

# Project ColonyWatch

A COLONIAL WATERBIRD PROTECTION PROJECT



# Project ColonyWatch Handbook

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Tel. 813 623-6826, Fax 813 623-4086

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## Acknowledgments

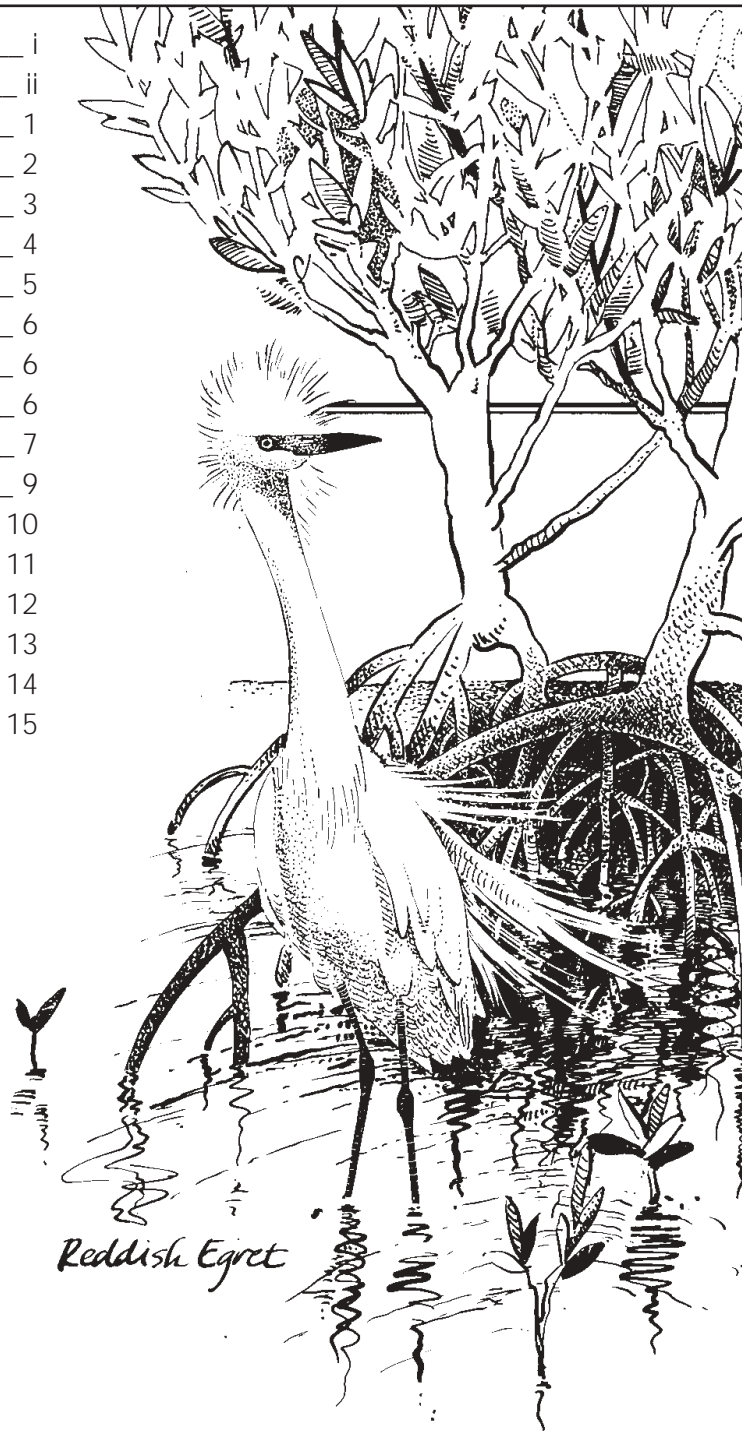
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## Background

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Along the Florida Gulf coast, more than 25 species of birds gather to nest in "colonies," or groups, that may total a few dozen to many thousand breeding pairs. Colonies are typically located on islands or in marshes and swamps over water, to provide isolation from terrestrial predators and other disturbance. Habitat losses associated with a variety of human activities, and a rapidly growing human population in Florida, have resulted in the destruction of some colony sites and the disturbance of many more. In many cases, even unintended disturbance may cause the mortality of hundreds of eggs or young. Coastal colonies are especially vulnerable to disturbance because of their accessibility to beach-goers and recreational boaters.

Colonies are sensitive to disturbance because many birds gather to literally "lay their eggs in the same basket." This feature, however, enables fairly effective protective measures to be designed and carried out. Hundreds, or even thousands, of nests can be protected at once. Further, the eye-catching spectacle of so many birds all nesting together offers an excellent opportunity to educate the public about wildlife, and the need to preserve and manage wildlife habitat, both at the nesting site itself and at nearby wetland foraging areas.

## Goal

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The goal of Project ColonyWatch is to protect the important breeding colonies of Florida's coasts through the assistance and involvement of Audubon chapters and other volunteers. ColonyWatch volunteers will use the colonies and the birds themselves as powerful educational devices to build the constituency for wildlife in their local communities.

Remember, people love wildlife — especially birds — because they are colorful, active, and familiar. The project will attract attention, and the birds themselves will be their own best ambassadors. Project ColonyWatch is a way for knowledgeable, involved individuals to ensure a future for wildlife in Florida. By protecting these colonial nesting sites, we can keep common birds common and increase populations of birds which have been declining recently. Interested?

**Call Audubon's Project ColonyWatch staff at 813 623-6826.**

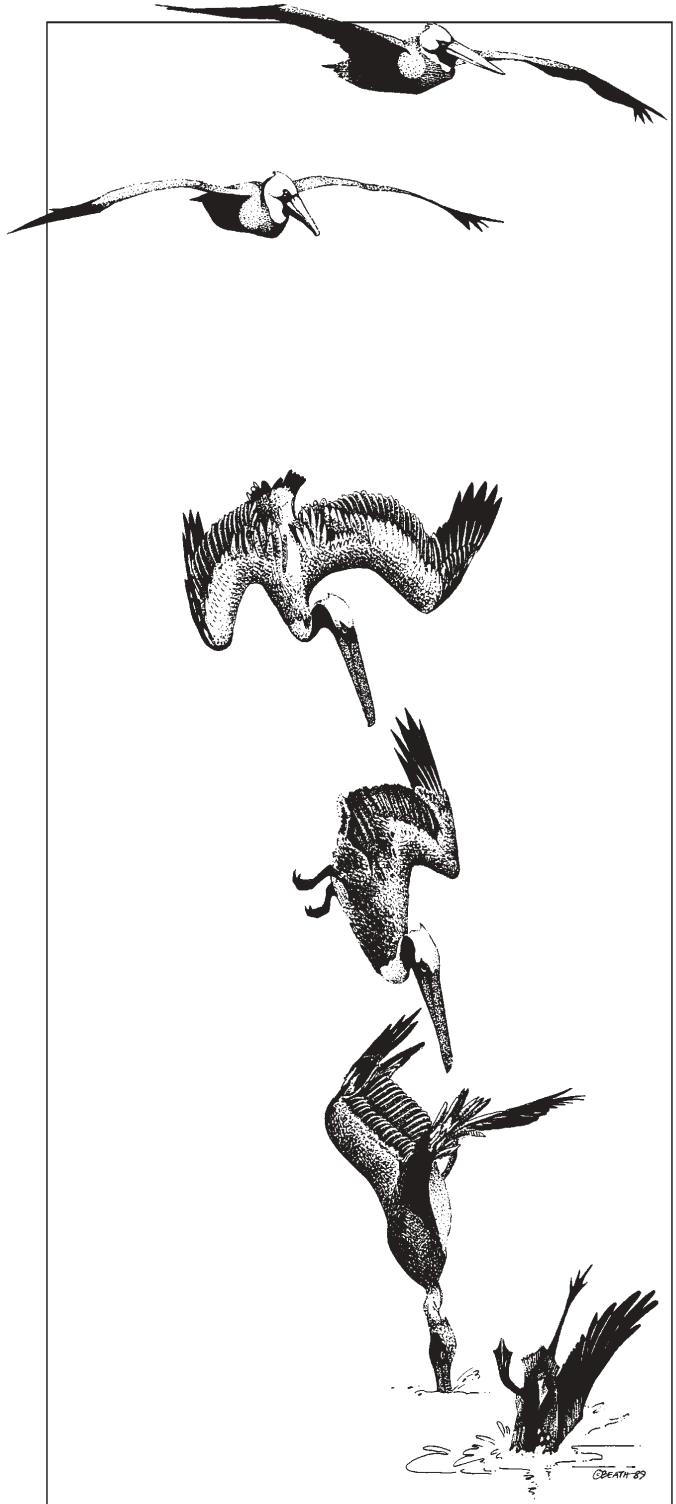
## Colony Facts

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Many of Florida's most spectacular waterbirds nest in groups called colonies. Pelicans, cormorants, anhingas, herons, egrets, ibises, spoonbills, storks, gulls, terns, skimmers — in fact, at least 25 species in the state — can be called “colonial.” A colony may include just a few nests, or thousands, and may occur on an island or in a marsh or swamp, usually over standing water. Regardless of the location, a key feature of the colony site is that it is free of terrestrial predators like raccoons — or it is located where access by terrestrial predators is very difficult. Often, freshwater colony sites are protected from raccoons by patrolling alligators.

For over 70 years some of the most important colonies in Florida have been protected as Audubon Sanctuaries. Others lie within National Wildlife Refuges or National Park boundaries. But most colonies—some numbering in the thousands of breeding pairs—lack formal protected status.

How can we help to protect them? The steps are easy and anyone can participate. The only requirement is a willingness to get started.



## Steps for a Great ColonyWatch Project

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**1. Select a colony!** One's enough. Go for two (or more) if you're bold.

- Criteria: colony size, threats to site security, accessibility to volunteers, presence of rare or "listed" species. The Florida Fish and Wildlife Conservation Commission "lists" species with populations which require special protection as "endangered," "threatened," or "species of special concern."
- If you don't know where the colonies are near you, contact our Project ColonyWatch staff and we'll help locate one in need of protection. Call us any time for assistance.

**2. Recruit some volunteers!** It's a case of the more the merrier. Increasing the number of volunteers who can speak knowledgeably about the colony only strengthens your project. Plus, it's fun to share the work and the rewards. Think about opportunities to involve school groups, service clubs, or others. You get more help, and they become more knowledgeable about bird conservation in your community.

**3. Obtain maps** of the colony and its surrounding area (navigation charts, USGS topographic sheets, aerial photos, etc.). A good source is the Water Management District or your

local Florida Department of Environmental Protection office. Navigation charts are available at boating supply shops.

**4. Determine the ownership** of the site. You may need to visit your County Tax Assessor's Office for this information.

**5. Get permission** from the landowner to visit the site and protect the colony there. Otherwise, you are trespassing.

**6. Visit the site** but don't enter the colony. Make a preliminary assessment of important characteristics that make it attractive to nesting birds, and note potential threats and management/protection issues. The site visit can be done before or during nesting; each has its advantages. Project ColonyWatch staff can help with your first evaluations.

**7. Census the colony.**

- a. Develop a schedule to conduct regular censuses. Two to four times per year will work; or visit more often.
- b. Select census techniques that will work best for your colony while causing the least disturbance to nesting birds.

- c. Make copies of the data sheets in this booklet for use in the field.
- d. Plan your field days and GO!

**8. Plan protection and colony management efforts**, if needed.

Potential problems are listed below:

- a. Need to post? You'll need permission from the landowner, signs, posts, etc. Contact Project ColonyWatch staff for signs.
- b. Suspect human disturbance? Monitor human activities and design an outreach program to reduce disturbance.
- c. Are the islands eroding? Perhaps a cordgrass planting project would be useful, or some other action to reduce island loss. Sometimes permits are necessary for more ambitious erosion-control projects.
- d. Need to remove non-native plants? Contact Project ColonyWatch staff for how to address this question.
- e. Are raccoons or other predators suspected? Adult birds will abandon a colony site with mammalian predators. Again, the professional Audubon ColonyWatch staff can help.
- f. Is fishing line entanglement a problem at your colony? Schedule a fishing line removal



## Steps for a Great ColonyWatch Project (continued)

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day during the fall when birds are not nesting.

**g.** Are nearby freshwater wetlands under threat of development?

White ibis and the smaller herons can fly up to 20 miles one way to find appropriate foraging sites. If wetlands are not available within that distance from the colony, they cannot

successfully raise young.

**h.** Are there other habitat or management problems?

**9. Decide who should receive your information.** Some useful entities would include your Project ColonyWatch staff, local planners, regulatory agencies, perhaps elected officials, or the media. Is

there an education opportunity?

Would school groups, classes, or clubs benefit from a presentation?

**Remember:** WE want to help YOU plan a great project! Please call us with your ideas, suggestions, solutions, and concerns. We are a resource to help you help protect the birds. 813 623-6826

## Key Questions

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At the outset of any bird colony protection effort, it is essential to ask two important questions:

1. What kinds of birds are nesting at the site?
2. How many nests (or breeding pairs) are present?

These questions can be answered by repeated censuses during the nesting season, using simple but standardized techniques. Some species are easier to see and count than others. Some nest on the ground, some in trees. Some stay very close to their nests, while others are very sensitive to approach by even well-meaning observers. These and other factors affect the choice of the best census technique, or techniques, to use at a given colony.

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## A Few Definitions

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1. A **breeding colony** is an area where birds of one or more species gather in numbers to nest. Where most of the nesting birds are herons, it is appropriate to use the synonym heronry. Another synonym is rookery, although some limit this term to colonies of rooks, a colonial corvid of Europe. Penguins and northern seabirds like murrens, auks, etc. are commonly said to nest in rookeries. A colony can be as small as two nests, or as large as 5,000 or more.
2. A **roost** is where non-nesting birds aggregate to spend the night or part of the day.
3. The **incubation period** is the time when adult birds are incubating the eggs, ranging from 20–22 days for the smaller herons to about 32 days for brown pelicans.
4. **Brood stage** or **guard stage** is the period when young birds in the nest are continuously attended by a parent. This is a period when the young nestlings are small enough to be easily taken by a predator such as a fish crow or night-heron. For small herons, the brood stage lasts about 12–14 days, while for larger herons it lasts three weeks or more. In pelicans the brood stage lasts about four weeks.
5. **Fledging** generally refers to the time or age at which a nestling is first capable of flight. Small herons fledge at the age of four to five weeks. Brown pelicans fledge at 11 weeks. For some time after fledging (two weeks for small herons, up to four weeks for great blue herons, etc.), the parent birds continue to feed their young at or near the colony.
6. A **breeding pair** is confirmed by noting one or more of the following criteria:
  - two adults standing together in the nest or at a nest site (usually represents a pair early in the nesting cycle; they may not have eggs yet);
  - an adult in the nest, standing or crouched in incubating or brooding position;
  - a nest containing eggs or young (usually with an adult in attendance);
  - a brood of one or more large young, standing in or near a nest (if several young are in the area, the observer must make a decision about how many broods are represented).



## Colony Census Techniques

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No single census technique is best for all situations. Selection of the best method always represents a compromise between the need for accuracy and the need to avoid disturbance at a colony. Remember, the key questions are 1) what kinds of birds and 2) how many breeding pairs of birds nest at your Project ColonyWatch site.

### 1. Direct Counts

The most accurate census technique is a direct count of nests or nesting pairs. A direct count is appropriate where the colony site is small and/or easily accessible, and the nests or nesting birds can be seen easily. Large birds, species with conspicuous coloration, and those that nest in sparse vegetation or on top of the tree/shrub canopy, lend themselves to direct counts. In Florida, the larger birds that nest in the tree tops are typically brown pelicans, double-crested cormorants, anhingas, great blue herons, and wood storks. Direct counts can also be used effectively for ground-nesting birds such as gulls, terns, and skimmers, although laughing gulls nesting in tall grass can be hard to see.

To carry out a direct count, observers may walk carefully around the perimeter of the colony, identifying and counting nests. Colony entry will cause disturbance, and should be avoided (See *A Word about Disturbance*, page 10). Fish crows and other birds will use the disturbance as an opportunity to steal eggs and even small young. Colonies on coastal islands can be circled at a distance repeatedly by boat until counts are complete. (Hint: do not use canoes for coastal colony counts, since visibility is poor from the low position, and wave action can interfere with the ability to make a reasonable count. However, canoes may be useful in the still waters of freshwater swamps.)

Very large colonies can be difficult to survey by direct count. Sometimes it is useful to make a careful count of a smaller area, and then extrapolate to estimate nesting in areas of similar habitat structure and nesting densities. Often, a good solution is to ask multiple observers to compare counts, and use cooperation to arrive at reasonable estimates.

## Tips for Ground-Nesting Bird Surveys

It is very important to consider the well-being of birds affected by the count. Early morning is a good time to conduct counts of ground-nesting birds, because the temperature is cooler then, reducing stress on the adults, eggs, or young. It is important to finish the count by mid-morning, before the mid-day temperature rises. It goes without saying that ground-nesting birds use camouflage to protect their eggs and young from predation, so census-takers must watch their footing carefully to avoid stepping on eggs or chicks.

**DO NOT ENTER THE COLONY ITSELF.**

## Colony Census Techniques (continued)

### 2. The Flight-line Technique

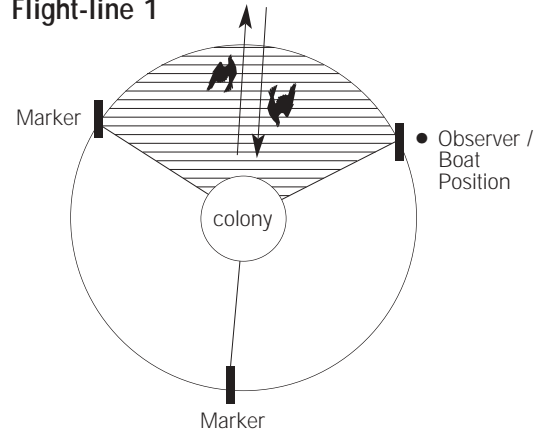
Hérons, egrets, ibises, and spoonbills often nest out of sight, below the canopy, so that direct counts are not possible. Another sampling technique is necessary. Some techniques require extensive colony entry and may cause significant mortality due to disturbance (see *A Word about Disturbance*, page 10). A flight-line estimation technique is generally preferred because reasonable nesting population estimates can be obtained from a distance, without impacting nesting.

This method is based on the knowledge that nesting wading birds take turns at the nest, each parent incubating the eggs or brooding the young while the mate forages for food. Usually the male leaves the colony at sunrise and forages for two to four hours. Upon his return to the nest, the female flies off, returning in the afternoon. The greater regularity of the morning foraging flight allows more accurate estimates than afternoon counts. (Night-herons cannot be censused successfully with this technique because they forage primarily at night.)

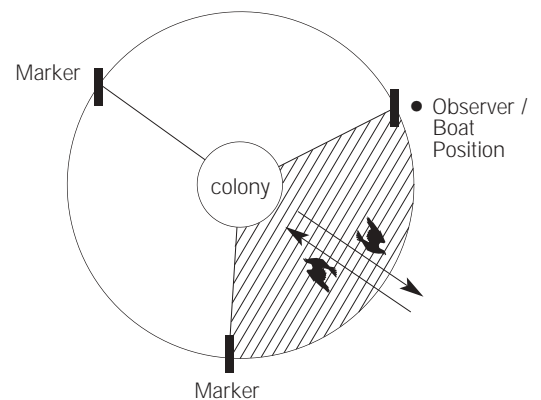
It is possible to estimate the number of pairs in a colony by measuring the flight rate of adults leaving and returning to the colony along a flight-line. However, the method is valid only if flight counts are made under the following conditions:

- Good weather! Avoid wind speeds exceeding 15 mph, since they will affect the flight-line and your boating safety.
- When most or all of the breeding pairs are in the incubation or guard stage of nesting.
- In the morning, between about 8 A.M. and 12 noon. Or start counts between one and two hours after sunrise.
- Observers should be positioned 100 yards or more from the colony, where they can see flight-lines well without disturbing nesting birds at all. Use binoculars!

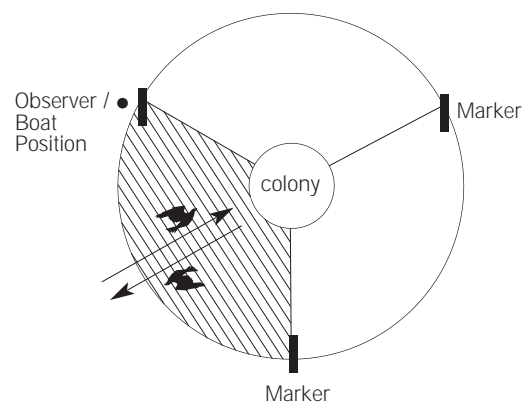
Flight-line 1



Flight-line 2



Flight-line 3



## Colony Census Techniques (continued)

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The idea is to count all inbound and outbound adult herons, ibis, or spoonbills in standard counts of each flight-line. Normally two or more count periods are necessary at each colony, since the “traffic” may come from any direction and observers must sample all possible flight-lines. One-hour counts are best, although future research may confirm that half-hour counts are sufficient at large colonies. All counts are added together, to give a *total number of birds in and out per hour from all sides of the colony*. That's the *flight rate*. The flight rate is multiplied by 1.5 to give an estimate of the number of breeding pairs.

Here's an example, based on one-hour counts. For simplicity, we'll assume there is only one species present:

<b>Flight-Line #</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>Total</b>
# of birds inbound	10	24	6	40
# of birds outbound	12	19	8	39
<b>Total/hour = flight rate (FR)</b>	22	43	14	79
# of pairs = (FR) X 1.5				118

The flight-line technique should be tried out a couple of times, just to get comfortable with it and to discuss questions that arise. Try it with a team of two people, with one acting as the observer and the other as recorder.

To repeat, this method works best if all pairs in the colony are incubating or in the guard stage. But in Florida, with our long nesting season, colonies are rarely so synchronized. If your colony has some birds incubating, some with small young and some with large young, Audubon staff can help you apply a correction factor to the estimate, based on the proportion of nests with large young. Accuracy gradually declines as the nesting season progresses, and by late in the nesting season flight-line estimates may not be reliable. In mid-nesting season, however, this technique is a simple and appropriate way to census a colony without causing any disturbance at all.

*Note:* Although this technique shows considerable promise, it is still experimental. Audubon staff and other biologists are continuing to test and fine-tune the technique.

## A Word about Disturbance

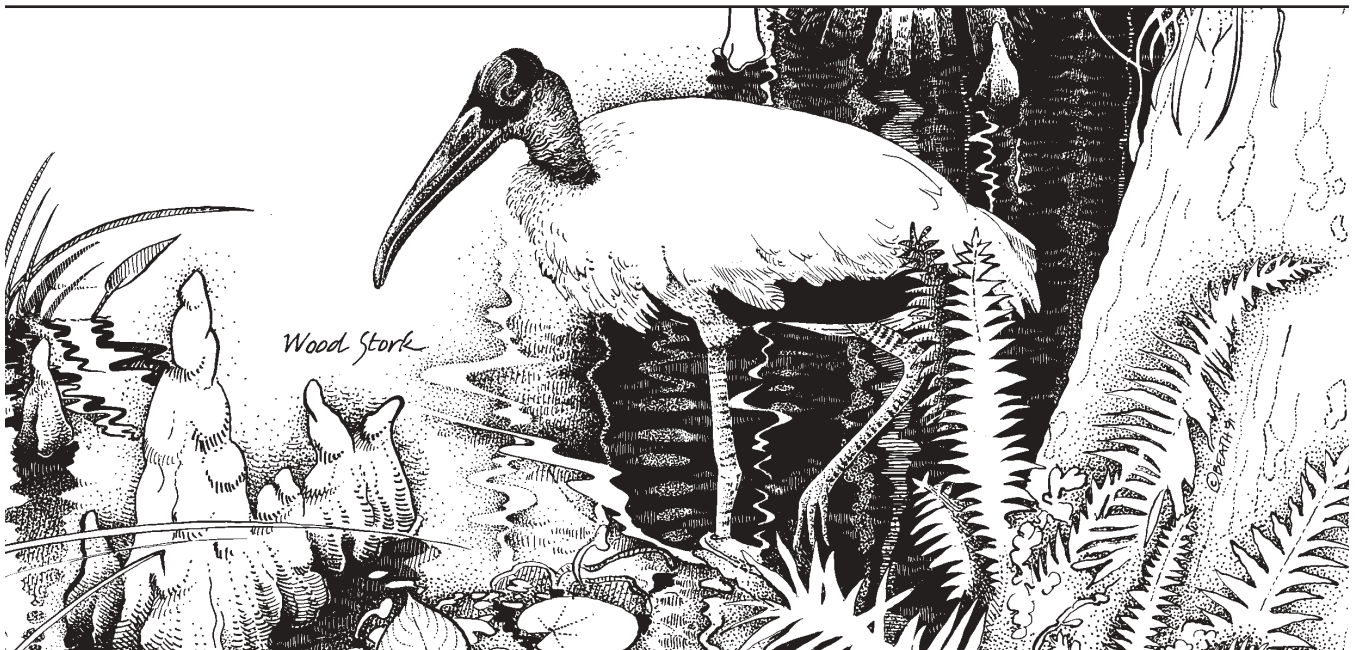
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The whole idea of Project ColonyWatch is to improve the protection of a colony. Therefore it is essential that ColonyWatch volunteers make every effort to avoid flushing adults from their nests or otherwise disrupting their activities. Besides, **it's illegal to disturb nesting birds**, no matter how good your intentions are! Of course, you must always obtain the permission of the landowner to be on the site – otherwise, you are trespassing.

The key problem with disturbance is forcing the adult bird to leave the nest, where it is protecting its eggs or young chicks. Once the adults have flown, predators like fish crows, gulls, or black-crowned night-herons can raid the nests, taking the vulnerable eggs or young. If people walk too close to nests with young chicks in them, the young may leave their nests in a desperate effort to get away from the perceived "predator." In many cases, nestlings may not be able to return to their own nests. Since the adults feed their young in or near their nests but not elsewhere, young birds on the colony floor will be left to starve. Black vultures are often seen in bird colonies, waiting for young to fall out of nests. Alligators, which provide a benefit by keeping raccoons and other tree-climbing predators out of bird colonies in freshwater swamps, are quick to take advantage of fallen nestlings.

Heat stress is another significant factor when adults are flushed from their nests, especially for ground-nesting birds like gulls, terns, and skimmers. The summer sun's heat can literally cook the eggs or young in a matter of minutes, if the parents are not there to shade them. A 20-minute visit to a bird colony by a careless human or a pet dog can destroy an entire colony's reproductive effort for the whole year.

If you think you may need to enter a colony, please consult ColonyWatch staff, or state or federal wildlife agency biologists in advance.



## Using Your Information

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It is very important to use your information strategically. After all, the colony can't protect itself! Start by preparing a brief report soon after the nesting season ends, summarizing the results of your colony surveys in a table. Include survey dates, the species seen, the numbers of breeding pairs, and any other information you think important. Do note any apparent threats to the stability of the nesting site or the safety of the birds, like erosion, disturbance, presence of predators, etc. And be sure to list the names of your ColonyWatch team! You can use the Data Sheets provided in this Handbook to help organize your report. This should be simple, not difficult, so if you bog down, call us for assistance.

Once your report is complete, decide who should see it. Here's where you get strategic. Certainly, Audubon ColonyWatch staff will want to see it. So will the local biologists of the Florida Fish and Wildlife Conservation Commission. Some other suggestions: your county or city environmental and planning agencies, U. S. Fish and Wildlife Service Office of Ecological Services, the local Water Management District, and so on (see *Agency Resources*, page 16). Local planning and development review processes and wildlife agencies cannot protect bird colonies if they don't know that the colonies are there.

Others who may be interested in your colony information include members of the press, your local Audubon chapter members and leaders (be sure to write an article for your chapter newsletter about your findings and experiences), and school groups, etc. In fact, elementary school classes or high school ecology clubs may be able to design and implement a colony census project as part of their curriculum! For instance, Sarasota High School has had such a project since 1998. You can also put your information on the chapter's website.

Newspaper articles and TV coverage are a great way to tell the world about your chapter's activities and about the nesting birds. By telling your community, you build awareness and support for the birds, and for colony protection.

All bird colonies are not secure. If they were, we wouldn't need ColonyWatch. A ColonyWatch project is a way of learning about a bird colony and monitoring nesting numbers in order to prevent impacts. But sometimes problems arise. When that happens, ColonyWatch volunteers already have the information that lets them assess the damage (potential or actual), already know what agencies to contact, and have developed community awareness about the site. If you've already developed a relationship with agency staff, it's easy to call when you really need to.

You don't have to be an "expert," either. All you have to do is have your ColonyWatch information at hand, present your concern, and ask good questions. Some problems, like oil or chemical spills, require prompt attention. Others, like island erosion, may take years to solve. Progress may be slow, but stay the course. Be concerned and persistent but polite. Find partners to support your position, too.

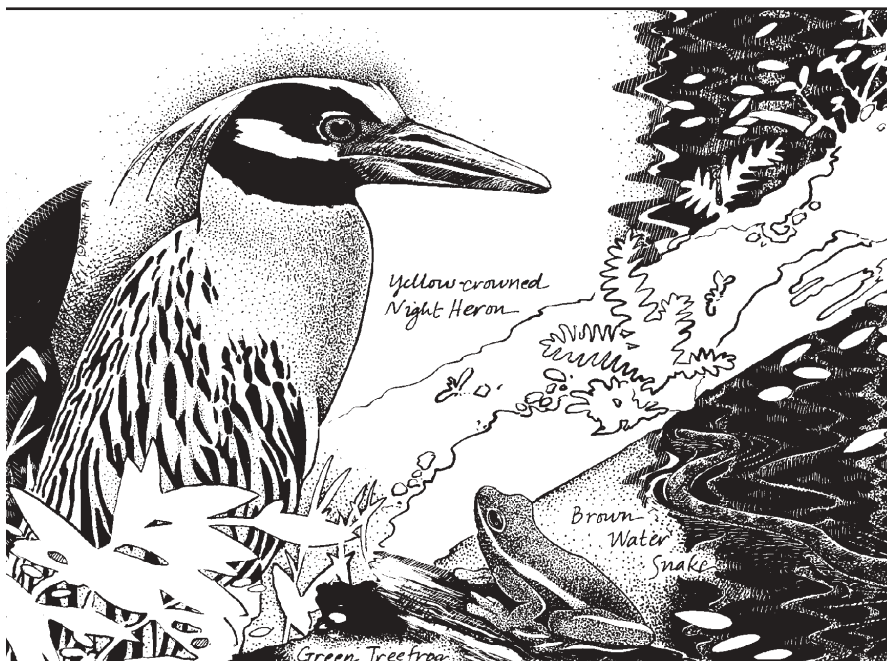
## Using Your Information (continued)

Actually, you ARE the expert. Often, a site under development consideration will be visited by a consultant biologist for a couple of hours to determine if there are any sensitive wildlife species present. If the visit is outside the nesting period, the consultant (or agency staffer who's reviewing the project) may never recognize the site's value to wildlife. Your census information, collected at the right time of year, is the best possible proof of the importance of the site, and offers the best opportunity to predict potential impacts of the proposed project. In addition, the census data may be useful if the colony is disturbed by an accident (such as an oil spill) or intentionally, when it comes time to assess damages or impose fines.

## We're here to help you help birds!

Remember: Audubon's Project ColonyWatch staff are always available to answer questions. Call us! 813 623-6826

**THANK YOU VERY MUCH for your help in making Project ColonyWatch a success! And thank you for working to protect the nesting colonial waterbirds of Florida.**



## Tips for dealing with the media:

- **Be clear, concise, and factual.** Do not exaggerate. If you don't know the answer to a question, say so. You can also say that you don't know but will look into it and get back with them. And sometimes very interesting discussions result from reviewing issues from several sides, without reaching the definitive "answer."

- **Provide an organized summary table** of bird numbers at the colony. Use the Colony Census Form provided as a guide, if you wish.

- **Make ecosystem connections:** note that wading birds must have productive wetland foraging habitats if they are to nest successfully, that birds in an estuary need fisheries to be productive, that fishing line entanglement can be a problem, etc.

For assistance with contacting your local media and approaches to sharing information about the colony with the press, contact your Project ColonyWatch staff.



## Data Sheets

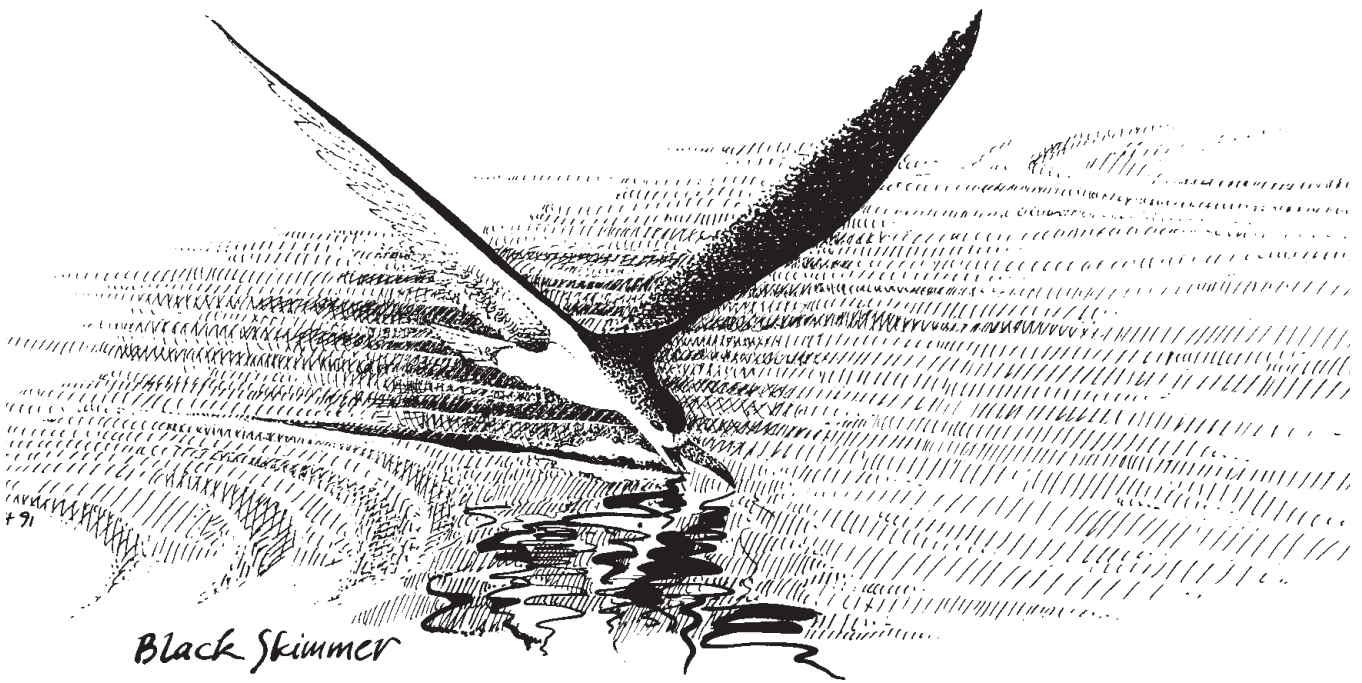
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Following are two data sheets to help you in your field work. Make as many photocopies of these sheets as you need.

The first data sheet is the **Colony Flight-Line Survey Form**. Use one sheet per flight-line, and another to summarize your data. For each species, indicate whether most pairs are incubating, or have small young or large young.

The second data sheet is the **Colony Census Form**. On this form, please provide your best count or estimate of nesting pairs and indicate the census technique used. For some species, it may be possible to count the number of young in broods. This is especially valuable in evaluating nesting success (i.e., young per nest). Brood counts are easiest with large birds or treetop nesters like brown pelican, double-crested cormorant, anhinga, great blue heron, great egret, or wood stork. Count broods if you can, but don't worry if it isn't possible.

A few noncolonial species are included on the Colony Census Form. Snowy plovers, Wilson's plovers, American oystercatchers, and willets often nest in or near coastal colonies. Information on their presence is of special interest because of their rarity, and the restricted nature of their habitats.



## Colony Flight-Line Survey

Colony Name \_\_\_\_\_ Time \_\_\_\_\_ to \_\_\_\_\_

Date \_\_\_\_\_ Wind \_\_\_\_\_ Clouds \_\_\_\_\_

Observer(s) \_\_\_\_\_ Tide \_\_\_\_\_

**(On reverse: draw a map of the colony indicating the observer's position.)**

SPECIES	STAGE OF BREEDING	NUMBER INBOUND	NUMBER OUTBOUND
Anhinga			
Great Blue Heron			
Great Egret			
Snowy Egret			
Little Blue Heron			
Tricolored Heron			
Reddish Egret			
Cattle Egret			
Black-crowned Night-Heron			
Yellow-crowned Night-Heron			
White Ibis			
Glossy Ibis			
Roseate Spoonbill			
Wood Stork			

**Stage of breeding:**

**I** = Incubation, **S** = Small young, **L** = Large young

*Note:* You will need to perform the Colony Flight-Line summary computations on another worksheet.

# Colony Census Form

Date \_\_\_\_\_ Colony Name \_\_\_\_\_ Time \_\_\_\_\_

County \_\_\_\_\_ Observer(s) \_\_\_\_\_ FFWCC # \_\_\_\_\_

Species	Nesting pairs	Census Method and Comments	Broods with:			FFWCC Listing*
			1 young	2 young	3 young	
Brown Pelican						SSC
Double-crested Cormorant						
Anhinga						
Least Bittern						
Great Blue Heron						
Great Egret						
Snowy Egret						SSC
Little Blue Heron						SSC
Tricolored Heron						SSC
Reddish Egret						SSC
Cattle Egret						
Green Heron						
Black-crowned Night-Heron						
Yellow-crowned Night-Heron						
White Ibis						SSC
Glossy Ibis						
Roseate Spoonbill						SSC
Wood Stork						E
Snowy Plover						T
Wilson's Plover						
American Oystercatcher						SSC
Willet						
Laughing Gull						
Gull-billed Tern						
Caspian Tern						
Royal Tern						
Sandwich Tern						
Least Tern						T
Black Skimmer						SSC
<b>Total pairs in colony</b>						

If this survey was based on a flight-line estimate, please attach Colony Flight-Line data sheets.

Make notes of other pertinent colony information on back of sheet or on attached pages.

\*Florida Fish & Wildlife Conservation Commission listings:

**E** = Endangered, **T** = Threatened, **SSC** = Species of Special Concern

Many wading bird colonies have been assigned an official "colony number" by the Florida Fish & Wildlife Conservation Commission during periodic aerial surveys. Ask your Project ColonyWatch staff if your colony has a FFWCC number.

## Audubon and Agency Resources

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### **Audubon of Florida**

[www.audubonofflorida.org](http://www.audubonofflorida.org)

Audubon of Florida, Main Office and Everglades  
Conservation Office

444 Brickell Avenue, Suite 850

Miami, FL 33131

305/371-6399

fax 305/371-6398

### **Audubon Resource Management Offices**

ColonyWatch, Important Bird Areas, and  
Florida Coastal Islands Sanctuaries

410 Ware Boulevard, Suite 702

Tampa, FL 33619

813/623-6826

fax 813/623-6826

Corkscrew Swamp Sanctuary

375 Sanctuary Road West

Naples, FL 33964

239/348-9151

fax 239/348-9145

Tavernier Science Center

115 Indian Mound Trail

Tavernier, FL 33070

305/852-5092

fax 305/852-8012

Lake Okeechobee Sanctuary

100 Riverwoods Circle

Lorida, FL 33857

863/467-8497

fax 863/467-8460

Center for Birds of Prey

1101 Audubon Way

Maitland, FL 32751

407/644-0190

fax 407/644-8940

### **Florida Fish & Wildlife Conservation Commission**

[www.fwc.state.fl.us](http://www.fwc.state.fl.us)

Wildlife Alert Hotline (toll-free)

Report wildlife violations, poaching, etc.

1-888/404-3922

FFWCC Main Office

620 South Meridian Street

Tallahassee, FL 32399-1600

850/488-1960

FFWCC Office of Informational Services

850/488-4676

FFWCC Division of Law Enforcement

850/488-6251

FFWCC Division of Wildlife

850/488-3831

FFWCC Great Florida Birding Trail

850/922-0664

FFWCC Bureau of Protected Species Management

850/922-4330

FFWCC Wildlife and Environmental Services Office

29200 Tuckers Grade

Punta Gorda, FL 33955

941/575-5765

FFWCC Environmental Services Office

255 154th Avenue

Vero Beach, FL 32968-9041

561/778-5094

## Audubon and Agency Resources (continued)

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### FFWCC Law Enforcement Offices

Pensacola 850/595-8978

Carrabelle 850/697-3741

Panama City 850/233-5150

Tallahassee 850/488-6251

Crystal River 352/447-1633

Lakeland 863/648-3200

Lake City 904/758-0529

Fort Myers 941/332-6911

Tampa 813/272-2516

Jupiter 561/624-6935

Miami 305/956-2300

Everglades/West Palm Beach 561/625-5128

Marathon 305/289-2320

### FFWCC Regional Bureau of Wildlife Diversity Conservation Offices

Ask for your Regional Biologist

### FFWCC Southwest Regional Office

3900 Drane Field Road

Lakeland, FL 33811

863/648-3203

### FFWCC Northwest Regional Office

3911 Highway 2321

Panama City, FL 32409-1658

850/265-3676

### FFWCC South Regional Office

8535 Northlake Boulevard

West Palm Beach, FL 33412

561/625-5122

### FFWCC Northeast Regional Office

1239 Southwest 10th Street

Ocala, FL 34474-2797

352/732-1228

### FFWCC North Central Regional Office

Route 7, Box 440

Lake City, FL 32055

386/758-0525

### Water Management District Offices

[www.watermatters.org](http://www.watermatters.org)

### Southwest Florida Water Management District

2379 Broad Street

Brooksville, FL 34609-6899

352/796-7211

### St. Johns River Water Management District

P.O. Box 1429

Palatka, FL 32178

904/329-4500

### Northwest Florida Water Management District

81 Water Management Drive

Havana, FL 32333

850/539-5999

### South Florida Water Management District

P.O. Box 24680

West Palm Beach, FL 33416

561/686-8800

### Suwannee River Water Management District

9225 County Road 49

Live Oak, FL 32060

904/362-1001

## Audubon and Agency Resources (continued)

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### National Estuary Programs in Florida

Sarasota Bay National Estuary Program  
111 South Orange Avenue, Suite 200W  
Sarasota, FL 34236  
941/951-3650  
fax 941/951-3659  
[www.sarasotabay.org](http://www.sarasotabay.org)

Tampa Bay Estuary Program  
100 Eighth Avenue SE  
Mail Station I-1/NEP  
St. Petersburg, FL 33701  
727/893-2765  
fax 727/893-2767  
[www.tbep.org](http://www.tbep.org)

Indian River Lagoon Program  
Palm Bay Service Center  
525 Community College Parkway S.E.  
Palm Bay, FL 32909  
321/984-4950 or 800/226-3747  
fax 321/984-4937  
[www.sjrwmd.com](http://www.sjrwmd.com)

Charlotte Harbor National Estuary Program  
Southwest Florida Regional Planning Council  
4980 Bayline Drive, 4th floor  
P.O. Box 3455  
North Fort Myers, FL 33917  
239/995-1777  
fax 239/656-7724  
[www.charlotteharbornep.org](http://www.charlotteharbornep.org)

### U.S. Fish and Wildlife Service Ecological Services Offices

USFWS Panama City Field Office  
1601 Balboa Avenue  
Panama City, FL 34205-3721  
850/769-0552  
fax 850/763-2177  
[www.panamacity.fws.gov](http://www.panamacity.fws.gov)

USFWS Tampa Bay Field Office  
9549 Koger Boulevard, Suite 111  
St. Petersburg, FL 33702  
727/570-5398  
fax 727/570-5549  
[www.tampa.fws.gov](http://www.tampa.fws.gov)

USFWS Jacksonville Field Office  
6620 Southpoint Drive, #310  
Jacksonville, FL 32216-0912  
904/232-2580  
fax 904/232-2404  
[www.northflorida.fws.gov](http://www.northflorida.fws.gov)

USFWS South Florida Field Office  
1339 20th Street  
Vero Beach, FL 32960  
772/562-3909  
fax 772/562-4288  
[verobeach.fws.gov](http://verobeach.fws.gov)



## Audubon and Agency Resources (continued)

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### Florida Department of Environmental Protection

www.dep.state.fl.us

FDEP - Main Office  
3900 Commonwealth Boulevard  
Tallahassee, FL 32399  
850/245-2307

FDEP Southwest District Office  
3804 Coconut Palm Drive  
Tampa, FL 33619  
813/744-6100, fax 813/744-6084

FDEP Northwest District Office  
160 Governmental Center  
Pensacola, FL 32502  
850/595-8300, fax 850/595-8414

FDEP South District Office  
2295 Victoria Avenue, #364  
Fort Myers, FL 32902  
239/332-6975, fax 239/332-6969

FDEP Northeast District Office  
7825 Baymeadows Way, #B200  
Jacksonville, FL 32256-7590  
904/807-3300, fax 904/448-4319

FDEP Central District Office  
3319 Maguire Boulevard, #232  
Orlando, FL 32803  
407/897-7555, fax 407/897-2966

FDEP Southeast District Office  
400 North Congress Avenue, Suite 200  
West Palm Beach, FL 33401  
561/681-6600, fax 561/681-6755

### Department of Environmental Protection's Aquatic Preserves and State Buffer Areas Program

Main Office  
3900 Commonwealth Blvd., Mail Station 235  
Tallahassee, FL 32399-3000  
850/245-2094

### Aquatic Preserve and State Buffer Areas Field Offices

Apalachicola National Estuarine Research Reserve  
350 Carroll Street, Eastpoint, FL 32328  
850/670-4783

Biscayne Bay Aquatic Preserve  
Biscayne Bay Environmental Center  
1275 NE 79th Street CSWY  
Miami, FL 33138-4206  
305/795-3485

Charlotte Harbor State Buffer Preserve  
12301 Burnt Store Road  
Punta Gorda, FL 33955  
941/575-5861

Crystal River State Buffer Preserve  
3266 North Sailboat Avenue  
Crystal River, FL 34428  
352/563-1136

Estero Bay State Buffer Preserve  
700-1 Fishermans Wharf  
Ft. Myers Beach, FL 33931  
941/463-3240

Florida Keys National Marine Sanctuary  
216 Ann Street, Key West, FL 33040  
305/92-0311

## Audubon and Agency Resources (continued)

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Guana Tolomato Matanzas National Estuarine  
Research Reserve  
9741 Ocean Shore Blvd.  
St. Augustine, FL 32080  
904/461-4054

North Fork, St. Lucie River State Buffer Preserve  
9737 Gumbo Limbo Trail  
Jensen Beach, FL 34957-2214  
561/873-6590

Pumpkin Hill Creek State Buffer Preserve  
13802 Pumpkin Hill Road  
Jacksonville, FL 32226  
904/696-5944

Rainbow Springs Aquatic Preserve  
19152 SW 81 Place Road  
Dunnellon, FL 34432  
352/489-7516

Rookery Bay National Estuarine Research Reserve  
300 Tower Road  
Naples, FL 34113  
941/417-6310

St. Joseph Bay State Buffer Preserve  
3915 Highway 30-C  
Port St. Joe, FL 32456  
850/229-1787

St. Sebastian River State Buffer Preserve  
1000 Buffer Preserve Drive  
Fellsmere, FL 32948  
407/953-5004

Terra Ceia State Buffer Preserve  
130 Terra Ceia Road  
Terra Ceia, FL 34250  
941/721-2068

Wekiva River Aquatic Preserve  
8300 West State Road  
Sanford, FL 32771  
407/330-6727

Yellow River Marsh Aquatic Preserve  
7255 Highway 90 East  
Milton, FL 32583  
850/983-5359