1996 Bird Survey

Wading birds actually prefer golf courses to natural lakes

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In 1994, 1995 and 1996 our bird studies concentrated on water and wading birds. Those studies concluded that large numbers of these birds utilize our very productive golf courses.

In fact, the results indicate that wading birds often prefer golf course lakes over natural lakes. The bird counts were conducted in February in all three years, except one March survey was included in 1996.

In the 1996 study we attempted to focus on diversity. At each location we required two Audubon counters or experts to identify all the birds on the golf course.

This increase in expertise resulted in additional interesting data, even though it involved a large escalation of time and ability to secure this data. (See the list of participating golf courses).

This quote from Ron Hill, Director of Amelia Island Plantation golf Course Operations, summarizes the goals of the surveys well: "Once again, I recruited the help of Mrs. Carol Wyatt, a resident, to help with the surveys. "Actually I helped her. Mrs. Wyatt's knowledge was immeasurable. The surveys allowed me an experience which was a great help in a number of ways: It allowed me the opportunity to view the golf course from a new perspective; It was a tremendous learning experience being a novice birder at best. It allowed me to see what a diverse inventory of wildlife and birds in particular we have at Amelia."

One of the four limpkins counted in the 1996 Aquagenix Bird Survey. Photo by Elroy Timmer.

These surveys do not represent all the courses equally, as the golf courses are extremely varied in habitats. Many are more productive per acre than natural areas as detailed in the 1994 and 1995 bird studies.

From Anhingas to Yellowthroats the total number of birds counted in 1996 was 9,965, an average of 554 birds per course, (when counting smaller birds, only some portions of the total number of birds are actually observed). The diversity includes 127 species. According to some authors this represents many more species and numbers than generally acknowledged for urban habitats.

This partial list includes some of the uncharacteristic finds.

Perhaps it could be argued that bird habitats are constantly being destroyed, and they are using what remains, struggling to survive. I believe however that golf courses provide:

1. Marginal habitat. This habitat contains small areas of forested land surrounded by open areas and water, adding to the availability of food items, diversity and productivity.

2. A variety of fruit and nut crops. Many forested areas do not naturally contain these often planted and perhaps exotic varieties of fruit bearing trees and bushes that can be utilized as a welcome food source.

3. Perhaps some freedom from predation. Killdeers are often seen with their brood close to human habitation. This is probably an indication of years of successful breeding, with offspring coming back to the same type of location where they were raised. Except for feral cats and birds of prey, nesting birds may be exmy

empt from natural predation such as snakes, rats, raccoons, opossums and other predators less frequent to city life.

4. A source of food not available in natural sites. Residential bird feeders, scraps from pets, dump sites, exotic fish and even nutrients used on our lawns and green spaces are often channeled into productivity when they reach the waterways.

If birds do not find "bed and breakfast" in the residential areas, I believe they would fly to dinner in more productive, safer areas. Adaptation takes place over a period of years but perhaps birds by their mobility are given an opportunity to adapt more quickly.

Many birds may have found a niche that we have forced on them, and seem to be facing up to the challenges well. To me it's obvious that golf courses are prime habitat and not green deserts that some concerned citizens have alleged.

The habitats we surveyed on the 2,456 acres of the 18 golf courses included 236 lakes covering 439 acres, 583 acres of forets or woodlands, and 78 acres of littoral zones.

Not only do golf courses provide habitats but also nesting opportunities. I have observed areas where least bitterns have been very successful nesting on the golf courses.

Bald eagles, ospreys, and owls are also nesting on our courses. Killdeers often frequent wet golf course sites to raise their young. Least terns are nesting on our roof tops.

Sand hill cranes are raising their young in our back yards. Common moor hens have been successful raising two or three broods every year for several years in my own back yard. Limpkins have been raising their young on Palm Aire golf course for several years, and the list goes on and on.

It is important that we not be complacent but be aware of the needs and impacts that we have on our bird neighbors; important that we think about their needs and long term future impacts we have on them; important to be cognizant of the amount of birds a golf course supports. As we become aware of these factors, we can better know how to manage our environment. I am convinced from the data,

AMONG THE SIGHTINGS

6	bald eagles
101	gray catbirds known for their "creative habits"
173	blue-gray gnatcatchers, a forest dweller
28	hawks, three species
24	glossy ibis
150	killdeers
23	ospreys
97	rufous-sided towhees, a woodland species
1020	warblers, eight species
136	wrens, three species
195	woodpeckers, four species

GOLF COURSE BIRD SURVEY

GOLF COURSES

Species	HR	CR	CL	MP	HW	CK	KG	AL	AP	BI	BM	BC	JH*	CH	LB	DC	RP	PN	TOTAL
Anhinga	11		1	16	4		11			4	12	2	5	3	2		8	1	80
Bittern, Least																	1		1
Blackbird, Red-winged		1		20		2	21	8	14	21	27	19	1	24	1	2	1		162
Bluebird, Eastern						4													4
Bobwhite, Northern												1							1
Bunting, Painted													1						1
Cardinal, Northern		3			2	8	1	55	28	11	5	16	35				2		166
Catbird, Gray		4				9		1		48	7	18	14						101
Chickadee, Carolina								25											25
Coot, American	2	2	1	7		14	57			18	6		54	8		3	10		182
Cormorant, Double crested	24	29	1	4			10	15		11	27	8	5	2	3	4	50	25	218
Cowbird, Brown headed									1										1
Crane, Sandhill	2			2									3						7
Crow, American	5					11		30	45	2	15	1					5		114
Crow, Fish	1	9		14	3		175	18	24	38	8	28	13	19		15	30		395
Dove, Common Ground													5						5
Dove Eurasian Collared																	2		2
Dove, Mourning	4	12		8	3	11	7	18	8	32	30	83	26	11	2	1	15	15	286
Dove, Ringed Turtle	1													18					19
Dove, Rock														19		2			21
Duck, Mottled	16		2	7			21			5	2					5		5	63
Duck, Muscovy		2					1							7					10
Duck, Wood								5											5
Eagle, Bald											3			1	1		1		6
Egret, Cattle	8										2		14	6		1	15	2	48
Egret, Great	3	7	2	4	1	2	9	14		5	5		2	6		1	5	1	67
Egret, Snowy	2	4	2	2			4	1		4	8	1	1	5			8	2	44
Flycatcher, Great crested					1												2		3
Flicker, Northern					1		1			12	3	11	1	1			1		31
Gallinule, Purple														17					17
Gannet, Northern								5							1				6
Gnatcatcher, Blue-gray		3		4	5		3	8	3	45	55	25	4	9		5	5		173
Goldfinch								12									1		13
Goose, Chinese														7					7
Goose, Domestic														22					22
Goose, Egyptian	5																		5
Grackle, Boat-tailed	20	4		50			49			2	5	58	8	99		30	15		340
Grackle, Common	10	12				3	12			5	3	36	2	57		5	1		146
Grebe, Pied-billed	5	14	11	10		5	6		3	6	2	9	3	8		1	10	6	99
Gull, Bonaparte's	2													7					9
Gull, Laughing								2	12					7					21
Gull, Ring-billed	8	2					34	8	35	1	4	3		18				3	116
Hawk, Red-shouldered		3		1	1	5	1	2		4	1	3					2	2	25
Hawk, Red-tailed										1	1								2
Hawk, Sharp-shinned										1									1
Heron, Black-crowned Night				3															3
Heron, Great Blue	3	1	2	2	2	1	5	6		1	5	1		17		1	4	1	52
Heron, Green-backed				2		1	5			6	5	2	2	2			13	5	43
Heron, Little Blue	2		4	6		3		1		5	11	7	3	1			2	8	53
Heron Tricolored	1		2	6	1		6			1	2		2	8	2	1	3	3	38
Heron, Yellow-crowned Night								1											1
Hummingbird, Ruby-throated					2												1		3
Ibis, Glossy		10	1	4			2							1				6	24
Ibis, White	61	2		10	4		2					1	1	36		15	38	15	185
Jay, Blue	1	5			4	2		24		11	16	21	18	9		4	3		118
Jay, Scrub													2						2
Kestrel, American	1				3	2	1	1	4	1	3	1	7			3	3	1	31
Killdeer	10	4		20	4	3	12	6	18	22	18	7	4				16	6	150
Kingfisher, Belted		1	2	2		1	1	6	5	1		1		2		1	3		26
Kinglet, Ruby-crowned								12	8										20
Limpkin														4					4
Mallard							10	3						40		1			54
Martin, Purple				1		1		2		2	1		1			6	5		19
Meadowlark, Eastern				4															4
Merganser, Hooded								16	17										33
Merlin																2			2
Mockingbird, Northern	4	1		7	2	9	6	24	18	22	14	40	25	9		4	4		189

Species	HR	CR	CL	MP	HW	CK	KG	AL	AP	BI	BM	BC	JH*	CH	LB	DC	RP	PN	TOTAL
Moorhen, Common	2	10	21	53	5	24	62			21	19	1	10	27	2	5	39	1	302
Oriole, Northern																	3		3
Osprey	1	2				1	2			7		2		2		1	1	4	23
Owl, Great Horned								1									2		3
Parula, Northern					2					1			9						12
Peacock														17					17
Pelican, Brown								25	17										42
Phobe, Eastern				2		4	2	42	2		3		1	1			2		59
Plover, Black-bellied													1						1
Redstart					1														1
Robin, American	1	2		305		13	3	150	60		2			32			20		588
Sandpiper, Spotted							2			2	1							1	6
Sapsucker, Yellow-bellied						1											1		2
Shrike, Loggerhead	2	1		3			4				2	2		2		1	1		18
Skimmer, Black														30					30
Snipe, Common	1		1				2											8	12
Sora							5												5
Sparrow, Chipping						6													6
Sparrow, Sharp-tailed									12										12
Sparrow, Song									10										10
Sparrow, Swamp										4									4
Sparrow, White-throated									2										2
Starling, European	6	9			3					12	18	2		10		5	40		105
Stork, Wood	1	7	1	7					3					1			3		23
Swallow, Tree		5		2500		65			26	30	94			46					2766
Swan, Mute														23					23
Swan, Tundra																1			1
Teal, Blue-winged							31			5	7								43
Tern, Forster's								2		2				22					26
Tern, Royal								4	2										6
Thrasher, Brown								1	2				3						6
Thrush, Hermit						1			2				1						4
Titmouse, Tufted						2		34	14	3									53
Towhee, Rufous-sided		3				2				53	16	22	1						97
Vireo, Solitary		1			1	1		1	2	2	3	2	1				2		16
Vireo, White-eyed		2						2	2		1	1	1						9
Vulture, Black	2	6		4		2				1	4							1	20
Vulture, Turkey	2	3		2	1	12		4		9	5	4		2	2		6	5	57
Warbler, Black-and-white					1			4		1									6
Warbler, Black-throated Green											1								1
Warbler, Orange-crowned									1										1
Warbler, Palm		5		23	1		5			54	15	11	9	7		4	9		143
Warbler, Pine		2		1		6			4	16	5						7		41
Warbler, Prairie											1		3				6		10
Warbler, Yellow										1									1
Warbler, Yellow-rumped		35		1	10	45		125	85	231	75	127	33	19		13	13		812
Warbler, Yellow-throated				1						1	1					1	1		5
Waterthrush, Northern									2										2
Waxwing								15	16							7			38
Widgen, American						1													1
Woodpecker, Downy		2						8	8	3	4	4	2				2		33
Woodpecker, Hairy															1		2		3
Woodpecker, Pileated					1		1	10	1	3		1					3		20
Woodpecker, Red-bellied	1	2		1	2	7	2	33	18	25	15	16	2	2	1	4	8		139
Wren, Carolina		1			1	2		73	36	11	1	4	2	1					132
Wren, House								2	1										3
Wren, Marsh								1											1
Yellowlegs, Greater																		6	6
Yellowlegs, Lesser				1										1				4	6
Yellowthroat, Common		3				3		2	2	6	4	3	1						24
Total Count	**231**	**236**	**54**	**3120**	**71**	**295**	**594**	**868**	**573**	**852**	**603**	**610**	**337**	**755**	**18**	**155**	**456**	**137**	**9,965**

GOLF COURSE HABITAT DATA

GOLF COURSES

Feature	HR	CR	CL	MP	HW	CK	KG	AL	AP	BI	BM	BC	JH*	CH	LB	DC	RP	PN	TOTAL
Number of lakes	17	10	22	15	5	14	23	12	4	13	10	13	12	7	18	7	15	19	236
Total Lake Acreage	20	39	15	28	9	40	43	24	6	22	16	26	6	20	25	30	20	50	439
Forested Acreage	0	0	60	10	40	0	30	6	7	3	35	6	150	20	15	1	200	0	583
Littoral Zone Acreage	0	0	6	3	1	0	9	0	1	22	16	14	2	0	1	1	2	0	78
Golf Course Acreage	110	78	211	196	140	90	90	170	130	85	69	73	180	206	121	137	160	210	2456

Participating Golf Courses

AL Amelia Island Plantation, Links
AP Amelia Island Plantation, Point
BI Bonita Bay, Bay Island Course
BC Bonita Bay, Creekside Course
BM Bonita Bay, Marsh Course
CL Calusa Lakes Golf Club
CH Cleveland Heights G. & C. C.
CR Collier's Reserve
CK Cypress Knoll Golf Club
DC Deer Creek Golf Club
HR Heritage Ridge Golf Course
HW Hole-in-the-Wall G. C.
JH Jupiter Hills Club
KG Kelly Green G. & C. C.
LB Lemon Bay Golf Club
MP Myakka Pines Golf Club
PN Pelican's Nest Golf Club
RP Royal Poinciana Golf Club

my observations, existing programs and future programs that we will provide for even greater compatibility between man and the wildlife.

The number of respondents to the studies only strengthens my belief that golf course superintendents are pro-active and are willing to let the facts speak for themselves. The superintendents send in the surveys whether the bird counts are high or low. Superintendents, more than most, shoulder the responsibilities as stewards in their areas of influence.

I want to personally thank all those who have contributed to these bird counts in the past and particularly this year. I knew from 36 years of experience in aquatics, 23 managing aquatics on golf courses, and being a lover of nature, there were a lot of birds on the golf course but I was very surprised what the surveys taught me. I hope it also makes others aware of our creation and our need to be involved in it, to conserve it, and to improve it, wherever we can.

A Comment About These Annual Bird Surveys

***(Editors Note:** Participation in these surveys isn't just about getting warm and fuzzy feelings about how great golf courses are as wildlife habitats. As the following comments from Dr. Newman indicate, these surveys and other environmental efforts by golf courses provide hard data to refute unsubstaniated claims, errroneous assumptions and misconceptions. They are proof positive ways to enlighten regulators with the cold hard facts.)*

The survey that has been conducted by Elroy Timmer of Aquagenix for the past three years has important applications for the golf course development industry. Recently, federal and state fish and wildlife agenicies reviewing applications for new residential/golf course developments have requested additional upland buffers from the wetland jurisdicitional line to protect fish and wildlife, particularly wading birds.

These agencies have recommended nondevelopment upland buffers to be greater than 66 feet, which greatly exceeds the normal upland buffers required by local counties and water management districts. These buffers generally range from 15 to 30 feet.

The stated purpose of these additional buffers is to protect the foraging of federally or state listed wading birds such as wood storks (*Mycteria americana*); great egrets (*Casmerodus alba*); little blue herons (*Egretta caerulea*); snowy egrets (*Egretta thula*); white ibis (Eudocimus albus) and other wildlife. The scientific basis for these recommended buffer widths is literature reviews of studies on the response of wading birds to human activity in the natural environments such as wildlife refuges. The implication is that wading birds are not compatible with the "built" environment such as golf courses.

Timmer's surveys show what every golfer and resident of a golf community knows, wading birds are a common component to ponds, lakes, and drainage ditches of golf courses and residential developments. The presence of these and other wildlife is actually considered an environmental amenity to this "built" environment.

I have been conducting observations on the foraging behavior of wading birds in residential and golf course developments. Wading birds show considerable acclimation to unbuffered human activity while foraging. Certain tangential human activities, including movement of golf carts, automobile traffic, walking and jogging, etc., generally have no effect on nearby foraging wading birds.

Intentional human activity such as directly approaching wading birds may affect certain individual birds more than others, depending upon the type of human activity, the distance from the bird, the presence of buffers such as hedges or fences, and the mount of acclimation which the individual species has developed. Some wading birds may show no effect, some individuals may move away and continue foraging, and others may be disturbed and stop foraging. In spite of this disruption, the foraging site will be used again once the disturbing human activity ceases.

Certain design features (i.e., habitat features) can enhance or diminish foraging for different species. The importance and compatbility of golf courses and residential communities with lakes and ponds for wading bird populations including those considered threatened or endangered should not be underestimated and need to be better understood by wildlife agencies.

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AUDUBON COOPERATIVE SANCTUARY PROGRAM CERTIFICATION STATUS IN FLORIDA

Golf Course	Environ Plan	Out & Ed	Wildlife Mgt.	Water Cons	Water Enhance	IPM	Fully Certified
Amelia Island Plantation	10/11/96						
Bear's Paw CC	7/27/94	7/10/95	7/10/95	8/5/94		8/5/94	
Bonita Bay Island Course	11/17/95	11/17/95	11/17/95	11/17/95	11/17/95	11/17/95	11/17/95
Bonita Bay Creekside	11/17/95	11/17/95	11/17/95	11/17/95	11/17/95	11/17/95	11/17/95
Bonita Bay Marsh	11/17/95	11/17/95	11/17/95	11/17/95	11/17/95	11/17/95	11/17/95
Card Sound GC	5/17/96						
City of Cocoa Beach GC	6/13/95	4/19/96	8/6/96	8/18/96	11/17/95	8/18/95	8/6/96
Club at Pelican Bay	8/26/96						
Floridian	11/5/96						
Foxfire Country Club	7/10/95						
Hole in the Wall Golf Club	12/30/92	12/30/92	2/25/93	2/25/93	1/4/94	2/25/93	1/4/94
IGM @ Aquarina	11/11/96						
Lemon Bay Golf Club	11/13/96	11/13/96		11/13/96			
Loblolly Pines	2/22/95	7/795	7/7/95	2/22/95	2/22/95	7/7/95	7/7/95
Medalist Golf Club	2/7/96						
Old Marsh Golf Club	3/29/95						
Olde Florida Golf Club	6/24/94	10/23/95	10/23/95	10/23/95	10/23/95	10/23/95	10/23/95
Palm Beach Gardens Municipal GC	12/5/94						
Panama Country Club	9/12/96						
Pelican's Nest Golf Course		9/12/996	12/5/96				
River Hills Country Club	3/25/96			3/25/96		4//27/95	
Riverwood Golf Club	2/3/97		4/20/94				
Royal Palm Country Club	12/2/93			1/13/94			
Royal Poinciana Golf Club	7/3/96	12/27/96	12/27/96	12/27/96	12/27/96	12/27/96	12/27/96
St Lucie West Country Club	10/31/96			1/27/97		10/3/96	
Tampa Palms Golf & Country Club	3/31/93	3/31/93	9/11/92	9/24/92	9/11/92	9/11/92	3/31/93
TPC at Eagle Trace	4/25/95						
TPC at Heron Bay	1/16/97						
TPC at Prestancia	2/3/97	2/3/97					
TPC at Sawgrass	11/16/95	2/1/96	11/16/95	2/1/96	2/1/96		
TPC at Tampa Bay	5/17/96	11/26/96	10/22/96				
Windstar Country Club	12/3/96						
Bradenton Country Club	1/8/97						