

# Louisiana Coastal Bird Stewardship Program

## New Orleans Rooftop-Nesting Pilot Year

### 2023 Final Report

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## **Program Background**

Louisiana's Coastal Stewardship Program began as a response to the Deepwater Horizon Oil Spill in 2010. Before then, no organization's focus was to protect and monitor the needs of smaller beach-nesting birds in the state, and because of having limited information about the nesting colony and nest locations, clean-up activities during the spill were sometimes disruptive, and there was a general lack of knowledge of where to focus protection efforts. The National Audubon Society (Audubon) and American Bird Conservancy (ABC) identified key nesting areas in need of protection in 2011, and launched a collaborative program in 2012 to begin a program to:

1. identify and steward beach-nesting bird sites on mainland beaches, working with landowners, land managers, and communities to implement protection strategies like signage and symbolic fencing;
2. provide community and school education programs to increase the awareness of beach-nesting birds;
3. monitor nesting and fledging success to identify factors limiting breeding productivity of focal species.

Beginning in 2023 as an expansion of Louisiana's Coastal Stewardship Program, Audubon Delta, in collaboration with Orleans Audubon Society (OAS), launched a rooftop-nesting program that aligns with rooftop-nesting protocols of other Gulf Coast states. There has never been a study implemented in the City of New Orleans to track its own breeding populations of coastal birds. This program's impetus is to fill in the knowledge gaps regarding Louisiana's urban seabird breeding colonies. Our goals are:

1. understanding population dynamics and determining conservation needs for understudied regional urban bird populations;
2. fostering partnerships with local business owners and managers to develop bird-friendly architecture;
3. establishing a robust urban monitoring program supported by a dedicated network of community scientists and volunteer stewards.

In 2023, surveys were conducted by the Louisiana Coastal Field Technician, Chloe St. Germain-Vermillion, with additional support from the Louisiana Coastal Stewardship Manager, Katie Barnes.

## **Focal Species**

### **Least Tern (*Sternula antillarum*)**

Least Terns are the world's smallest tern species. They nest in highly vocal colonies, with some flocks numbering well into the hundreds. In non-urban areas along the Atlantic, Pacific, and Gulf Coasts, as well as within the U.S. interior, the species prefers early successional beachfront habitat, but readily nest on gravel rooftops and will return to the same buildings each year if past broods are successful. Coastal habitat loss has impacted this species, and interior populations of Least Tern were listed as endangered until as recently as 2021. Males and females lack obvious dimorphism. Males average slightly larger, but both species in breeding plumage have a pointed yellow bill, black cap, and white forehead patch. The wings are pale gray with dark primaries. Pairs can be identified by their courtship displays, which include flying in unison or chasing, fish offering, and high stepping. Pairs are

monogamous, and each parent takes turns incubating, feeding, and protecting their young from predators. Birds defend their nests by dive-bombing and vomiting or defecating on intruders. Birds migrate from wintering grounds in South America starting in mid-April and begin building scrape nests soon after. Renesting occurs through July and the latest chicks fledge by mid-August.

### **Black Skimmer (*Rynchops niger*)**

Black Skimmers are a rare colonial nester on Louisiana's mainland and usually prefer to nest on offshore barrier islands. However, small colonies have begun to return to areas of Cameron Parish over the past several years and successfully fledge chicks. These birds are found in Louisiana year-round, including a large roost of up to 2000 individuals in Grand Isle State Park during non-breeding season. As their name suggests, their elongate lower mandible is used for tactical feeding as they skim along the surface of water and feel for the small marine fish. Black Skimmers are closely related to terns and tend to nest in mixed colonies with other tern species, especially Least Terns. Both sexes of this species have a black dorsum with white underparts, making them look as though they are sporting a "tuxedo." Males are slightly larger than females, but this is not easy to distinguish in the field. Their beak is laterally compressed and bright orange with a black tip. Their call is a distinctive "bark" or "honk." Pairs are monogamous and begin forming scrapes starting in mid-May, which is later than most coastal species. Flightless young can be present until the beginning of September.

### **Gull-billed Tern (*Gelochelidon nilotica*)**

Gull-billed Terns occur in Louisiana year-round but are less commonly seen than other large native terns. Whereas most tern species specialize in diving for fish and other submerged prey, Gull-billed Terns prefer catching insects on the wing or plucking small prey items off the ground, such as reptiles, amphibians, crustaceans, and occasionally the chicks of other seabirds. Gull-billed terns nest in smaller mixed tern colonies and most frequently on barrier islands. The species has a black crown and nape which is typically smooth in appearance, unlike Sandwich Terns which have a spiked crown. The wings are very pale gray and darken slightly on the tips of their primaries. The black bill has a hefty appearance like that of a gull. These birds can also be identified audibly by their cackling, witch-like calls. Males court females with posturing displays and fish-feeding. Pairs are monogamous and begin scraping in May, usually finishing nesting by August.

### **Common Nighthawk (*Chordeiles minor*)**

Common Nighthawks are aerial insectivores in the nightjar family and are the only solitary nesting species we are currently monitoring as part of our rooftop program. Nighthawks nest throughout North America in open habitats such as grasslands and coastal beaches. Unfortunately, extensive pesticide use, destruction of grassland habitat, and conversion of gravel rooftops to other materials has caused populations of Common Nighthawks to rapidly decline. The species is crepuscular and easier to detect at peak foraging hours (before sunrise and around sunset). Calls are a nasal peent. Nighthawks begin arriving at nesting grounds in April, and typically lay their first eggs the first week of May. Nesting occurs through July with the last chicks fledging in the beginning of August. They do not build scrapes and instead lay eggs directly on the ground. Pairs are highly territorial, and males defend territories from conspecifics and predators using "wing-boom" displays. Males can be distinguished from females by their bright white throat patch, larger white wing patches, and a white tail band. Females have a buffy throat, thinner wing patches, and no tail band.

## Project Locations

Selecting locations for monitoring was a primary focus for the program at the beginning of 2023. We relied heavily on historic records available on eBird, as well as personal communications from local birders to compile sightings of nesting focal species dating as far back as 2011. We then cross-referenced these sightings with current Google Earth imagery to confirm substrate suitability (presence of gravel) on the historic locations and to investigate other buildings suitable for nesting. The coastal technician then devised survey routes within the city based on these findings, and in early May began monitoring each site for activity (Table 1). Initially, five sites were found to be harboring nesting colonies, but rooftop construction at one site caused its colony to disperse by mid-May (Table 1). Consequently, only four sites were monitored for bird nesting activity this season: Milneburg Hall at the University of New Orleans, General De Gaulle Storage, Chalmette Super Self Storage, and the Port of New Orleans at LCMC Children’s Hospital (Figure 1). Of these locations, we secured access to the roof of UNO Milneburg Hall, General De Gaulle Storage, and Chalmette Super Self Storage

Table 1: Comprehensive list of historic sites surveyed in 2023. \*Dupuy Building was only active during the first May survey. No subsequent activity was detected for the season.

Historic Site	Focal Species Activity Detected in 2023
Tall Timbers Mall	No
Poland St. Wharf	No
Kennedy High School	No
Clearview Mall	No
UNO Assembly Center	No
Terry Parkway- Towne Square Shopping Center	No
Industrial Canal (Dupuy Building)	Yes*
Tullis Drive	No
UNO Milneburg Hall	Yes
Lakeside Mall	No
Esplanade Mall	No
Elmwood Shopping Center	No
Port of NOLA Children's Hospital	Yes
General De Gaulle Storage	Yes
Chalmette Super Self Storage (former Stage mall)	Yes

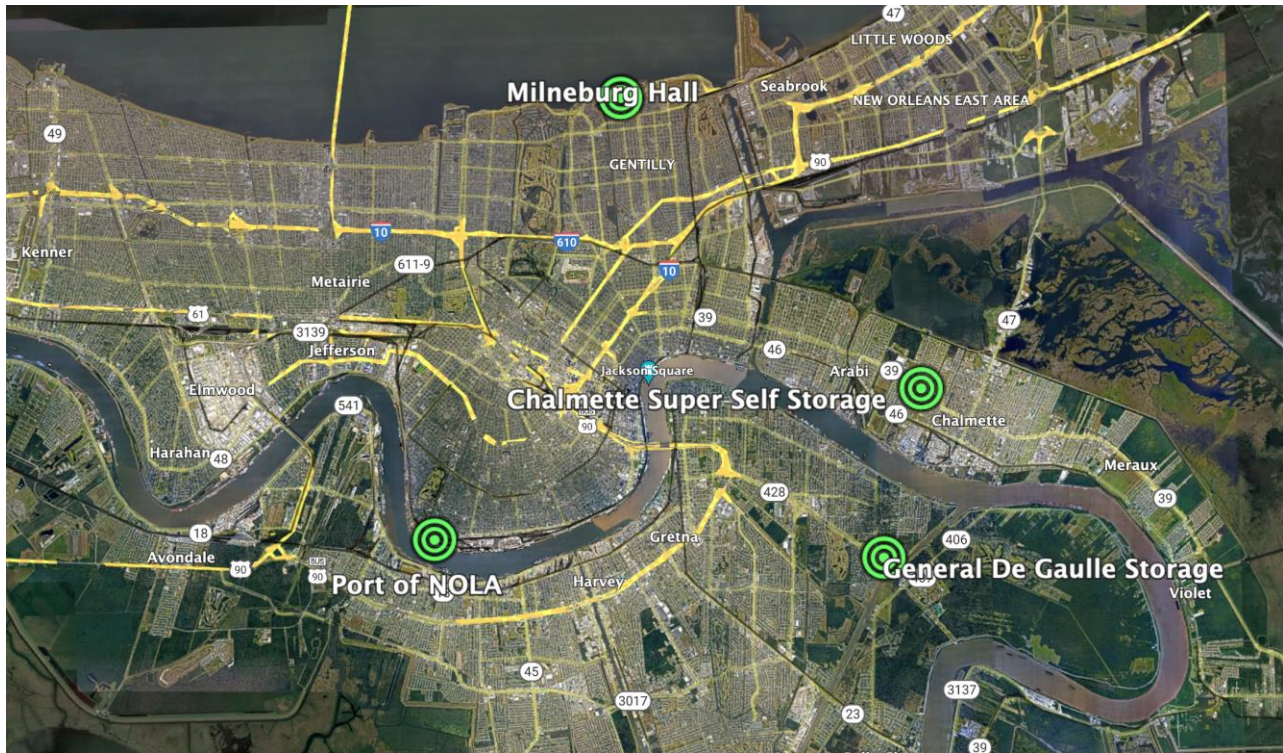


Figure 1: Google Earth imagery of active rooftop-nesting sites monitored in 2023. Rooftop access was granted for UNO Milneburg Hall, General De Gaulle Storage, and Chalmette Super Self Storage.

## Survey Methods and Protocols

Survey methods for 2023 are unique to the pilot year and do not reflect the intensity of future rooftop survey protocol.

### *Vehicle Surveys*

Beginning in early May, surveys were conducted twice a month along routes based on historic nesting data. We used auditory and visual cues to determine the presence or absence of nesting birds at each site. Once activity was detected, we took an estimate of adult numbers from the ground until rooftop access could be procured from building managers. If a site remained inactive for two consecutive surveys, it was removed from the survey rotation. Surveys were conducted throughout the breeding season from May to August.

### *Rooftop Surveys (access required)*

Once building access was granted, rooftops were visited twice a month per the regular survey rotation. When first visiting a roof, we assessed building architecture to determine if the rooftop was safe for mobile chicks (chick proof). A rooftop is considered safe if a lip or barrier is present around the perimeter to prevent chicks from falling. Once on a roof, we made direct counts of adults, pairs, nests, and chicks. All nests with eggs that could be safely accessed and which were not actively hatching (i.e., without pips, starring, fractures) were floated in water to estimate hatch dates and the relative maturity

of each colony. As mobile chicks appeared, wooden chick shelters were placed in colonies where it was safe to do so and allowed by building management. On non-chick proof rooftops, stationary counts via spotting scope were conducted from a safe distance to reduce disturbance to the colony. In addition to rooftop surveys, we conducted walk-around surveys before and after accessing the roof to check for any fallen chicks. If fallen chicks were discovered alive, they were returned to the colony.

## Data

Table 2. Estimated breeding pair density, maximum number of nests, and maximum number of chicks of focal species documented at active nesting sites. A hyphen (—) means not assessed.

Site	Species	Pairs	Max. Nests	Max. Chicks
UNO Milneburg Hall	Least Tern	7-10	7	7
General De Gaulle Storage	Least Tern	29-35	28	30
Chalmette Super Self Storage	Least Tern	25-30	—	35
Chalmette Super Self Storage	Black Skimmer	2	2	0
Port of NOLA	Gull-billed Tern	5-10	—	—
Port of NOLA	Least Tern	5-12	—	—

## 2023 Season Data Summary

Below is a summary of observations at each active site for the duration of the 2023 breeding season (May-August). Note that the presence of Least Terns and Gull-billed Terns was also discovered initially at a fifth location: the Dupuy Industrial Building. However, all activity at the fifth site had ceased by the end of May. We presume this was due to rooftop construction at the site which caused the colony to abandon the area.

### *UNO Milneburg Hall*

On May 7<sup>th</sup>, Least Tern activity was discovered at Milneburg Hall. On May 23<sup>rd</sup>, staff accessed the rooftops of Milneburg Hall, and was confirmed to have a colony of 18 Least Tern adults, 7 breeding pairs, 6 active nests, and two young, newly hatched chicks (Figure 2). The first eggs appeared to be laid in the beginning of May.

On June 7<sup>th</sup>, UNO Milneburg Hall continued to support 15 adult Least Terns, 7 chicks and two active nests. Two chicks were also aged at approximately 16 days old, and presumably fledged soon after the survey date. No chick shelters were placed at this location per the University's objection to having un-tethered objects on rooftops (noting safety concerns). By June 26<sup>th</sup>, the Milneburg colony appeared to be dwindling, with 10 remaining adult Least Terns, one active nest, and one abandoned nest.

UNO Milneburg Hall's colony abandoned the site by early July.



Figure 2: One of two newly hatched Least Tern chicks at Milneburg Hall on May 23<sup>rd</sup>. Photo: Katie B. Barnes/Audubon Delta

### *General De Gaulle Storage*

On May 8<sup>th</sup>, Least Tern activity was found at General De Gaulle Storage. On May 24<sup>th</sup>, building managers granted us permission to survey the rooftop. We counted over 50 Least Terns, floated eggs from 28 nests, and found one newly hatched chick at General De Gaulle Storage. Based on the maturity of the colony, we estimate that the first eggs were laid in the beginning of May.

General De Gaulle Storage supported its Least Tern colony through the beginning of June, which included over 50 adult birds and 30 chicks, as well as 8 active nests. Ten wooden chick shelters were deployed during the June 5<sup>th</sup> visit to provide shade for the chicks. Though the utmost care was taken to cause as little disturbance to the colony as possible, one chick was found to have fallen to the ground and died following the survey. The coastal technician was also called back to the site later that day because a second displaced chick was found alive inside the storage building by management. The chick was successfully captured and placed within the nesting area. On the final June survey, General De Gaulle storage was completely abandoned with no Least Terns present. The phenology of the colony suggests that this could be attributed to most of the chicks fledging and leading to the colony's dispersal. However, upon inspection of the roof, we discovered that patch repairs to the roof had been done since the first June survey. Additionally, four deceased chicks near fledge age were found stuck in the tar used for the repairs (Figure 3). It is likely a combination of this disturbance and the overall maturity of the colony led to the completion of nesting activity.



Figure 3: Deceased Least Tern fledgling stuck in roofing tar at the General De Gaulle Storage complex.

### *Chalmette Super Self Storage*

On May 8<sup>th</sup>, both Least Tern and Gull-billed Tern activity was detected at Chalmette Storage. By May 24<sup>th</sup>, Chalmette Storage still had Least Terns present, but there was no sign of Gull-billed Tern activity. However, two pairs of Black Skimmers were seen and suspected to be nesting within the Least Tern colony. During this second round of surveys, we had not yet accessed the roof, but were granted permission to do so for the following survey.

The first rooftop survey at Chalmette Storage was conducted on June 8<sup>th</sup>. By then, the colony was quite far along with over 60 adult Least Terns, 35 Least Tern chicks, and two pairs of Black Skimmers present. One abandoned Black Skimmer nest was found with nonviable eggs. The rooftop was found to be not chick proof, and due to the density of mobile chicks and associated risks of walking into the colony, it was not safe to distribute chick shelters at this location. By the end of June, Chalmette Storage still had both skimmer pairs, but the Least Tern colony had reduced to approximately 35 adults and 11 chicks.

At the beginning of July, Chalmette Storage had a colony of approximately 35 Least Terns including two pairs with nests. The Black Skimmer pairs also remained active and at least one nest was confirmed. By July 26<sup>th</sup>, only four Least Tern pairs, three chicks, and the two skimmer pairs remained. The technician was able to confirm two active skimmer nests, one with two eggs and one with a single egg. Both nests had pipped eggs suggesting their hatch date was near.

Due to the protracted nesting season of Black Skimmers, the only site surveyed in August was Chalmette Storage. On August 7<sup>th</sup>, both pairs were there, but the two nests found in July had failed. One pair appeared to have renested with two eggs, but the other pair was not brooding. The technician found that the nest that had a single egg never hatched, but the two eggs from the other nest were not found,



so we are uncertain on the cause of failure. No skimmer chicks were found. By the end of August, no skimmers were present, and the nest found on the earlier survey had also failed to hatch. New Orleans experienced severe drought conditions with intense heat throughout July and August, so roof temperatures were consistently and dangerously elevated. There are also predators that frequent the area, such as Laughing Gulls and crows. Without game cameras, the cause of nest failure is unknown.



Figure 4: Photo of nesting Black Skimmer on Chalmette Super Self Storage’s gravel rooftop taken June 8<sup>th</sup>.

#### *Port of NOLA*

The Port of NOLA site was the only building we did not gain access to this year, thus all surveys were ground-level observations. On May 7<sup>th</sup>, Least Tern and Gull-billed Tern activity was discovered at the Port of NOLA near the LCMC Children’s Hospital. During the second drive-by survey, Port of NOLA still supported Gull-billed Terns but did not have any Least Tern activity.

The Gull-billed Tern colony at the Port of NOLA remained active throughout the month of June, but we did not have access to assess density and productivity.

The Gull-billed Tern colony at the Port of NOLA continued to be active in the beginning of July. On July 18<sup>th</sup>, it was noted that several adults were observed dive-bombing pedestrians near the building, which could’ve potentially indicated the presence of chicks. Because surveys could only be conducted at ground level, this could not be confirmed. The colony was inactive by the end of the month.

## Outreach

In 2023, we attended four events to spread awareness about the New Orleans Rooftop-nesting Program. These events cumulatively totaled 144 people reached and 23 hours of engagement (Table 3). Additionally, we had 14 new volunteers sign up for our Audubon Coastal Bird Stewardship Volunteer newsletter.

Table 3. Summary of stewardship and outreach events during the 2023 breeding season for New Orleans Rooftop-nesting

Event	Date	Location	Total Participants	Participant Hours
UNO Earth Day Celebration	4/19/23	New Orleans	30	3
Earth Fest in the Dell	4/23/23	Slidell	50	3
St. Bernard Bird Festival	5/5-5/6/23	St. Bernard	50	14
Kids in the Woods Camp	6/26/23	New Orleans	14	3
<b>Total:</b>	<b>4</b>		<b>144</b>	<b>27</b>

## Conclusions and Future Considerations

The surveys achieved during the 2023 pilot year have set a strong baseline upon which to formalize and expand the New Orleans Rooftop-Nesting Program for future breeding seasons. We were thrilled to secure access to the rooftops of three buildings and to be able to foster new connections between our organization and the building managers hosting nesting sites, and we appreciate their interest and support in this work. Fostering these relationships will help ensure the longevity of this program and the success of our focal species. We hope to work with managers in the coming seasons to make their buildings safer for nesting birds, and perhaps make them advocates for their rooftop colonies within the community.

### *Responsibilities of Orleans Audubon Society (OAS) and Audubon Delta*

Starting in 2024, we will finalize and implement a monitoring protocol for rooftop-nesting surveys. Additionally, we will incorporate nighthawk-specific dawn and dusk surveys to increase chances of finding rooftop breeding pairs within the city. The data collected during surveys will be used to achieve the following goals:

1. Identify active nesting rooftop sites;
2. Estimate breeding pair densities;
3. Quantify nest survival probability and causes of nest failure;
4. Estimate fledge success (fledglings/pair);
5. Increase nest success using stewardship and added protective measures to stabilize local populations.

OAS will implement this protocol. Using their knowledge of the local birding community, OAS will recruit NOLA Neighborhood Coordinators to track visits to sites and ensure surveys are being completed on schedule, recruiting volunteers and assigning them to survey routes, and enlisting program stewards to spread awareness of the program at local events. Lastly, OAS will support and maintain productive relationships with both new and existing building managers at active sites.

Considering the novelty of the program, Audubon Delta will help with volunteer training and other duties as needed. We will also be pursuing banding permits for Orleans and St. Bernard Parish in 2024. Delta staff will handle all rooftop banding activities.

### **Funding Support and Acknowledgements**

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We would also like to thank Orleans Audubon Society for their partnership, as well as the Louisiana Department of Wildlife and Fisheries for their support of this project.