

What does it take to become a CERTIFIED

Audubon Cooperative Sanctuary?

*A journey through the process
in four installments*



BY SHELLY FOY
AND GREG PLOTNER

A question that is often asked is “How do I become a fully certified golf course in the Audubon Cooperative Sanctuary Program?”

In an effort to encourage others to participate and offer help along the way, we will be writing a 4-part series on a golf course becoming a fully certified Audubon Cooperative Sanctuary. We will document the progress made, as well as offer any tips we can to smooth the way for others.

The golf course we will be following through certification is the Medalist Golf Club in Hobe Sound. They joined the Audubon Cooperative Sanctuary Program (ACSP) in May 1993.

In June of 1995, Greg Plotner, CGCS became the golf course superintendent and set a goal of becoming a fully certified cooperative sanctuary in one year. Greg has experience with the ACSP, as his previous club, Tampa Palms Golf & Country Club was the first golf course in Florida to become fully certified.

The Resource Inventory for the Medalist Club was completed in November

1995. The ACSP staff estimates that it takes 30 minutes to 1 hour to complete this form, however we found that it took a little longer.

The purpose of the Resource Inventory is to help you describe your property and management practices, thus making it easier for you to decide on the types of projects you would like to undertake. The Resource Inventory is eight pages and filled with check off boxes which makes it easier to complete.

Some suggestions to keep in mind when working on your Resource Inventory:

- Start with the information you already know
- Estimate your acreage, don't go crazy trying to get specific
- Don't hesitate to write “I don't know.”
- Don't forget that pictures are indeed worth a thousand words
- Including a property map or course diagram is helpful

Remember, this is general informa

Audubon Society (NY) goes International

For the last several years, the Audubon Society of New York State (ASNY) has been working to establish proactive conservation programs that are aimed at involving people in programs and projects that will benefit the environment. ASNY has gone a considerable distance toward reaching its goals.

In order to expand and build upon our endeavors, it is necessary that a new broader and stronger foundation be established. To unify our national and international programs into a cohesive unit, we are pleased to announce the creation of Audubon International Center For Sustainable Resource Management

Audubon International has become the umbrella organization under which will fall all of the programs formerly managed by ASNY including the Audubon Cooperative Sanctuary System and associated wildlife and environmental education programs. In addition, several new and exciting programs are being created which will focus on:

- Research
- Education
- Conservation Assistance

Ron Dodson, President of New York Audubon says that “The move was made because of the rapid growth we've seen, and the interest in our program well beyond the borders of New York State.”

For more information, call (518) 767-9051

tion which is meant to help ACSP staff become familiar with your course. Once they have this, they will send you a report written specifically for your golf course which will make recommendations on projects they feel you will be able to undertake.

Always remember, you are the one that makes decisions on what you do or not do. The ACSP staff only makes recommendations.

After receiving your report, the next step is the Environmental Planning Worksheet.

As part of this worksheet, you will need to identify people who will serve on your Resource Committee. Why do you need a Resource Advisory Committee? They can help reduce some of the work by undertaking projects, assisting with the resource inventory or even helping to list wildlife species.

Your resource committee should contain golf course staff, green committee members, golfers, and people in your community. Educating the public on the value of golf courses is an opportunity which cannot be passed up.

Having individuals on the resource committee who are not involved with your golf course is a great way to be proactive in your community.

Having individuals on the committee outside of your golf course is a good way to be proactive in your community. This will allow you the opportunity to educate the public about the value of a golf course.

Your Resource Committee can also help you with:

- Planning
- Technical Knowledge
- Volunteer Work
- Publicity
- Continuity

Here is a copy of the Environmental Plan for the Medalist Club, which includes the Resource Committee. We may add to this group as we go along.

ENVIRONMENTAL PLAN

Request for Certification

Course Name: Medalist Golf Club

Address: 9650 SE Federal Highway, Hobe Sound, Florida 33455

Phone: 407-546-0647

Contact Person: Greg A. Plotner, CGCS

INSTRUCTIONS: The purpose of the Environmental Plan is to help you define your goals and plan strategies to fully develop your Cooperative Sanctuary. The plan does not have to be elaborate — a simple outline will help you get started. However, the plan should address what you plan to do in each certification category, who will be responsible for each area, and what your time frame is for completion. This form is designed to help make this process both simple and comprehensive. We encourage you to make a plan that will not only be useful for certification, but will be valuable when managing various aspects of your cooperative sanctuary. Over time, you can review your plan to see if you're on track, check off goals that you've achieved, and periodically update it to respond to new ideas, needs or concerns. If you have any questions when filling out this form, please call us at (518) 767-9051. When you've completed your Environmental Plan, please make a copy for your records and send this form to us at the above address. We'll review it, send you a "Certificate of Recognition" in Environmental Planning, and forward guidelines for completing certification in the remaining categories.

STEP 1: Define Overall Objectives.

- What does your course want to achieve as a Cooperative Sanctuary participant?

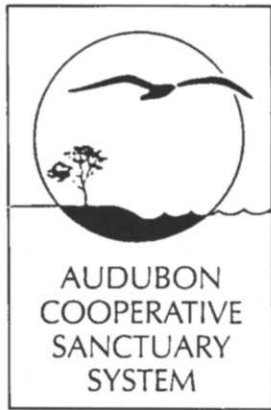
The Medalist Golf Club recognizes the natural scenic and habitat value of the native upland and wetland habitats on site. As such, the Master Plan of the course was designed to effectively integrate the golf course in a way which enhances golf course play while protecting the value of the wetland and upland preserve areas. We as a participant wish to demonstrate to others our abilities to continue with our master plan and share our experiences with others.

- What unique features or constraints of your site have to be accounted for when developing your golf course sanctuary (eg. public play, member privacy, tournament play, neighboring land owners, unique habitats, lack of space, environmental regulations, etc.)?

- 1) Member Privacy
- 2) Unique & Protected Habitats
- 3) Environmental Regulations
- 4) Prohibitive Activities

STEP 2: Review Each Certification Category and Outline Plan-Of-Action.

Use the project checklists on the following pages to decide which projects you will implement. The checklists are provided for guidance; feel free to come up with additional projects that suit your course. As you outline your plan in each category, try to



Public/Member Involvement and Education

The intent of this category is to help you gain recognition and support for your environmental programs, increase golfer understanding of wildlife and environmental quality on the golf course, and let the public know that golf courses can be valuable community assets.

Member and public awareness and involvement in environmental projects is often the key to their success.

Choose projects to help you focus your efforts, increase participation, build support, and generate positive publicity for the work you do.

Audubon Resource Committee - List possible contact people (members or regular golfers, local resource people/organizations, staff, etc.) that can provide special information or assistance to help you carry out your plan.

define the following:

- What are your priority projects?
- Who will be responsible for implementing projects in each certification area?
- What is your time-line for when projects will be initiated and completed?

If you have already completed projects, simply write "complete" in the space provided for "Projected Completion Date." Feel free to attach additional pages as needed for comments or details.

PUBLIC/MEMBER INVOLVEMENT AND EDUCATION

Audubon Resource Committee

<u>Name</u>	<u>Title/Relation to Course</u>	<u>Area of Focus/Expertise</u>
Greg Plotner	Golf Course Superintendent	
Shelly Foy	USGA Green Section	Audubon Program
Jane Krebs	Tom Lucido & Associates	Land Planner for Medalist
Dave Coogan	Blue Flag Aquatics	Wetland/Upland Mitigation
Tom Aiello	Aiello Landscape	Landscaping Contractor
Steve Beeman	EcoShores, Inc.	Aquatic Plant Management

Once you have contacted Resource People or formed a committee, share your environmental plan with them and solicit suggestions for additional projects.

Public Involvement Project Checklist
Please check projects that you plan to do.

Projected Start Date **Projected Completion Date**

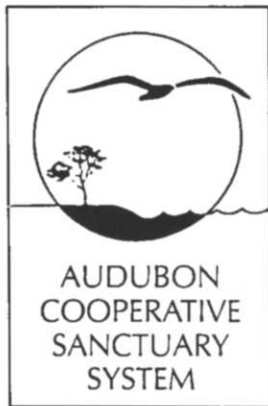
Education/Public Information Projects (may include):

- Display of ACSP registration, wildlife list, project info., etc.
- Educational Posters Oct. 1995 Ongoing
- Newsletter articles Nov.1995 Ongoing
- Brochure of ACSP/Environmental Activities
- Presentations at workshops or seminars 1993 Ongoing
- Press releases
- Tournament publicity
- Other:

Involvement Projects(may include):

- Member, scout, or school involvement in nest box building or monitoring
- Member/Public involvement in wildlife inventory Dec.1995
- Member/Public help with planning or publicity
- Member/Public help with planting projects
- Nature trail, wildlife walks, or tours of course
- Nature guide to the course for member/public use
- Kids projects:
- "Adopt a School" - sponsor a school in ACSP for Schools
- Other:

Person(s) responsible for Public Involvement projects: Shelly Foy
Comments:



Wildlife and habitat management

This category encompasses the management of non-play areas to provide habitat for wildlife on the golf course. The size of the property and diversity of existing habitats will impact what you are able to do. The intent of "Wildlife & Habitat Management" is to maximize the space you have to provide the best possible habitat given your location, size, layout, and type of property.

Water quality management

Water quality is a crucial issue for government agencies, environmental groups, and the public. Concerns are often raised about the impact of golf course chemical use on the water quality of lakes, streams, and ground water. In order to feel confident that your course is maintaining good water quality, it is important to have a strategy in place to monitor water quality, improve conditions if warranted, and deal with any problems should they arise.

Wildlife & Habitat Management Project Checklist	Projected Start Date	Projected Completion Date
<i>Please check projects that you plan to do.</i>		
Wildlife Cover Enhancement Projects (may include):		
<input type="checkbox"/> Leave woodland understory when possible	1994	Ongoing
<input type="checkbox"/> Leave dead trees standing when not a safety hazard	July 1995	Ongoing
<input type="checkbox"/> Create brush piles for small mammals		
<input type="checkbox"/> Naturalize non-play areas		
<input type="checkbox"/> Mount and monitor nest boxes		
<input type="checkbox"/> Protect or enhance special habitats:		
<input type="checkbox"/> Protect threatened or endangered species:	1993	Ongoing
Wildlife Food Enhancement Projects (may include):		
<input type="checkbox"/> Choose food sources for hummingbirds, butterflies or songbirds in landscaped and garden areas		
<input type="checkbox"/> Emphasize native plants in landscaping	June 1995	Ongoing
<input type="checkbox"/> Maintain bird feeders		
Water Enhancement Projects (may include):		
<input type="checkbox"/> Buffer shorelines around ponds and other water sources with aquatic vegetation	August 1995	Ongoing
<input type="checkbox"/> Mount an osprey nesting structure (if applicable)		
<input type="checkbox"/> Protect or enhance wetland areas	July 1995	Ongoing
<input type="checkbox"/> Other Projects:		
Also required when applying for certification in Wildlife & Habitat Management:		
<input type="checkbox"/> A map of the course with natural areas		
Person(s) responsible for Wildlife & Habitat projects: Jane Krebbs		
Comments:		

Water Quality Management Project Checklist	Projected Start Date	Projected Completion Date
<i>Please check projects that you plan to do.</i>		
<input type="checkbox"/> Establish baseline data for water quality.	1994	1994
<input type="checkbox"/> Test key water sources on a regular basis.	1995	Ongoing
<input type="checkbox"/> Protect streams from erosion and pollution inputs.	1994	Ongoing
<input type="checkbox"/> Enhance (if needed) or protect wetlands.	1995	Ongoing
<input type="checkbox"/> Establish vegetative buffers and "no spray zones" around water features to filter runoff, reduce erosion, and minimize chemical input.	1994	Ongoing
<input type="checkbox"/> Minimize or eliminate chemical additives in water sources.	1994	Ongoing
<input type="checkbox"/> Maintain equipment wash down and maintenance area to protect water sources.	1995	Ongoing
<input type="checkbox"/> Other:		
Person(s) responsible for Water Quality Management: Greg Plotner		
Comments:		

Integrated pest management

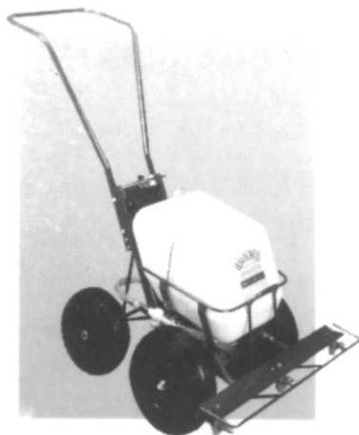
A comprehensive IPM program will help to ensure a healthy environment for both people and wildlife. Your IPM program includes efforts to manage turf areas with environmental sensitivity, educate workers and members about responsible plant management, and provide a clean and efficient maintenance area.

Integrated Pest Management Project Checklist

	Projected Start Date	Projected Completion Date
<input type="checkbox"/> Regular turf scouting and monitoring.	June 1995	Ongoing
<input type="checkbox"/> Identifying problem "hot spots" and indicator areas.	June 1995	Ongoing
<input type="checkbox"/> Setting threshold levels for problems.	June 1995	Ongoing
<input type="checkbox"/> Written record keeping of monitoring activities control measures used, and results to detect trends from year to year.		
<input type="checkbox"/> Proper cultural practices with emphasis on dealing with underlying problems or conditions.	June 1995	Ongoing
<input type="checkbox"/> Reduction of turf stress due to carts, traffic, or low mowing heights.		
<input type="checkbox"/> Use of appropriate plant materials for climate and soils.	1994	Ongoing
<input type="checkbox"/> Use of slow-release or natural-organic fertilizers	1994	Ongoing
<input type="checkbox"/> Least toxic pest controls chosen.		
<input type="checkbox"/> Pesticide applications on a curative basis when possible.	1994	Ongoing
<input type="checkbox"/> Education and training for employees.	Sept. 1995	Ongoing
<input type="checkbox"/> Proper care and storage of equipment.	June 1995	Ongoing
<input type="checkbox"/> General appearance of environmentally-responsible maintenance facility.	June 1995	Ongoing
<input type="checkbox"/> Other:		

Person(s) responsible for IPM: Greg Plotner
Comments:

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Water Conservation

Water conservation is a key environmental concern for golf courses across the country. Having a comprehensive water conservation program in place helps to show your course's commitment to judicious water use and environmental stewardship.

Conclusion:

So, we're off and running at the Medalist Golf Club. In the next issue we will let you know what the course report suggests and how our environmental planning worksheet was received. We will also be applying for certification in other categories. Stay tuned!

P.S. If you have not joined the program, now is a good time to fill out your application and mail it in. If you need an application, call NYA at (518) 767-9051.

Water Conservation Project Checklist

Please check projects that you plan to do.

	Projected Start Date	Projected Completion Date
<input type="checkbox"/> Operate irrigation system for maximum irrigation efficiency.	1994	Ongoing
<input type="checkbox"/> Planning to install new irrigation system to increase efficiency.		
<input type="checkbox"/> Check irrigation system for proper distribution.	1994	Ongoing
<input type="checkbox"/> Note leaks quickly and make repairs in a timely manner.	1994	Ongoing
<input type="checkbox"/> Incorporate evapotranspiration rates or weather data.	Aug. 1995	Ongoing
<input type="checkbox"/> Avoid watering at peak evaporation times.		Ongoing
<input type="checkbox"/> Set watering priorities.	Aug. 1995	Ongoing
<input type="checkbox"/> Reduce irrigated turf areas where possible.		1994
<input type="checkbox"/> Incorporate water conservation landscaping and/or drought-tolerant plants.	1994	Ongoing
<input type="checkbox"/> Choose turf species well suited to climate and soils.	1994	Ongoing
<input type="checkbox"/> Use mulches in gardens to reduce water loss.	1994	Ongoing
<input type="checkbox"/> Select water sources for least impact on local supplies.	1994	Ongoing
<input type="checkbox"/> Other water conservation measures in place:		
<input type="checkbox"/> Water reduction documented if possible.		

Person(s) responsible for Water Conservation: Greg Plotner
Comments:



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Photo by Kim Sargent

Hole #11 is a demonstration of design adapting to the natural surroundings.

Indian River Club achieves Signature Status

Vero Beach
development becomes
third project in the
world to receive
Audubon
International's
highest award for
environmental
stewardship on a
grand scale

BY BOBBY ELLIS
*Director of Golf & Grounds
Maintenance*

On November 27, 1995, Ron Dodson, President of Audubon International granted the organization's highest award, that of Audubon Signature Status, to Indian River Club, located in Vero Beach.

The Signature Status award is granted to a new project development which demonstrates and documents programs aimed at environmental awareness, most notably through conservation, efficiency, and the minimization of waste.

Indian River Club is the third project in the world to receive this prestigious award, which reflects the commitment, planning, and implementation by Audubon International.

Indian River Club is a 300-acre, master-planned golf and residential commu-

nity located in south Indian River County. It is the dream of owner Mr. Jeff Reynolds and managing partner Robert Swift, to be a low-density community with no more than 260 residences and 390 memberships, thus assuring lasting beauty and value for homeowners and members.

At the heart of the project is an 18-hole championship golf course designed by Ron Garl. It was built on land offering a diversity of existing landscapes including mature pine and palmetto forests, large oak hammocks, and even the coastal sand ridge containing sand pines and scrub oak habitats.

The construction of the golf course was a challenge readily accepted by the entire development team.

Careful attention was given to the preservation of unique native habitats and landscape which reflect development ideas, especially through input from the Signature Sanctuary Program.

Being sensitive stewards of the land, native material was left in place wherever possible. If development required removal, all that was possible was relocated to enhance the natural beauty of the site.

The golf course was constructed to exacting standards which reflect the ideas of conservation. This includes minimizing turfed areas, thus using less water, and applying irrigation through a computer-assisted delivery system using weather data to determine exact needs.

Landscapes were designed using drought-tolerant, native materials to minimize the need for supplemental water, including vast expanses of native grasses for wildlife enhancement and increased reliance of integrated pest management programs through reduced pesticide and fertilizer use.

Certain areas were set aside as non-developable to help promote the abundance of wildlife located within the community, such as an upland preserve and a dedicated scrub jay habitat enhancement

area.

Conservation extends to all building construction, which must meet guidelines established by Indian River Club for energy and water use efficiency.

Residential landscapes are designed using low-maintenance plant materials indigenous to Florida plantscapes and minimal turf areas.

Irrigation for the entire project is controlled by the grounds maintenance department through the use of the computer-assisted delivery system. Effluent water will be available during early 1996 for the golf course, common areas and residential lawns.

In order to fully implement all conservation, IPM and resource management programs, a highly efficient work area is required.

The center of the Signature Program is the maintenance operations center, or Natural Resource Management Center, as referred to by Audubon International. It must be fully operational to support

ongoing programs such as energy efficiency, water conservation, recycling, waste management (pesticide rinsates, clipping disposal, etc.), and maximizing productivity through design.

While much has been said about the negative impact of golf developments, it is an honor to work with people who take a proactive approach about the benefits of these true natural settings. The real beauty of Indian River Club is its ability to enhance and coexist with nature, the founding principles of sustainable development as set forth by Audubon International.

While tremendous commitment is required to obtain Signature Status, reachable development goals are obtainable through conservation and environmental awareness. Be we cannot stop here. We must continue to educate not only our development, but the entire community concerning these ongoing programs. Together we can all make a difference.



Photo by Kim Sargent

Hole #16 shows reduction of maintenance areas due to minimal turf outside of play areas and incorporation of existing plantscapes into the hole design.



Photo by Craig Weyandt

A 5-by-5-by 3-foot bale of pine straw gathered on site by a mechanical sweeper has been dropped off to mulch an azalea bed behind the green.

Recycling is profitable at Y&CC of Stuart

BY CRAIG WEYANDT

*Golf Course Superintendent
Yacht & Country Club of Stuart*

Recycling and waste reduction have been receiving a good bit of attention for several years now. While good for the environment, some people have the opinion that it is expensive and a waste of time. The following are three recycling strategies that have proven to be just the opposite at the Yacht & Country Club of Stuart.

1. I was fortunate when I arrived at the Yacht & Country Club because there was a good variety of equipment on hand. One piece was a Vermeer 620 chipper that was primarily used to reduce the mass of limbs and debris collected from the course and surrounding property. These chips were then hauled off as waste

At the same time, I was purchasing cypress mulch at \$15. - \$18. per yard. My Green Chairman and I decided to try the hardwood mulch that we generated on

the property in the most critical area possible (the clubhouse) as an experiment.

We both waited for the phone to ring and, when it never did, we asked people if they noticed anything different. Mulch was never mentioned. Once the members were told that we did not have to throw away anything and that this mulch did not cost anything, the smiles started and the program was eagerly accepted.

Another type of mulch we use is pine straw. It sells for approximately \$3 per bale. We have tried hand-raking before, but it is just too labor intensive. We found that a PTO-driven Olathe sweeper with a good operator was a perfect harvester. It makes a 5' x 5' x 3' bail that can be dropped wherever you need it. There is still an occasional need to purchase pine straw, but we now produce 95% of our own mulching material.

2. Recycling aluminum cans is something everyone can do. It's easy and everyone, from your golfers to your staff, generates them. Some ballwasher/trash

containers made today have recycle containers as accessories. At the Yacht & Country club, we have three locations on property marked "Aluminum Cans". On rainy days the cans are taken to the recycle center.

3. The third recycling effort at the Yacht & Country Club is the easiest, most profitable and most logical idea yet. A newspaper recycling bin, courtesy of Southeast Recycling Corporation, is located at my maintenance facility.

Club members place their newspapers here for recycling. Every three to four weeks, the newspapers are picked up and another container is dropped off. One week later, Southeast Recycling sends a check to the Yacht & Country Club. This money goes to supplement the tree fund for the golf course. To date, this money has helped to plant 262 trees on property.

The best part about recycling newspapers is all I do is make a call when it is time for a pickup. You can call Southeast Recycling at (407) 282-1211.



The golf course is a great place to live!

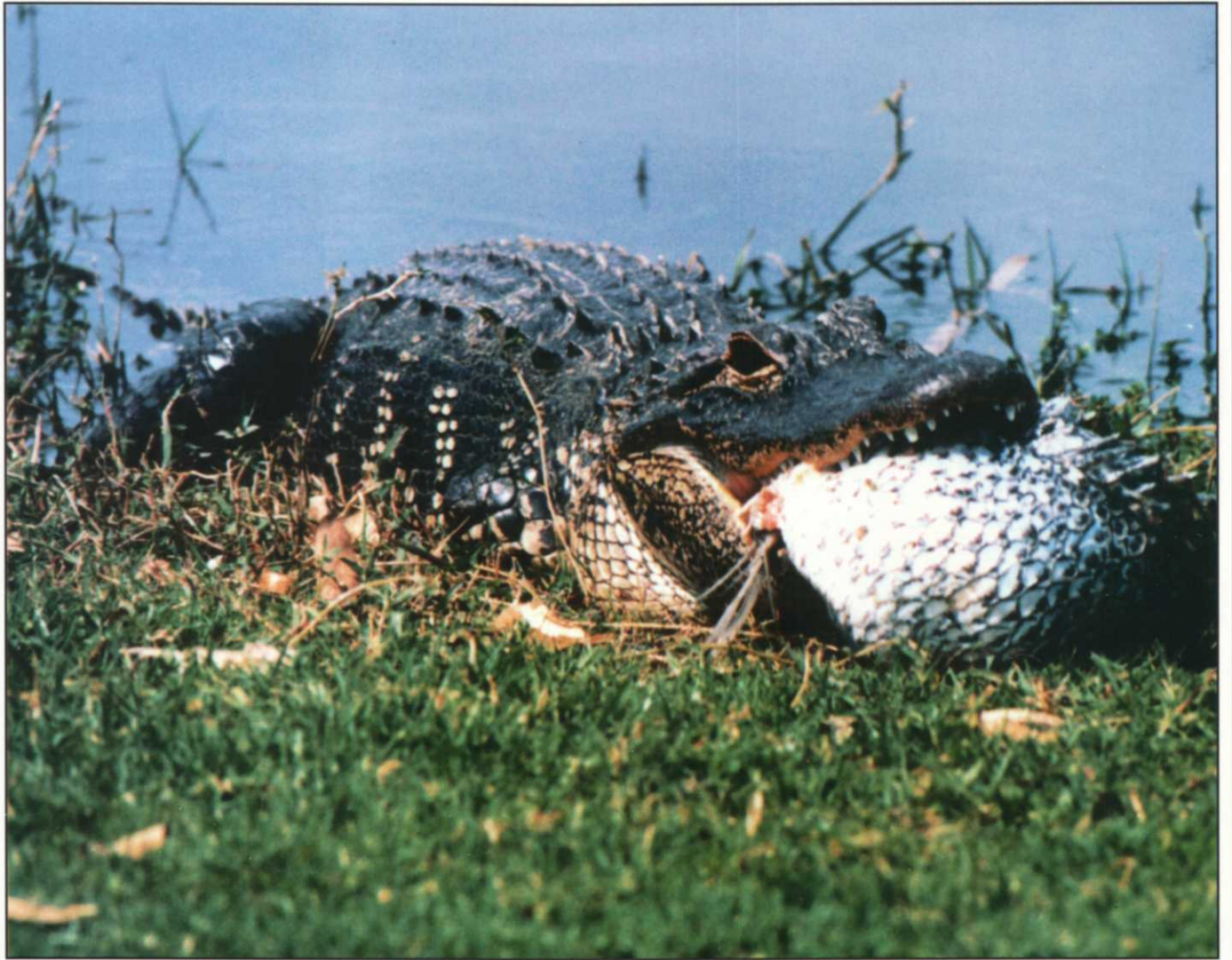
Wildlife inventories at 81 Florida golf courses revealed nearly 200 species of birds, 40 mammals, 25 snakes, 20 butterflies, 40 reptiles ...and too many insects to count!

BY SHELLY FOY

Have you ever heard the statement: “Wildlife Can’t Live on Golf Courses?” For those of us in the golf industry, we know otherwise.

In this issue of the *Florida Green* dealing with education, we as individuals need to realize what an important role we play in the process. We need to educate golfers and the general public about the efforts underway to preserve and enhance the many different environments found on and around golf courses. Wildlife in particular benefits greatly from the abundance of habitat found on golf courses. We know this, now

A photo essay by David Bailey, Darren Davis, Joel Jackson, Jay Staton and John Sullivan





we need to let others know.

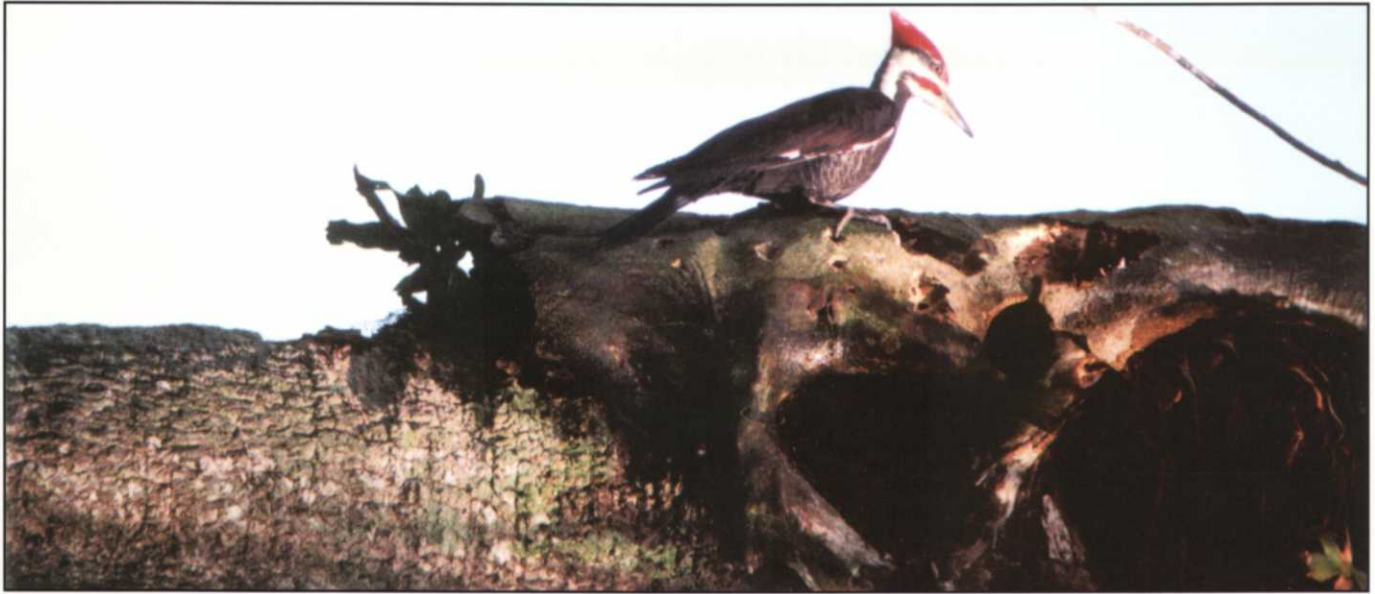
The Audubon Cooperative Sanctuary Program for Golf Courses (ACSP) is a good educational tool. One of the first steps in this program is to complete a Resource Inventory that describes your property and the existing wildlife. Florida currently has 150 golf courses registered in the ACSP, with half of these members having returned their resource inventories.

A simple way to start and keep a wildlife inventory for your course is to get the golfers involved. Make it an ongoing process. Post it in the clubhouse, newsletter, or other locations where your golfers can assist in the documentation process. Also, have a copy in your maintenance facility and get your staff involved.

According to the Department of Interior's 1985 National Survey of Fishing, Hunting and Wildlife Associated Recreation, 82.5 million Americans feed birds. This amounts to 46% of all Americans, and this number is increasing daily. So, if you are not sure of a particular species, chances are good that someone from your golf course

Text continues on Page 60







THANK YOU

On behalf of the Lake City Community College and the GLO Alumni Committee, we want to thank all of the sponsors who participated in this years LCCC GLO Alumni Golf Tournament held on Saturday, September 23rd, at the TPC of Tampa Bay.

Over the last five years, corporate sponsorship has enabled the GLO Alumni Committee to raise in excess of \$20,000 for the LCCC Endowment Fund. This fund raises money to support all of the programs, advancements in technology, and provides scholarships for worthy students at Lake City CC.

Congratulations to the low gross winners Glenn Zakany, Roy Bates, Richard Colyer, and Gary Newcomb. Low net winners were Ted Owen, John Fake, Billy Greg and Bill Lloyd.

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"The Golf Course Specialists"

Continued from page 53

will be. Another benefit from getting your golfers involved is you are gaining support for programs and helping create a sense of responsibility for the wildlife on site.

Recently I had an opportunity to view the ACSP wildlife inventories returned from Florida. There are almost 200 bird species listed, 21 of which are either "Endangered," "Threatened," or a "Species of Special Concern" according to the Florida Game and Fresh Water Fish Commission.

There were approximately 40 mammals, including black bears, manatees, Florida Panthers and otters, just to name a few. There were over 25 snake species, 20 butterfly species, and over 40 different reptiles and amphibians. The pages of insects listed were too numerous to count.

These numbers are the result of 81 golf course resource inventories. Imagine what the numbers would be if we had a wildlife inventory from all of the golf courses in Florida.

We are currently working on a statewide wildlife inventory for Florida golf courses which will be published in a future issue. Anyone wishing to share their wildlife lists and photos, please call me at (407) 546-2620.





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Big Cypress fox squirrels are losing their native upland pine habitat in the face of rapid development of Southwest Florida. Sixty Naples-area golf courses will be studied as urban habitats for the threatened subspecies.

Photos taken on Royal Poinciana G.C. by Rebecca Ditgen

Golf courses with open park-like landscapes and a rich mixture of food and nesting trees can provide ideal habitat for these large and graceful squirrels.

Golf courses may hold key to survival of fox squirrels

BY REBECCA SELFRIDGE DITGEN
Fox Squirrel Research Project
University of Florida

Fox squirrels (*Sciurus niger*) are beautifully colorful natives of the open, upland pine forests of Florida. They are easily recognized by their long, full tails, their varying color patterns of glistening black, chestnut and brilliant blond, and their long and bounding gait.

As fox squirrels frequently forage and travel on the forest floor, they prefer areas where the understory is kept open by fire, grazing or mowing. Golf courses with open, park-like landscapes and a rich mixture of food and nesting trees can provide ideal habitat for these large and graceful squirrels.

Big Cypress fox squirrels (*Sciurus niger avicennia*) are losing their native upland

pine habitat in the face of rapid development of Southwest Florida.

Golf courses, with their relatively open forested landscapes, often provide habitat suitable for the threatened subspecies.

My study seeks to document the status and habitat use of the urban populations of Big Cypress fox squirrels on 60 golf courses in the Naples area of Southwest Florida and to provide guidelines for landscape design and management that favor the viability of these populations.

The study specifically considers the following attributes of landscape and golf course management as they relate to fox squirrels:

- tree species combinations that will provide forage throughout the year
- tree species suitable for nesting
- squirrel dependence on pines which are subject to die-off on courses in southwest Florida



Golf course management directed to benefit fox squirrels may be critical to their survival in urban habitats.

- ground cover treatment and management favorable to squirrel movement and travel
- suitable spacing and density of trees to create centers of activity
- size and configuration of courses and multiple course complexes that encourage larger populations and movement between smaller populations

The project has two components.

First, squirrel populations will be located through interviews with golf course superintendents. The number of individuals on each course will be estimated by censusing 3 times over the next 18 months.

During one census, landscape and vegetation attributes will be recorded for each course. Attributes favorable to fox squirrels will be identified using logistic regression analysis.

Second, two large populations on selected golf courses will be radio-collared and monitored for 18 months to determine their movements within the course and into adjoining habitats and to examine their use of specific habitats.

Location of all course populations will be mapped on a digital coverage created by the Florida GAP analysis of land cover and movement date of intensively studied populations will be mapped on digital coverage of those courses.

Big Cypress fox squirrels are a beautiful and colorful part of the native wildlife in Southwest Florida. Golf course management directed to their benefit may be critical to their survival in urban habitats.

I believe this study will add greatly needed information to golf course management efforts and landscape design, and thus increase the chances fox squirrels will remain in at least one major element of the urban landscape of the region.



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