843 nutria tails, worth $675,372 in incentive payments, were collected from 216 participants. Eighty participants (37%) turned in less than 200 tails, 53 participants (25%) turned in between 200 and 499 tails, 29 participants (13%) turned in between 500 and 799 tails and 54 participants (25%) turned in 800 or more tails. The 54 participants who turned in 800 or

more tails are responsible for (73%) 124,047 of the 168,843 tails that were turned in. There were 20 parishes represented in the program with harvests ranging from 58 to 57,756 nutria per parish. Approximately 79% of the harvest came from the south-central portion of Louisiana. The method of take was identified as: 65,104 nutria (39%) trapped; 81,105 nutria (48%) taken with a rifle; and 22,634 nutria (13%) taken with a shotgun (Figure 4). February was the most active month for harvesting nutria (61,543 tails), while November (5,726 tails) was the least active month (Figure 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, 96,215 nutria (57%), came from fresh marshes. This was followed by 53,508 nutria (32%) being harvested from lands within the "other" category. Nine thousand ninety three nutria (5%) and 8,767 nutria (5%) were harvested from intermediate and brackish marshes, respectively; a small amount of the harvest, 660 nutria (<1%), came from salt marsh (Figure 3). The majority of the nutria damage in 2005, which results from high nutria populations, occurred in fresh (63%) and intermediate (26%) 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 fresh marsh while trapping was the most popular method in the brackish and intermediate marshes (Figure 5). In fresh marsh 49% of the nutria were shot with a rifle, 12% shot with a shotgun, while 39% were trapped. In intermediate marsh, 42% of the nutria were shot with a rifle, 47% were trapped, and 10% were shot with a shotgun. In brackish marsh, 40% of the nutria were taken with a rifle and 59% were trapped. In salt marsh, 54% of the nutria were trapped and 38% were taken with a rifle

Use or abandonment of the nutria carcasses, was recorded for each participant transaction. For the purpose of this survey, use categories included 1) harvested for meat and/or 2) harvested for fur. Carcass abandonment categories included: 1) buried carcasses, 2) placed in heavy overhead vegetation or 3) placed in water. Overall, nutria were abandoned nearly 5.5 times more frequently than removed from the marsh for meat or fur. A slight majority of the nutria were abandoned in overhead vegetation compared to abandonment by burying of the carcass. Nutria use or abandonment was also separated by marsh type. In fresh marsh 6,769 nutria were used for fur while 12,752 nutria were used for their meat (Table 1). In fresh marsh, a slight majority were buried (39,097 nutria) as compared to abandoned in vegetation (36,992 nutria). In intermediate marsh there was a greater amount of carcasses used for meat, (1,572 nutria) than for their fur (983 nutria). Of the 9,093 nutria harvested within intermediate marshes, 7,086 animals were abandoned. In brackish marshes, 8,710 nutria were abandoned while only 57 nutria were used for fur and/or 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 can be attributed to fur quality and economics. Fur quality in the fresh marsh could have

been affected by "fourchette" damage that is caused by the seeds of *Bidens laevis*. The seed is covered with small hook-like protrusions that 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 is 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 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. Also, prices for nutria were more uncertain than in the past and dealers never made firm commitments on prices to trappers.

Harvest by Parish

During the 2005-2006 season of the Coastwide Nutria Control Program, similar to the first year of the program, the parish with the highest harvest was Terrebonne Parish (34%). Fourteen percent of the harvest during the 2005-2006 season came from Lafourche Parish, 12% was within St. Mary Parish, 9% was within St. Martin Parish and 8% of the nutria harvest came from St. Charles (Table 2). These were the only 5 parishes in which at least 10,000 nutria were harvested, and their combined total equaled 79% of the coast wide nutria harvest. The biggest change in harvest distribution was the reduction in Plaquemines Parish from 39,043 in 2004-2005 to 1,816 in 2005-2006 nutria (Figure 6). This parish experienced the highest flood waters during Hurricane Katrina. It is hypothesized that this tropical event decimated or possibly displaced the nutria populations within these parishes. Additionally, the storm event totally displaced historical trappers from their homes in these areas. The flooding and displacement of trappers in the southern portion of the Terrebonne Parish may have impacted the harvest in Terrebonne.

Method of take for 2005-2006, within each of the high nutria producing parishes, was similar to the 2004-2005 season. Although the total harvest for the program was down (128,884 nutria), the percentage of harvest by the three methods of take was similar (Figure 4). During the 2005-2006 season 39%, 48%, and 13% of nutria were trapped, shot with a rifle, and shot with a shotgun, respectively. This is only a 6% shift in the number of nutria shot with a rifle and shotgun from the 2004-2005 season. Terrebonne 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 2005-2006 season within Terrebonne Parish, 28,132 nutria (49%) were taken by trapping, 25,557 nutria (44%) taken with a rifle, and 4,047 nutria (7%) were taken with a shotgun (Table 3). Within Lafourche Parish, 9,113 nutria (37%) were trapped, 11,000 nutria (45%) where shot with a rifle, and 4,555 nutria (18%) were shot with a shotgun. During the 2004-2005 season 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. St. Mary Parish had 9,266 nutria (44 %) taken by trapping, 11,202 nutria (53%) taken with a rifle, and (3%) were taken with a shotgun. In 2005-2006, 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; 26% (4,137 nutria) were taken via trapping, 34%

(5,355 nutria) were taken via a rifle, and 40% (6,412 nutria) were taken via a shotgun. This distribution in harvest method is very similar to the 2004-2005 season in which 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.

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 (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.

Hurricanes Katrina and Rita

During the 2005-2006 season the most dramatic change in harvest came in Plaquemines Parish where there was a reduction in take from 39,043 (2004-2005) to 1,816 (2005-2006). The St. Bernard Parish harvest also dropped from 4,344 in 2004-2005 to 0 in 2005-2006. This reduction in harvest for those two parishes as well as other southeastern parishes can be directly attributed to Hurricane Katrina, and 2005-2006 is the first season since the CNCP program began that harvest rates in the east were not the highest in the state. Cameron and Vermilion also had a dramatic reductions in harvest, 77% and 84% respectively, from 2004-2005 to 2005-2006 season. These reductions in harvest can be attributed to Hurricane Rita, through destruction and/or displacement of nutria populations, as well as the displacement of trappers and hunters from their homes prior to the trapping season.

Harvest by Damage Site

In the 2005 Vegetative Damage Survey, there were 49 damage sites including two sites that had converted to open water in 2005. The other 47 damage sites from the 2005 damage survey were overlaid onto a map of the 2005-06 harvest areas in order to determine which damaged sites were hunted/trapped and which sites received no hunting/trapping. Of the 47 damage sites, 18 sites containing 7,938 acres received some level of trapping or hunting while the other 29 sites containing 6,188 acres did not. Appendix A contains the 2005 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 that 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 79,444 acres. In summary, the coast wide estimates of nutria herbivory damage prior to implementation of the CNCP incentive payments (from 1998 to 2002) ranged 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 to 102,585 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 four 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. 2511-05-05 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 been conducted in the spring of 2003, 2004, 2005, and 2006. Results were analyzed and the numbers of acres impacted or recovered were determined.

This section reports on the 2006 Coastwide Nutria Herbivory Survey.

Methods

A coast wide nutria herbivory survey was conducted on April 10-15, and April 17-20. North-South transects were flown throughout the fresh, intermediate and brackish marshes of coastal Louisiana. Parishes included in the survey were Cameron, Vermilion, Iberia, 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 about 1/4 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 7):

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 296) was utilized to allow for accurate location of damaged sites. The software used was DNRGarmin (written by Minnesota DNR) 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 2006 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 2006 was 74, of which 5 were new sites while 69 were previously classified as damaged in the 2005 survey. All 5 of the new sites were identified as nutria damage. Two sites that had converted to open water in 2005 and 34 sites that had recovered in 2005 were not re-visited during the 2006 survey.

Of the 74 sites visited in 2006, 52 sites were related to nutria damage: 31 were identified as having visible nutria herbivory impacts, 12 were classified as recovered nutria damage, 9 were nutria damage sites that had converted to open water (Table 5). Of the 74 sites visited in 2006, 22 sites were related to muskrat damage: 16 were identified as having visible muskrat damage,

5 were identified as recovered muskrat damage, and 1 was a muskrat damage site that had converted to open water.

With 12 of the 52 nutria sites having recovered, the 2006 survey identified 40 sites with a total of 14,868 acres (Table 6) impacted by nutria feeding activity along transects (extrapolated to be 55,755 acres coast wide). This is a slight increase from the 14,260 acres (extrapolated 53,475 acres coast wide) impacted by nutria in 2005. However, this increase is largely due to the addition of 9 sites containing 2,553 acres (extrapolated to 9,574 acres coast wide) being converted to open water. All of these 9 sites were located in Plaquemines and St. Bernard Parishes where Hurricane Katrina caused the most severe land loss.

In 2006, Terrebonne, Lafourche, St. Mary, St. Martin, and St. Charles are the parishes that were the most impacted by nutria herbivory. Of the 40 sites currently showing impact, Terrebonne Parish contained the largest number of damaged sites, 14 sites (35%), encompassing a damaged area of 7,340 acres (49%). This is a decrease from the 18 sites and 7,679 acres in 2005, indicating that a number of sites have recovered in Terrebonne Parish. During the 2006 survey, Lafourche Parish accounted for 0 sites of damaged marsh compared to 2 sites (4%) and 127 (2%) acres in 2005. Five sites (12.5%) and 874 acres (6%) were located in Jefferson Parish. Plaquemines Parish accounted for 7 sites (17.5%) and 1,763 acres (12%); St. Bernard Parish had 4 sites (10%) with 1,004 acres (7%) impacted. St. Charles Parish had a decrease in the number of sites and damaged acres for the first time since the CNCP began, presently amounting to 3,249 acres (22%) on 5 damage sites (12.5%). This is a decrease from 4,690 acres on 6 damage sites in 2005. St Charles Parish had the second highest number of damaged acres of the parishes surveyed. During 2006 survey, nutria vegetation damage was observed within Jefferson Davis for the first time with 1 site and 88 acres of damage.

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 23 sites (58%), covering 11,273 acres (76%). Intermediate marsh contained 16 sites (40%), accounting for 3,421 (23%) of the damaged acres. Brackish marsh had only 1 site (2.5%) and 174 (1%) 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 2006 survey, 4 sites (13%) covering 519 acres (4%) showed no nutria sign visible. Twenty-six sites (84%) covering 11,223 acres (91%) showed nutria sign visible. One site (3%) covering 573 acres (5%) had abundant feeding signs and 0 sites had heavy feeding signs. The number of heavy feeding sites has decreased considerably over the past four years, beginning with 14 sites covering 5,599 acres in 2003. Although, the number of sites with nutria sign visible has not decreased dramatically, it has become the category with the majority (84%) of sites. This indicates a trend of the damage transitioning into the vegetative damage

rating (VDR) of minor damage due to less sites falling into the NRAR ratings of abundant feeding sign and 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. Twenty-one sites (53%) covering 7,621 acres (51%) were classified as having minor vegetative damage in 2006 as compared to 34 sites covering 8,070 acres in 2005. Nine sites (23%) covering 4,581 acres (31%) had moderate vegetative damage in 2006. Since the beginning of the program in 2002 through 2006 there has been a trend of these moderately damaged sites shifting toward minor damage. The classification of severe vegetative damage, which has the best chance of being converted to open water, had only 1 site (2.5%) covering only 113 acres (1%) in 2006. 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 9 sites (23%) and covered 2,553 (17%) acres in 2006 versus 2 site covering 134 acres in 2005. All 9 of these sites were located in Plaquemines and St. Bernard, the two parishes most impacted by Hurricane Katrina. Prior to Hurricane Katrina, the vegetative damage ratings of these sites were within the range of minor to moderate damage, thus, it is likely that these 9 sites that converted to open water is likely attributed to tidal scour associated with the hurricane.

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 2006 survey, 5 sites comprising 1,082 acres were classified as having current, ongoing nutria herbivory impacts, which was a decrease from the 2005 figure. A promising statistic was that the category ‘old recovering’ included 21 sites containing 9,429 acres. These are the sites that have the highest likelihood of recovering over the next growing season. Four sites, covering 1,519 acres, were classified as old damage not recovering in 2006. Twelve of the 52 sites visited, encompassing 1,341 acres, were classified as recovered.

For each site with current damage, the degree of recovery by the end of the 2006 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 2006 growing season (27 sites and 11,487 acres). Four sites, totaling 828 acres, were predicted to fully recover by next year, while 0 damaged sites were predicted to increase in damage or predicted not to recover.

During the survey, several marsh areas that were damaged by muskrat were observed. Information was also collected for these. In addition to the 52 nutria damage sites, a total of 22 muskrat sites were observed. Of these 22 sites, 16 sites, covering 13,422 acres, were determined to be damaged while 5 sites, covering 1,889 aces were determined to be recovered. This is a slight decrease in the number of muskrat damaged acreage and number of sites from last year (27 sites covering 15,757 acres in 2005). Six sites had minor vegetative damage covering 1987 acres; 5 sites had moderate vegetative damage covering 8,517; 5 sites covering 2,918 acres showed severe vegetative damage.

Conclusion

The 2006 vegetative damage survey yielded a total of 14,868 acres of damage along transect lines. This figure, when extrapolated, shows that 55,755 acres were impacted coast wide at the time of survey. When compared to 2005 (14,260 acres or 53,475 acres extrapolated coast wide), the present damage is a 4% increase in the number of damaged acres. However, when the 9 sites that were converted to open water are removed, only 12,315 damaged acres are left (46,181 acres extrapolated coast wide). It is likely that these nine sites that converted to open water were converted due to tidal scour associated with the hurricane rather than due to nutria herbivory. These sites did have impacts from nutria herbivory prior to the hurricane; however, the vegetative damage ratings (VDR) fell within the minor and moderate categories and the sites were predicted to recover. The recovered sites in 2006 had a combined area of 1,341 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 south central 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 2006 survey, there were 21 sites that were rated as having minor damage. Of these 21 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 2006 is that only 1 site (113 acres) had severe vegetative damage. 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. The 2 sites with no nutria sign visible should improve in damage rating for next year. LDWF will contact the landowner(s) of those sites with the more severe relative abundance rating to encourage a more concentrated effort to remove nutria from those areas 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 2006 growing season, but 3 sites (3,469 acres) are predicted to increase in damage.

Section 3

CNCP: Summary of Results (2002-2006) 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 was 97,271 acres (2000), 83,021 acres (2001), and 79,444 acres (2002).

For the first 4 years of CNCP incentive payment implementation, the coast wide nutria harvest was 308,160 (2002-2003), 332,396 (2003-2004), 297,535 (2004-2005), and 168,843 (2005-2006) the coast wide estimate of nutria herbivory damage was 82,080 (2003), 63,398 (2004), 53,475 (2005) and 46,181, adjusted to remove acreage likely converted to open water by Hurricane Katrina (2006).

The CNCP has served to drastically increase the nutria harvest in coastal Louisiana to over an average of 276,000 animals per year. 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 over the past 3 years: 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 advise the landowners of the damage observed on their properties, and strongly encourages their participation in the CNCP. These landowners will be provided 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 the 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 four years and the coordination with trappers and fur buyers/dealers to encourage the maximum use of the entire animal.

As Year 5 of the CNCP approaches, LDWF has identified another important adaptive management modification. The incentive payment, which has been $4.00 per nutria tail turned in, will be increased to $5.00 for the 2006-2007 Trapping Season. From the beginning of CNCP, it was known that the incentive payment would have to increase over time to account for inflation and to encourage continued effort as nutria density decreased. Due to the substantial increase in fuel cost since August 2005 and the displacement of many historical nutria trappers/hunters by the 2005 hurricanes, the cost of harvesting nutria for 2006-2007 season will certainly increase, warranting the increase in incentive payment to $5.00 per nutria tail. LDWF will make a concerted effort to advise all potential participants of the incentive payment increase well in advance of the season.

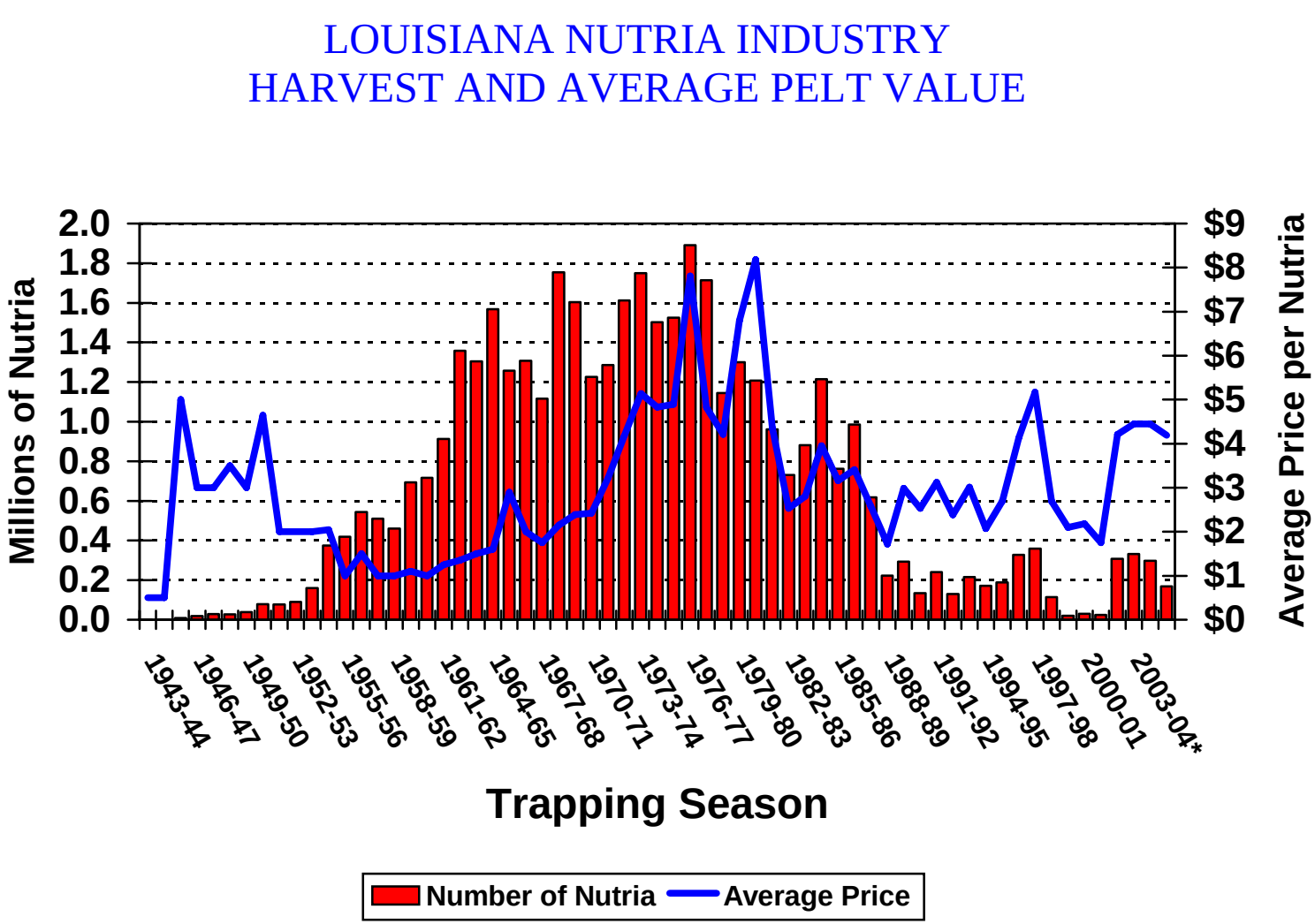


Figure 1. Annual harvest and average price of nutria from 1943-2006.
* In 2002 – 2003 as well as the 3 subsequent seasons, this figure includes the CNCP $4.00 incentive payment.

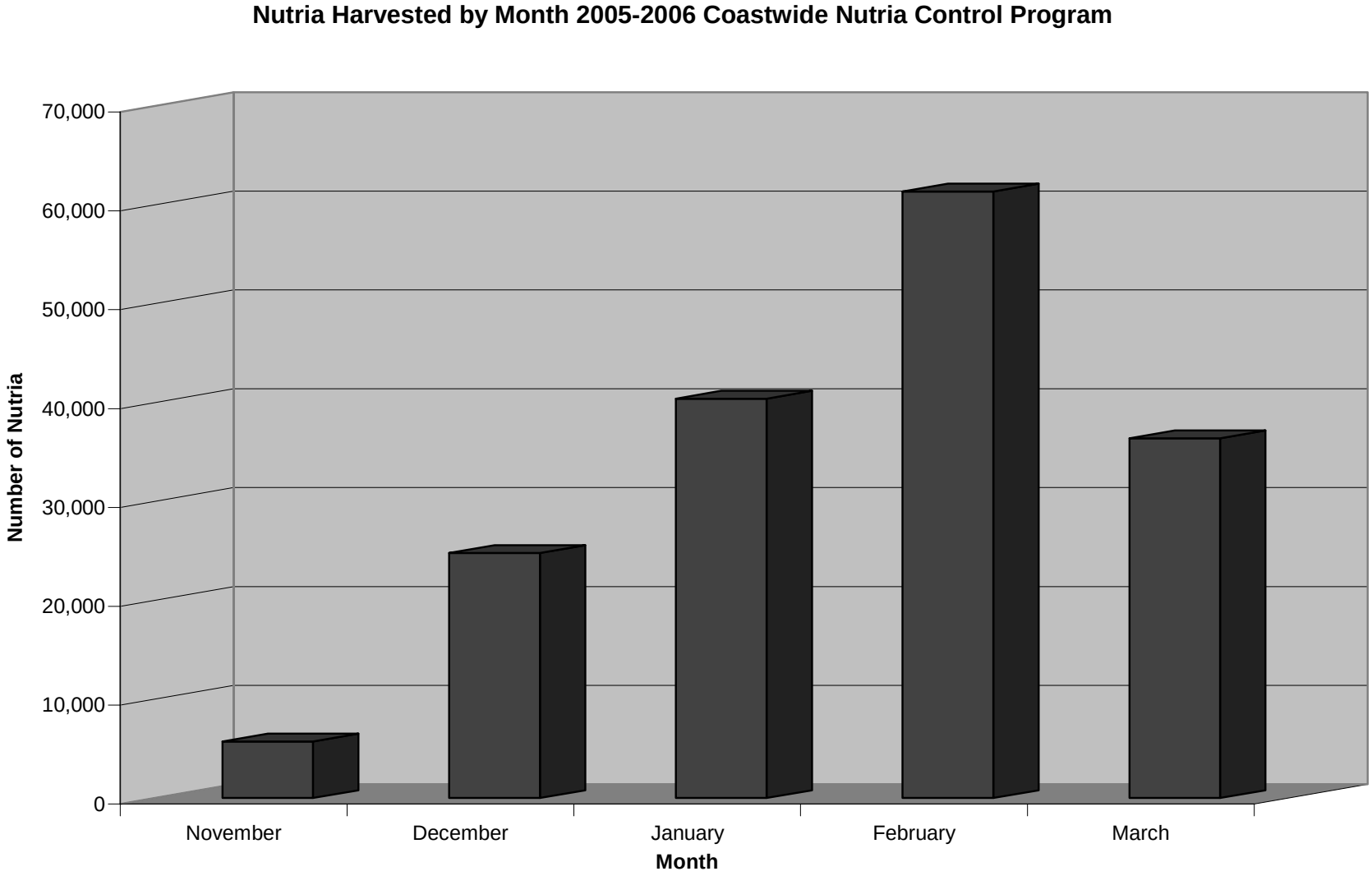


Figure 2. The number of nutria harvested by month as indicated by participants during the 2005-2006 Coastwide Nutria Control Program.

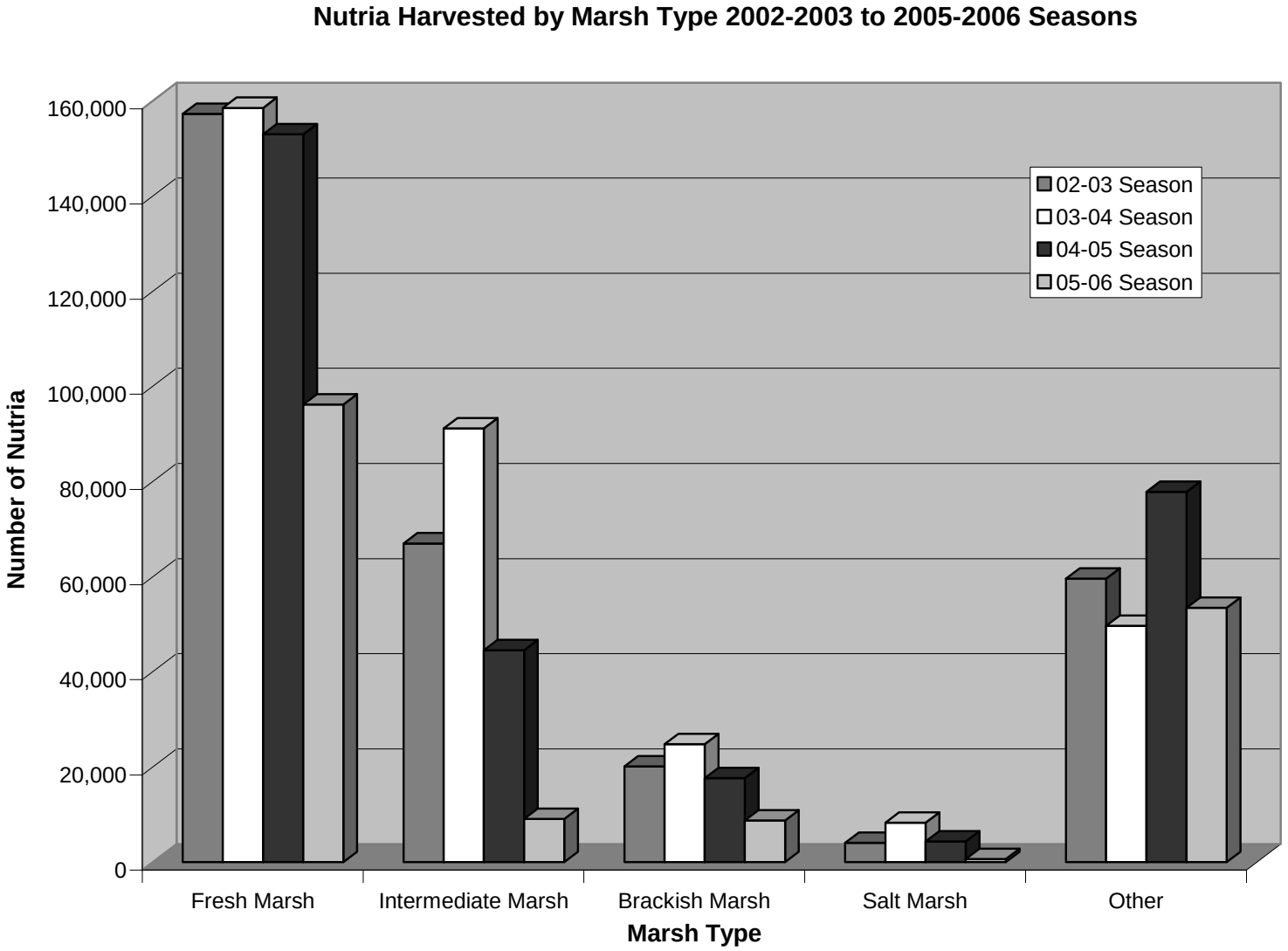


Figure 3. Number of nutria taken by marsh type from coastal Louisiana during the 2002-2003, 2003-2004, 2004-2005, and 2005-2006 Coastwide Nutria Control Program.

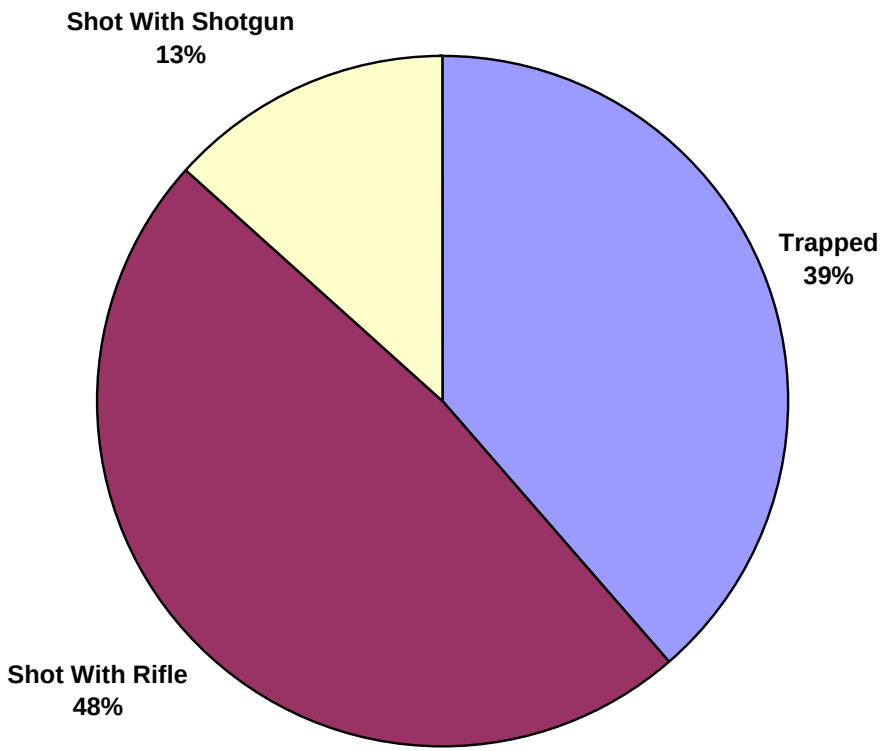


Figure 4. Method of take during the 2005-2006 Coastwide Nutria Control Program.

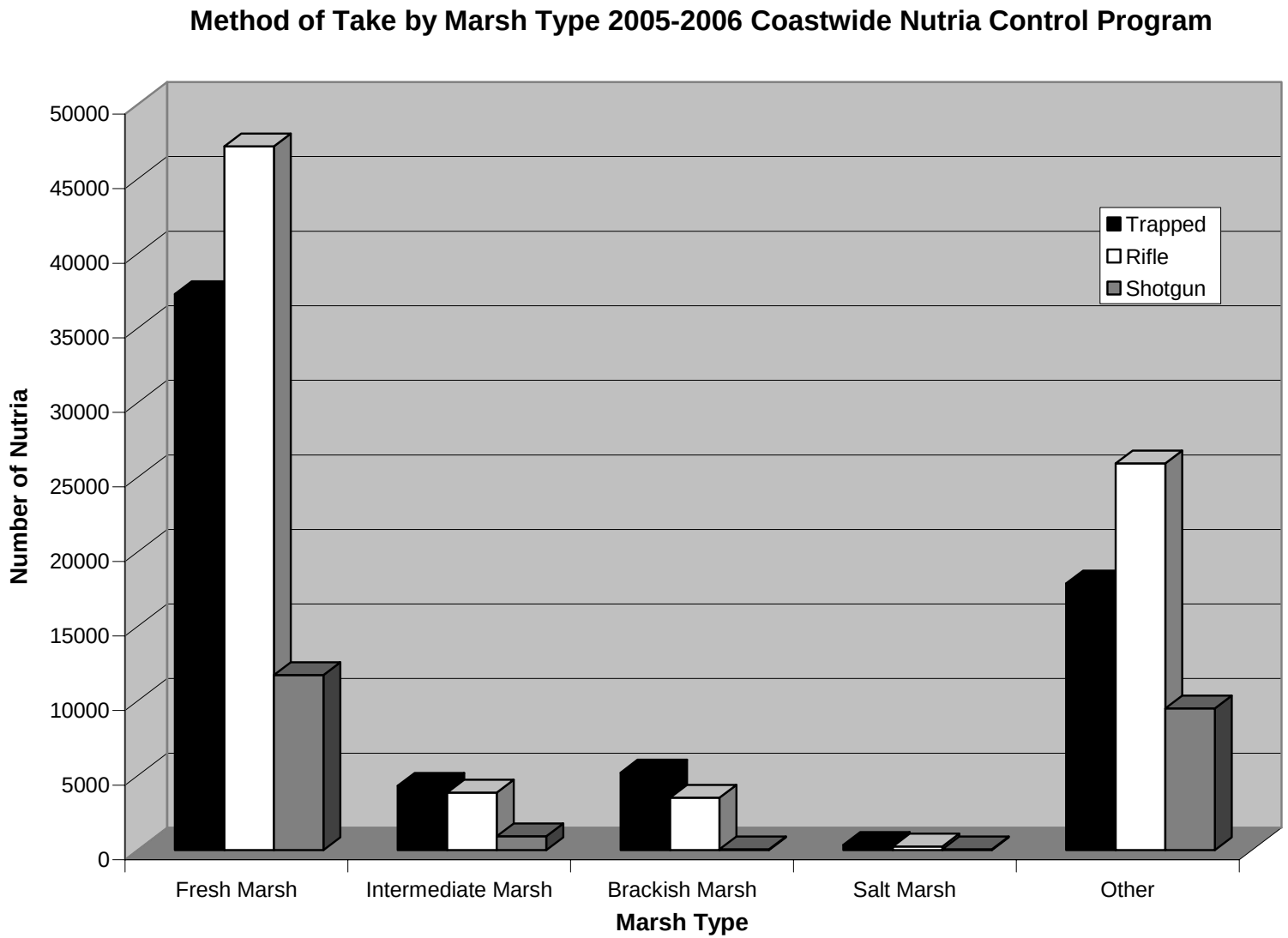


Figure 5. The method of take by marsh type during the 2005-2006 Coastwide Nutria Control Program.

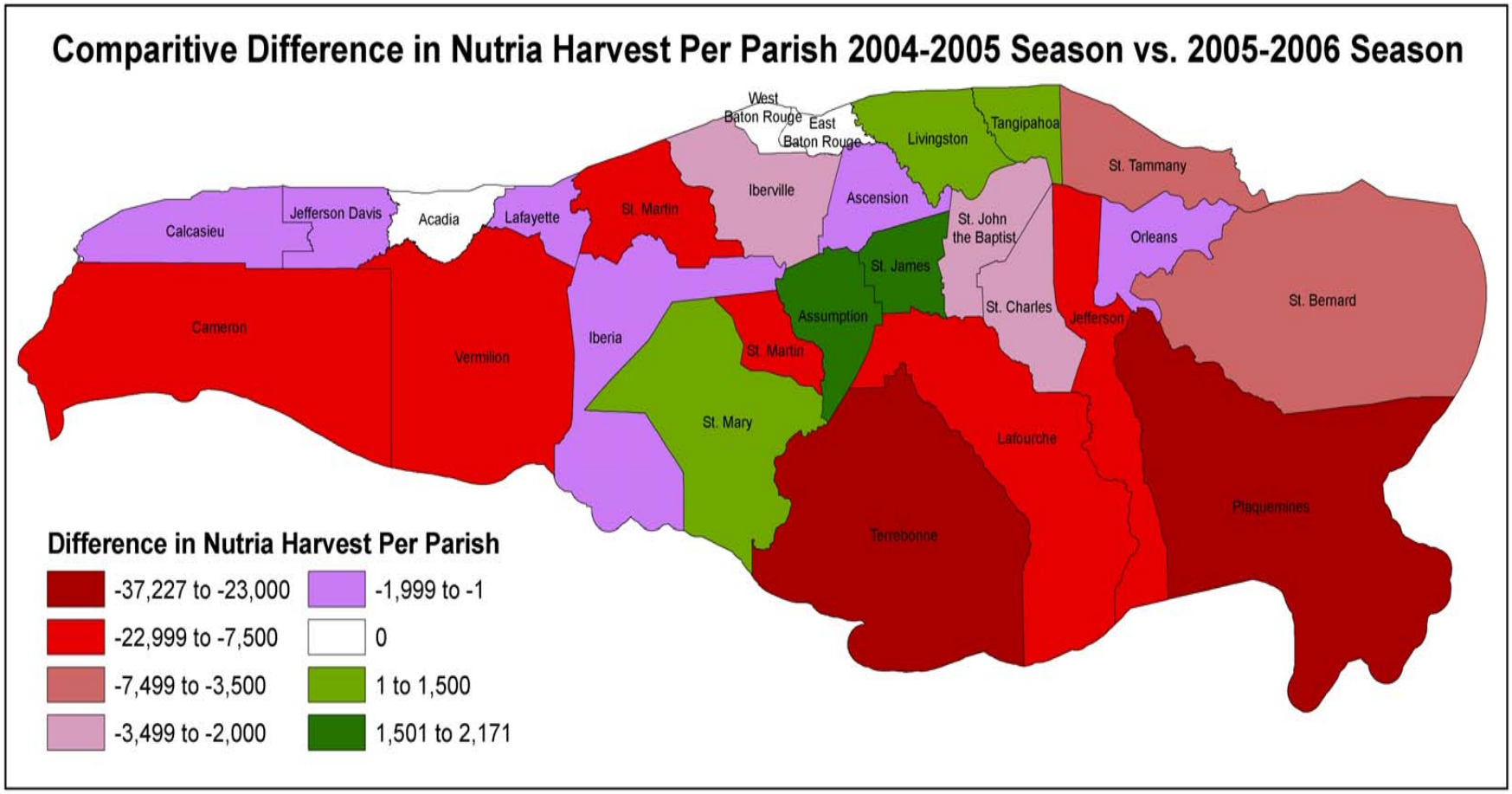


Figure 6. The comparative difference in nutria harvested per parish during the 2004-2005 season vs. the 2005-2006 season of the Coastwide Nutria Control Program.

Figure 7. Data Sheet utilized for 2006 nutria herbivory survey.

2006 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 2006 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 2005-2006 Coastwide Nutria Control Program.

MARSH TYPE	Meat	Fur	Abandon Buried	Abandon Vegetation	Abandon Water
Fresh	12,752	6,769	39,097	36,992	4,955
Intermediate	1,572	983	3,910	2,981	195
Brackish	20	57	6,601	1,418	691
Salt	191	191	153	317	
Other	7,380	1,957	17,609	26,480	574
Total	21,915	9,957	67,370	68,188	6,415

Table 2. Nutria harvested by parish for the 2002-2003 thru the 2005-2006 Coastwide Nutria Control Program.

PARISH	2002-2003		2003-2004		2004-2005		2005-2006	
	Nutria Harvested	Percentage	Nutria Harvested	Percentage	Nutria Harvested	Percentage	Nutria Harvested	Percentage
Ascension	2,710	0.9%	5,474	1.6%	1,858	0.6%	1,678	1.0%
Assumption	3,128	1.0%	814	0.2%	428	0.1%	2,307	1.4%
Calcasieu	143	-	374	0.1%	448	0.2%	58	0.0%
Cameron	7,851	2.6%	8,701	2.6%	16,617	5.6%	3,744	2.2%
Iberia	1,412	0.5%	1,960	0.6%	3,521	1.2%	3,014	1.8%
Iberville	0	-	1,567	0.5%	5,559	1.9%	2,360	1.4%
Jefferson	20,529	6.7%	24,896	7.5%	11,036	3.7%	2,875	1.7%
Jefferson Davis	121	-	85	-	175	0.1%	110	0.1%
Lafayette	39	-	25	-	10	0.0%	0	-
Lafourche	28,852	9.4%	51,736	15.6%	32,411	10.9%	24,668	14.6%
Livingston	2,631	0.9%	357	0.1%	911	0.3%	1,921	1.1%
Orleans	597	0.2%	0	-	538	0.2%	0	-
Plaquemines	63,208	20.5%	86,720	26.1%	39,043	13.1%	1,816	1.1%
St. Bernard	5,769	1.8%	13,344	4.0%	4,344	1.5%	0	-
St. Charles	11,169	3.6%	12,672	3.8%	15,867	5.3%	13,807	8.2%
St. James	95	-	487	0.2%	2,841	1.0%	4,912	2.9%
St. John the Baptist	18,450	6.0%	6,137	1.8%	8,404	2.8%	6,384	3.8%
St. Martin	11,425	3.7%	15,039	4.5%	31,656	10.6%	15,903	9.4%
St. Mary	26,004	8.4%	16,277	4.9%	20,940	7.0%	21,023	12.5%
St. Tammany	4,638	1.5%	3,756	1.1%	5,175	1.7%	1,423	0.8%
Tangipahoa	1,245	0.4%	745	0.2%	565	0.2%	826	0.5%
Terrebonne	92,831	30.1%	72,846	21.9%	81,135	27.3%	57,756	34.2%
Vermilion	5,313	1.7%	8,584	2.6%	14,503	4.7%	2,258	1.3%
Total	308,160	99.9%	332,596	99.9%	297,535	100.0%	168,843	100.0%

Table 3. Method of take by parish for the 2002-2003 thru the 2005-2006 Coastwide Nutria Control Program

PARISH	2002-2003			2003-2004			2004-2005			2005-2006		
	Trap	Rifle	Shot G	Trap	Rifle	Shot G	Trap	Rifle	Shot G	Trap	Rifle	Shot G
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	85	0	0	158	18	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	9,113	11,000	4,555
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	1,076	1,182	0
Total	103,550	195,199	9,411	158,678	166,618	7,303	114,668	159,810	23,057	65,104	81,105	22,634

Table 4. Carcass use by parish for the 2005-2006 Coastwide Nutria Control Program.

PARISH	2005-2006				
	Meat	Fur	Abandon Buried	Abandon Vegetation	Abandon Water
Ascension	0	0	540	1,138	0
Assumption	181	18	459	1,668	0
Calcasieu	0	12	17	0	0
Cameron	0	234	678	2,833	0
Iberia	4	0	482	2,384	142
Iberville	398	0	79	1,883	0
Jefferson	0	0	1,593	1,283	0
Jefferson Davis	0	83	10	0	0
Lafayette	0	0	0	0	0
Lafourche	9,082	3,437	8,231	5,085	888
Livingston	0	0	871	1,050	0
Orleans	0	0	0	0	0
Plaquemines	0	134	1,610	72	0
St. Bernard	0	0	0	0	0
St. Charles	973	116	5,311	6,050	1,358
St. James	0	35	2,030	2,685	162
St. John the Baptist	411	38	2,572	3,199	0
St. Martin	2,365	1,011	3,872	9,017	127
St. Mary	6,375	3,400	10,444	3,011	382
St. Tammany	496	31	171	756	0
Tangipahoa	0	0	581	245	0
Terrebonne	1,329	1,345	27,513	25,109	3,091
Vermilion	301	138	831	723	265
Total	21,915	10,032	67,895	68,191	6,415

Table 5. Status and number of nutria herbivory sites surveyed from 2002 to 2006.

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
2006	52	31	9[2]	12

[1] Two sites could not be evaluated due to high water.
[2] These nine sites were impacted by nutria prior to the hurricane, however, the conversion to open water can likely be attributed to tidal scour from the Hurricane Katrina.

Table 6. Number of damaged sites and acres damaged along transects by parish in coastal Louisiana, 2002 - 2006.

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	1,763
St. Charles	6	768	6	1,266	9	2,564	6	4,690	5	3,249
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
Total	94	21,185[1]	84	21,888[1]	69	16,906[1]	49	14,260[1]	40	14,868[1,2]

[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.

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

Table 7. Number of damaged sites and acres damaged by marsh type along transects in coastal Louisiana during 2002 to 2006; number includes sites converted to open water.

HABITAT TYPE	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
Fresh	41	11,593	36	10,871	37	10,565	26	9,811	23	11,273
Intermediate	39	7,416	31	8,086	25	5,128	19	3,789	16	3,421
Brackish	14	2,176	17	2,931	7	1,213	4	660	1	174
Total	94	21,185	84	21,888	69	16,906	49	14,260	40	14,868[1]

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

Table 8. Number of nutria damage sites and acres damaged by nutria relative abundance rating in coastal Louisiana during 2002 to 2006; numbers do not include sites converted to open water.

NUTRIA RELATIVE ABUNDANCE RATING	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
NO NUTRIA SIGN VISIBLE	21	5,990	23	5,972	13	3,569	14	2,992	4	519
NUTRIA SIGN VISIBLE	31	4,379	26	3,562	29	6,040	28	6,748	26	11,223
ABUNDANT FEEDING	17	4,198	19	6,682	19	5,251	4	4,113	1	573
HEAVY FEEDING	17	5,568	14	5,599	7	2,026	1	273	0	0
TOTAL	86	20,135	81	21,815	69	16,886	47	14,126	31	12,315

Table 9. Number of nutria damage sites and number of acres by the vegetative damage rating in coastal Louisiana 2002 to 2006.

VEGETATIVE DAMAGE RATING	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
NO VEGETATIVE DAMAGE	1	30	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
MODERATE VEGETATIVE DAMAGE	44	13,156	41	9,221	29	9,536	12	5,905	9	4,581
SEVERE VEGETATIVE DAMAGE	13	3,451	14	3,862	4	675	1	151	1	113
CONVERTED TO OPEN WATER	8	1,050	3	73	1	20	2	134	9	2,553[1]
TOTAL	94	21,185	84	21,888	69	16,906	49	14,260	40	14,868

[1]This figure represents acres of marsh previously impacted by nutria that was likely converted to open water due to tidal scour from Hurricane Katrina.

Table 10. Number of damage sites by age of damage and condition rating in coastal Louisiana in 2002 to 2006.

AGE OF DAMAGE AND CONDITION RATING	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
Old Recovering	51	7,694	51	14,382	53	12,338	39	10,878	21	9,429
Old Not Recovering	31	11,449	17	5,375	5	2,898	2	656	4	1,519
Recent Recovering	0	0	0	0	1	35	1	10	0	0
Recent Not Recovering	0	0	0	0	0	0	0	0	1	285
Current Damage	4	992	13	2,058	9	1,615	5	2,582	5	1,082
Total	86	20,135	81	21,815	68	16,886	47	14,126	31	12,315
Converted to Open Water	8	1,050	3	73	1	20	2	134	9[1]	2,553[1]
Recovered	12	1,119	16	1,674	24	6,049	29	4,169	12	1,341[2]

[1]These figures represent sites previously impacted by nutria that were likely converted to open water in Plaquemines and St. Bernard Parishes due to Hurricane Katrina.
[2]This figure represents the total recovered acreage including 88 acres (30%) from site 256, however the site was not counted as one of the 12 recovered sites. Site 256 was counted as one of the 9 sites converted to open water, as 205 acres (70%) of the site turned to open water

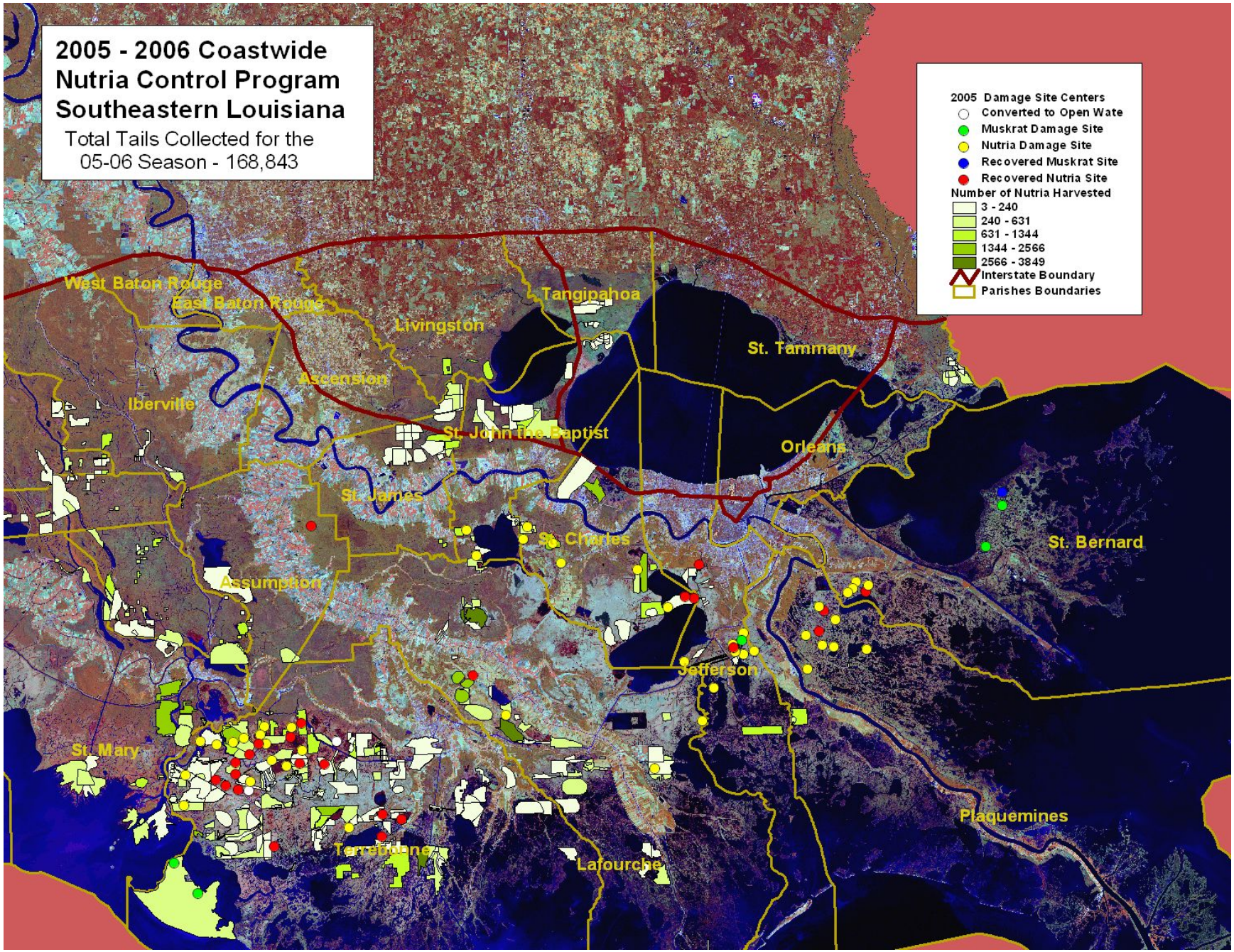
Table 11. Number of damage sites and acres damaged by prediction of recovery rating in coastal Louisiana in 2002 to 2006.

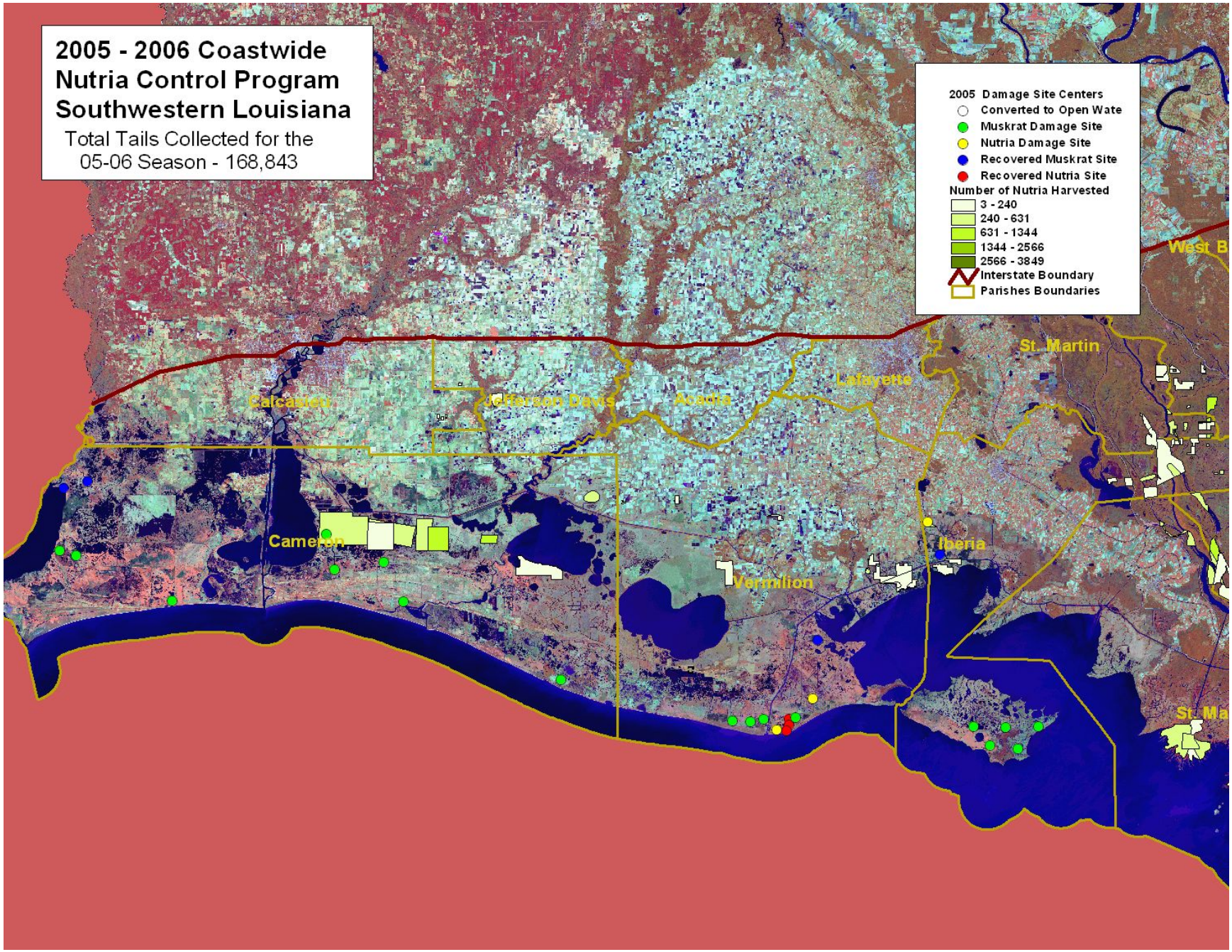
PREDICTION OF RECOVERY BY END OF GROWING	2002		2003		2004		2005		2006	
	NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF		NUMBER OF	
SEASON	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES
Full Recovery	7	919	8	4,238	10	338	6	443	4	828
Partial Recovery	59	13,950	64	14,497	50	13,440	36	10,073	27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

APPENDIX A. 2005 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	PARISH	TOWNSHIP AND RANGE	NUTRIA HARVESTED BY SITE
8	F	29.5697	-91.1638	Nutria	607	0	1	1	2	Terrebonne	T17SR13E	354
9	F	29.5737	-91.1296	Nutria	141	0	1	1	2	Terrebonne	T17SR13E	2757
17	F	29.5397	-91.0504	Nutria	273	0	1	1	2	Terrebonne	T17SR14E	2471
49	B	29.6531	-90.1375	Nutria	182	0	2	1	2	Jefferson	T16SR23E	0
60	I	29.7180	-90.0527	Nutria	258	0	1	1	1	Jefferson	T16SR24E	0
92	I	29.7121	-90.0750	Nutria	317	0	1	1	2	Jefferson	T16SR24E	0
94	F	29.8696	-90.2885	Nutria	1187	0	2	1	2	St. Charles	T14SR21E	5,107
97	I	29.7012	-90.1965	Nutria	151	0	3	1	2	Jefferson	T16SR22E	0
104	F	29.4162	-90.8933	Nutria	6	0	1	1	1	Terrebonne	T19SR15E	100
120	F	29.6006	-91.0648	Nutria	1747	0	1	1	2	Terrebonne	T17SR14E	2,617
142	F	29.5984	-91.0081	Nutria	56	0	1	1	1	Terrebonne	T17SR14E	0
171	F	29.9204	-90.4624	Nutria	2215	0	2	5	3	St. Charles	T13SR20E	1,754
178	I	29.7173	-90.0912	Nutria	97	0	1	1	2	Jefferson	T16SR23E	0
238	F	29.9280	-90.5236	Nutria	598	0	2	1	3	St. Charles	T13SR19E	0
242	B	29.5939	-90.1632	Nutria	25	0	1	1	2	Lafourche	T17SR23E	0
244	I	29.7308	-90.0970	Nutria	5	0	1	1	2	Jefferson	T15SR23E	0
245	F	29.7499	-90.0735	Nutria	373	0	2	1	2	Jefferson	T15SR24E	0
256	I	29.7706	-89.8837	Nutria	292	0	1	1	2	Plaquemines	T15SR13E	0
258	I	29.8372	-89.8393	Nutria	253	0	1	1	2	St. Bernard	T14SR14E	0
259	I	29.8245	-89.8470	Nutria	149	0	1	1	2	St. Bernard	T14SR13E	0
260	I	29.8186	-89.8565	Nutria	277	0	1	1	2	St. Bernard	T14SR13E	0
270	F	29.5761	-91.1959	Nutria	10	0	1	3	1	Terrebonne	T17SR12E	354
274	F	29.5690	-91.0618	Nutria	290	0	1	1	2	Terrebonne	T17SR14E	345
278	F	29.5016	-91.0947	Nutria	252	0	1	1	2	Terrebonne	T18SR13E	906
311	F	29.5562	-90.9866	Nutria	296	0	1	1	2	Terrebonne	T17SR14E	0
329	B	29.5106	-90.2634	Nutria	102	0	2	1	2	Lafourche	T18SR22E	1,386
331	I	29.7996	-90.2287	Nutria	34	0	1	1	2	St. Charles	T15SR22E	0
336	I	29.7252	-89.9126	Nutria	5	0	1	1	2	Plaquemines	T15SR13E	0
337	I	29.6827	-89.9443	Nutria	154	0	2	1	2	Plaquemines	T16SR12E	0
344	F	29.5283	-91.0200	Nutria	260	0	1	1	2	Terrebonne	T18SR14E	0
345	F	29.6134	-90.5673	Nutria	109	0	1	1	2	Terrebonne	T17SR19E	0
360	I	29.7216	-89.8882	Nutria	74	0	1	1	2	Plaquemines	T15SR13E	0

SITE	MARSH TYPE	LATITUDE	LONGITUDE	DAMAGE TYPE	DAMAGED ACRES	ACRES TO OPEN WATER	VDR	AGE OF DAMAGE	PREDICTION	PARISH	TOWNSHIP AND RANGE	NUTRIA HARVESTED BY SITE
362	I	29.9137	-91.9718	Nutria	158	0	1	1	2	Iberia	T13SR5E	244
367	B	29.5415	-92.2863	Nutria	351	0	2	1	2	Vermillion	T17SR2E	0
377	I	29.7429	-89.9452	Nutria	413	0	1	1	2	Plaquemines	T15SR12E	0
380	I	29.5977	-92.2108	Nutria	38	0	2	1	2	Vermillion	T16SR2E	0
383	F	29.5850	-91.0736	Nutria	135	0	1	1	2	Terrebonne	T17SR14E	1,761
386	F	29.9472	-90.6395	Nutria	99	0	1	1	2	St. John the Baptist	T13SR18E	0
388	F	29.9509	-90.5152	Nutria	448	0	2	2	3	St. Charles	T13SR19E	1,330
390	F	29.8843	-90.4464	Nutria	208	0	2	2	3	St. Charles	T14SR20E	0
393	I	29.8297	-89.8138	Nutria	203	0	1	1	2	St. Bernard	T14SR14E	0
398	F	29.4600	-91.2325	Nutria/Hog	79	0	1	5	1	Terrebonne	T17SR12E	312
399	F	29.5149	-91.2287	Nutria	34	0	1	5	1	Terrebonne	T18SR12E	2,627
400	F	29.5802	-91.1073	Nutria	113	0	1	5	2	Terrebonne	T17SR13E	2,757
402	F	29.8998	-90.6210	Nutria	141	0	1	5	3	St. John the Baptist	T13SR18E	469
403	I	29.7150	-89.8216	Nutria	49	0	2	1	2	Plaquemines	T15SR13E	0
250b	I	29.7949	-89.9160	Nutria	863	0	1	1	2	Plaquemines	T14SR13E	0


2005 - 2006 Coastwide
Nutria Control Program
Southeastern Louisiana
Total Tails Collected for the
05-06 Season - 168,843
2005 Damage Site Centers
Converted to Open Wate
Muskrat Damage Site
Nutria Damage Site
Recovered Muskrat Site
Recovered Nutria Site
Number of Nutria Harvested
3 - 240
240 - 631
631 - 1344
1344 - 2566
2566 - 3849
Interstate Boundary
Parishes Boundaries
West Baton Rouge
East Baton Rouge
Livingston
Tangipahoa
St. Tammany
Ascension
Iberville
St. John the Baptist
Orleans
St. James
St. Charles
St. Bernard
Assumption
Jefferson
St. Mary
Plaquemines
Terrebonne
Lafourche


2005 - 2006 Coastwide
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3 - 240
240 - 631
631 - 1344
1344 - 2566
2566 - 3849
Interstate Boundary
Parishes Boundaries
Calcasieu
Jefferson Davis
Acadia
Lafayette
St. Martin
Cameron
Vermilion
Iberia
West B
St. Ma

APPENDIX B. Data collected at each damage site during the 2006 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
8	F	29.5697	-91.1638	Nutria	526	0	1	2	1	2	Terrebonne	T17SR13E
9	F	29.5737	-91.1296	Nutria	303	0	1	1	1	2	Terrebonne	T17SR13E
17	F	29.5397	-91.0504	Nutria	563	0	1	1	2	2	Terrebonne	T17SR14E
49	B	29.6531	-90.1375	Nutria	174	0	1	2	1	2	Jefferson	T16SR23E
60	I	29.7180	-90.0527	Nutria	87	0	1	2	1	2	Jefferson	T16SR24E
92	I	29.7121	-90.0750	Nutria	312	0	1	1	1	2	Jefferson	T16SR24E
94	F	29.8696	-90.2885	Nutria	717	0	1	2	1	2	St. Charles	T14SR21E
97	I	29.7012	-90.1965	Nutria	0	0	99	99	0	99	Jefferson	T16SR22E
104	F	29.4162	-90.8933	Nutria	0	0	99	99	0	99	Terrebonne	T19SR15E
120	F	29.6006	-91.0648	Nutria	2100	0	1	2	1	2	Terrebonne	T17SR14E
142	F	29.5984	-91.0081	Nutria	0	0	99	99	0	99	Terrebonne	T17SR14E
171	F	29.9204	-90.4624	Nutria	1541	0	1	1	1	2	St. Charles	T13SR20E
178	I	29.7173	-90.0912	Nutria	97	0	0	1	1	2	Jefferson	T16SR23E
238	F	29.9280	-90.5236	Nutria	286	0	1	1	1	2	St. Charles	T13SR19E
242	B	29.5939	-90.1632	Nutria	0	0	99	99	0	99	Lafourche	T17SR23E
244	I	29.7308	-90.0970	Nutria	0	0	99	99	0	99	Jefferson	T15SR23E
245	F	29.7499	-90.0735	Nutria	204	0	1	2	1	2	Jefferson	T15SR24E
250b	I	29.7949	-89.9160	Nutria/Storm	0	863	99	4	99	99	Plaquemines	T14SR13E
256	I	29.7706	-89.8837	Nutria/Storm	0	205	0	4	99	99	Plaquemines	T15SR13E
258	I	29.8372	-89.8393	Nutria/Storm	113	262	0	3	2	2	St. Bernard	T14SR14E
259	I	29.8245	-89.8470	Nutria/Storm	0	149	99	4	99	99	St. Bernard	T14SR13E
260	I	29.8186	-89.8565	Nutria/Storm	0	277	99	4	99	99	St. Bernard	T14SR13E
270	F	29.5761	-91.1959	Nutria/Storm	62	0	1	1	1	2	Terrebonne	T17SR12E
274	F	29.5690	-91.0618	Nutria	596	0	1	2	2	2	Terrebonne	T17SR14E
278	F	29.5016	-91.0947	Nutria	0	0	99	99	0	99	Terrebonne	T18SR13E
311	F	29.5562	-90.9866	Nutria	1481	0	1	1	1	2	Terrebonne	T17SR14E
329	B	29.5106	-90.2634	Nutria	0	0	99	99	0	99	Lafourche	T18SR22E
331	I	29.7996	-90.2287	Nutria	0	0	99	99	0	99	St. Charles	T15SR22E
336	I	29.7252	-89.9126	Nutria/Storm	0	5	99	4	99	99	Plaquemines	T15SR13E
337	I	29.6827	-89.9443	Nutria	0	154	99	4	99	99	Plaquemines	T16SR12E

SITE	MARSH TYPE	LATITUDE	LONGITUDE	DAMAGE TYPE	DAMAGED ACRES	ACRES TO OPEN WATER	NRAR	VDR	AGE OF DAM	PREDICTION	PARISH	TOWNSHIP AND RANGE
344	F	29.5283	-91.0200	Nutria	247	0	1	1	2	2	Terrebonne	T18SR14E
345	F	29.6134	-90.5673	Nutria	281	0	1	1	1	2	Terrebonne	T17SR19E
349	B	29.5040	-91.7900	Muskrat/Storm	1543	0	99	3	1	2	Iberia	T17SR7E
352	B	29.5107	-91.8470	Muskrat/Storm	266	0	99	3	1	2	Iberia	T18SR6E
357	B	29.8943	-89.5686	Muskrat	113	0	99	1	1	2	St. Bernard	T13SR16E
358	B	29.9671	-89.5335	Muskrat/Storm	165	0	99	1	1	2	St. Bernard	T12SR17E
360	I	29.7216	-89.8882	Nutria/Storm	0	74	99	4	99	99	Plaquemines	T15SR13E
362	I	29.9137	-91.9718	Nutria	0	0	99	99	0	99	Iberia	T13SR5E
367	B	29.5415	-92.2863	Nutria	0	0	99	99	0	99	Vermillion	T17SR2E
368	B	29.5564	-92.3396	Muskrat	914	0	99	2	1	2	Vermillion	T17SR1E
369	B	29.5584	-92.3780	Muskrat	429	0	99	3	1	2	Vermillion	T17SR1E
377	I	29.7429	-89.9452	Nutria/Storm	0	413	99	4	99	99	Plaquemines	T15SR12E
380	I	29.5977	-92.2108	Nutria	76	0	0	2	1	2	Vermillion	T16SR2E
381	I	29.3472	-91.2548	Muskrat	0	0	99	99	0	99	Terrebonne	T20SR12E
383	F	29.5850	-91.0736	Nutria	135	0	1	1	1	2	Terrebonne	T17SR14E
386	F	29.9472	-90.6395	Nutria	189	0	1	1	1	1	St. John the Baptist	T13SR18E
388	F	29.9509	-90.5152	Nutria	505	0	1	1	1	1	St. Charles	T13SR19E
390	F	29.8843	-90.4464	Nutria	200	0	1	1	1	2	St. Charles	T14SR20E
392	F	29.7380	-90.0774	Muskrat	370	0	99	3	1	2	Jefferson	T15SR24E
393	I	29.8297	-89.8138	Nutria/Storm	101	102	1	2	1	2	St. Bernard	T14SR14E
394	B	29.5638	-92.2467	Muskrat/Storm	506	0	99	2	1	2	Vermillion	T17SR2E
395	B	29.5602	-92.3132	Muskrat	310	0	99	3	1	2	Vermillion	T17SR1E
396	B	29.5438	-91.8801	Muskrat	0	234	99	99	4	99	Iberia	T17SR6E
397	B	29.5427	-91.7466	Muskrat	408	0	99	2	1	2	Iberia	T17SR7E
398	F	29.4600	-91.2325	Nutria/Hog	0	0	99	99	0	99	Terrebonne	T17SR12E
399	F	29.5149	-91.2287	Nutria/Hog	0	0	99	99	0	99	Terrebonne	T18SR12E
400	F	29.5802	-91.1073	Nutria	573	0	2	1	5	2	Terrebonne	T17SR13E
401	B	29.6328	-92.7313	Muskrat	0	0	99	99	0	0	Cameron	T16SR3W
402	F	29.8998	-90.6210	Nutria	52	0	1	1	1	1	St. John the Baptist	T13SR18E
403	I	29.7150	-89.8216	Nutria/Storm	0	49	99	4	99	99	Plaquemines	T15SR13E

SITE	MARSH TYPE	LATITUDE	LONGITUDE	DAMAGE TYPE	DAMAGED ACRES	ACRES TO OPEN WATER	NRAR	VDR	AGE OF DAM	PREDICTION	PARISH	TOWNSHIP AND RANGE
404	B	29.5417	-91.8147	Muskrat	71	0	99	1	1	2	Iberia	T17SR6E
405	I	29.3021	-91.2074	Muskrat	1119	0	99	2	1	2	Terrebonne	T20SR12E
406	I	29.8631	-93.7665	Muskrat/Storm	0	0	99	99	0	99	Cameron	T14SR4W
407	I	29.8542	-93.7319	Muskrat	241	0	99	1	1	2	Cameron	T13SR14W
408	I	29.8950	-93.2160	Muskrat/Storm	5570	0	99	2	2	2	Cameron	T13SR8W
409	I	29.7742	-93.0555	Muskrat	0	0	99	99	0	99	Cameron	T15SR7W
410	I	29.8315	-93.1977	Muskrat/Storm	676	0	99	1	2	2	Cameron	T14SR8W
411	I	29.7741	-93.5331	Muskrat	0	0	99	99	0	99	Cameron	T15SR12W
412	I	29.8444	-93.0959	Muskrat	721	0	99	1	2	1	Cameron	T14SR7W
413	F	29.3947	-91.0811	Nutria	285	0	1	1	4	2	Terrebonne	T19SR13E
414	F	29.5978	-90.9507	Nutria	106	0	1	1	5	2	Terrebonne	T17SR15E
415	I	29.3774	-90.8551	Nutria	82	0	1	1	5	1	Terrebonne	T19SR16E
416	F	29.9967	-92.9448	Nutria	233	0	0	1	5	2	Cameron	T12SR6W
417	F	30.0709	-92.9795	Nutria	88	0	1	1	5	2	Jefferson Davis	T11SR6W

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

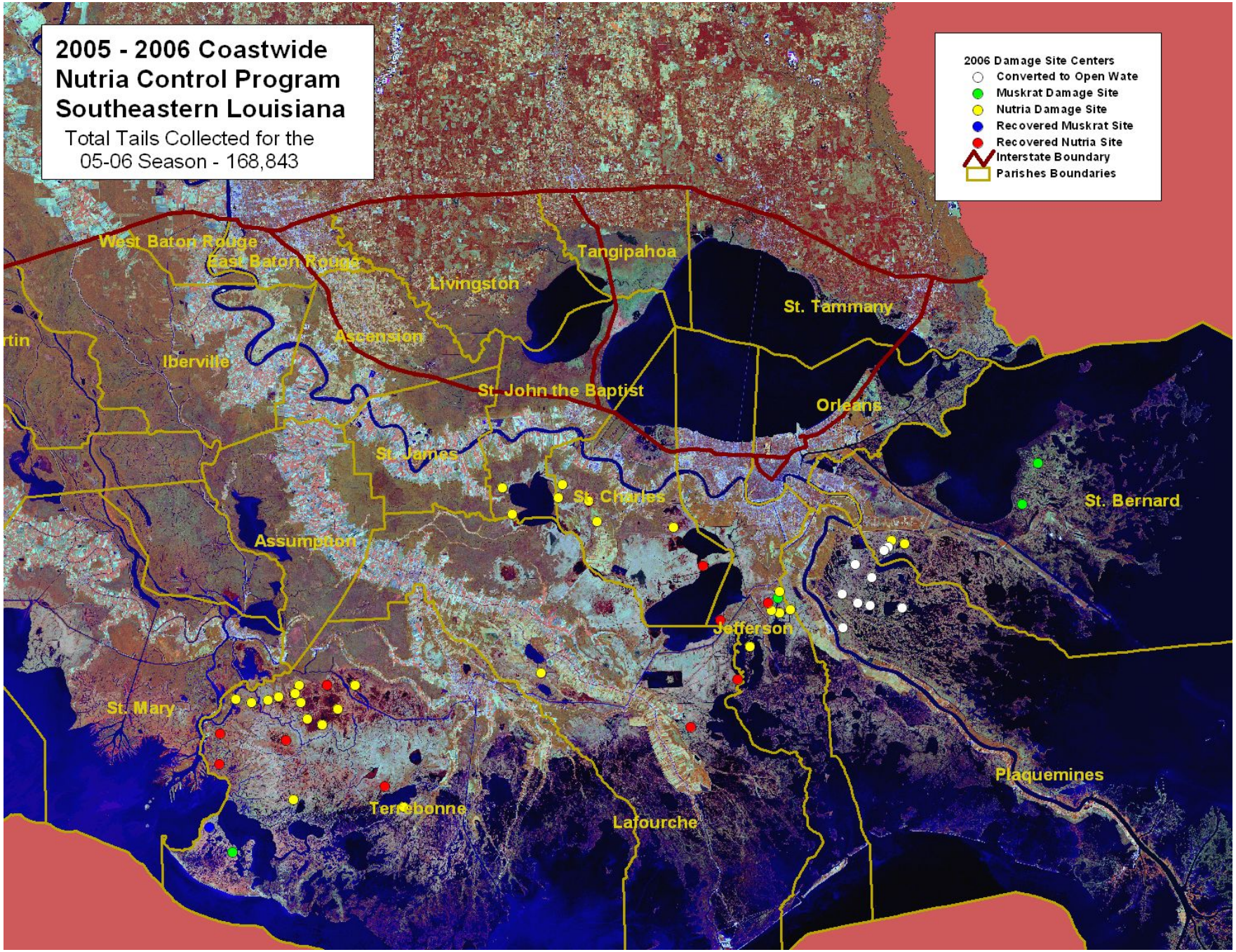
[4]Age of Damage and Condition

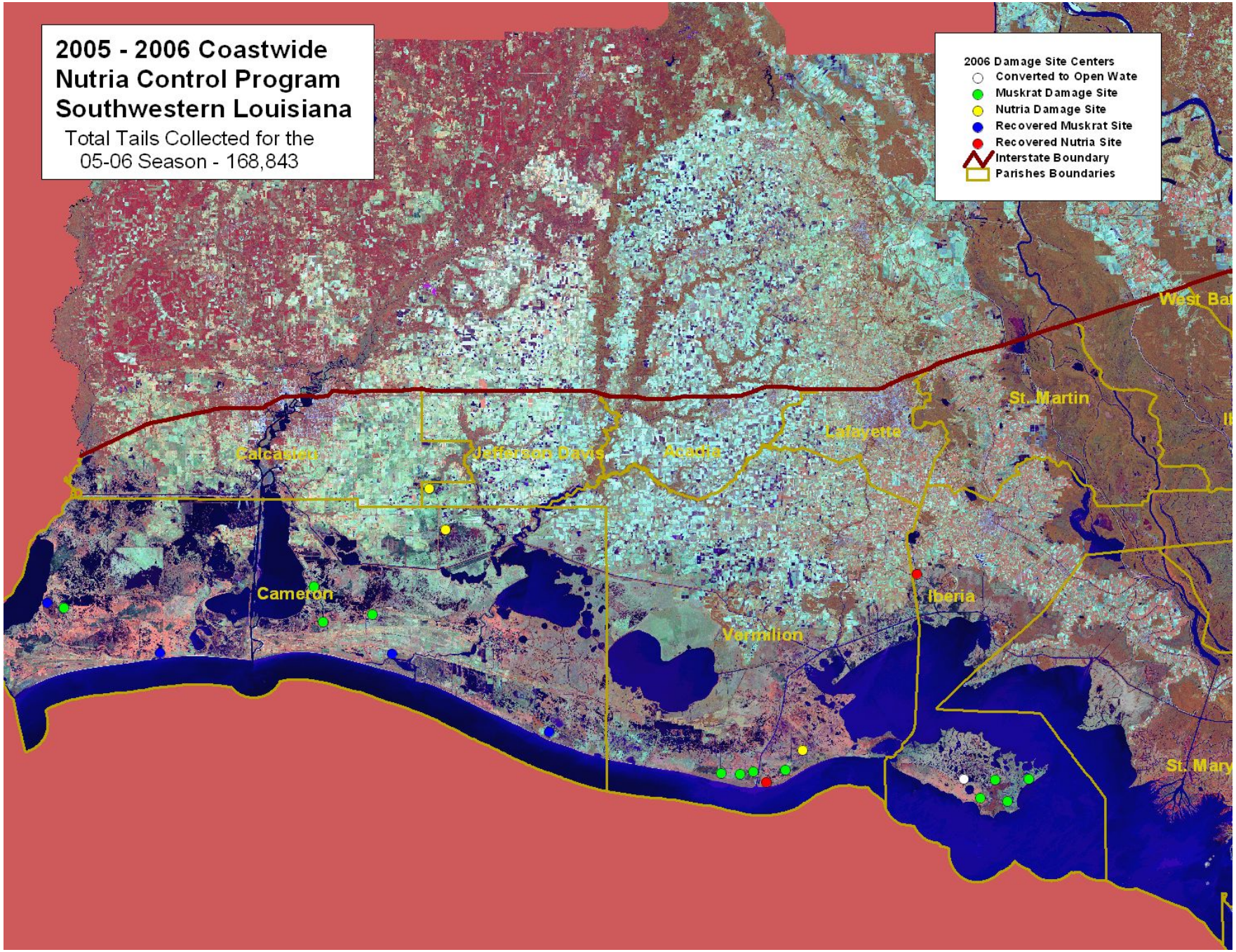
Recovered	0
Old Recovering	1
Old Not Recovering	2
Recent Recovering	3
Recent Not Recovering	4
Current (Occurring Now)	5

[5]Prediction of Recovery by End of 2006 Growing Season

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

99 – Entry does not apply to this site.


2005 - 2006 Coastwide
Nutria Control Program
Southeastern Louisiana
Total Tails Collected for the
05-06 Season - 168,843
2006 Damage Site Centers
Converted to Open Wate
Muskrat Damage Site
Nutria Damage Site
Recovered Muskrat Site
Recovered Nutria Site
Interstate Boundary
Parishes Boundaries
West Baton Rouge
East Baton Rouge
Livingston
Tangipahoa
St. Tammany
Ascension
Iberville
St. John the Baptist
Orleans
St. James
St. Charles
St. Bernard
Assumption
Jefferson
St. Mary
Terrebonne
Lafourche
Plaquemines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Vermilion
St. Mary