

Golf Course Wash Pads: Simpler Than You Think

By Mike Saffel

This past season we completed a major renovation of our maintenance facility area. We built an office building, added a fuel station, expanded our shop, and constructed a wash pad. At first I was sure that the wash pad would be a most difficult and complicated, environmental nightmare. It was not.

This is not too surprising when you read all the articles and see high-tech recycling equipment on the market today. I wondered if we would have to add staff just to maintain the wash pad and equipment. When Derek Lowe and I talked to the wash-pad and recycling vendors, we were concerned with how to handle final waste product, the time and training involved in maintaining the system, the material costs, trying to out-guess the moving target of government regulation, and the high cost of purchase and installation.

As we did not come up with sound answers on our own to these questions, we sought an independent source of information. Greg Lyman, turfgrass environmental specialist, Michigan State University proved to be that rare person who can answer your questions and guide you through the process. We knew from experience that Michigan has strict environmental requirements, so it seemed logical to start there and adapt their specifications.

Michigan requires a leach field much like a septic system. The wash pad is sloped to the drain grate, and then piped to a leach field where the water percolates through the soil and removes the bulk of the unwanted material.

The problem these people encountered was that the leach fields quickly filled with grass clippings.

Undaunted, ever-resourceful superintendents modified the leach field. They first laid down a pad of pea gravel or other porous material and then laid the pipe on the surface of the porous material, covered the pipe with a geotextile material and more pea gravel (to cover the pipe and hold the geotextile in place.) This allowed them to simply pull the covering back to access the pipes.

Two methods of cleaning the pipe were employed. High-pressure water from the irrigation system was used to clear the pipes. Another method was to route the piping of the drain field to a 12-inch pipe and use a five-gallon bucket as a cleaning tool. According to our information, the large pipe had to be cleaned only a few times a season. This allows for much easier collection of the clippings that can then be spread on the property with a rotary-type topdresser or added to a compost pile.

Greg sent us a complete set of instructions and designs that were presented to the

Wyoming Department of Environmental Quality.

They were approved with no changes. The result was no expensive equipment, little extra labor, no bug-farming training, and no trying to guess what the environmental departments of our states settle on for regulations.

It was interesting to note that, with all of the negative press the regulating agencies get, we found that they were more willing to work and adjust to different ideas if they are based on sound science, and if examples were provided to them for comparison. It was important to realize that the regulators struggled with many of the same questions that challenged us. If approached from a problem-solving point of view with some options and plans, we found our chance of smooth approval was high.

If you would like the complete file I received from Greg Lyman, let me know and I will get it to you. Keep it simple and good luck.

Credit: *Peaks and Prairies GCSA, The Perfect Lie, May 2003*

Cautionary Note for Florida

For Florida guidelines see:

- the May 1998, "Best Management Practices for Agrichemical Handling and Farm Equipment Maintenance" by the Florida Dept of Agriculture and Consumer Services and the Florida Dept of Environmental Protection;
- "Building Plans and Management Practices for a Permanently-Sited Agricultural Mixing/Loading Facility in Florida." SM-58, 1997, IFAS Publications Office, UF/IFAS, PO Box 1100011, Gainesville, FL 32611, Phone (352) 392-1764;
- "Minimum Construction and Operation Standards for Chemical Mixing Centers used for Pesticide Mixing and Loading." FDEP, Nonpoint Source Management Section, MS-3570, 2600 Blairstone Rd., Tallahassee, FL 32399-2400. Phone 850-921-9472.

While this Wyoming solution to washpads may not reflect Florida regulations, it does offer several valuable lessons:

- (1) Non-point source pollution and Total Maximum Daily Load regulations are coming across the entire country - so be prepared to clean up your act if you don't have a compliant mix/load/wash pad area;
- (2) You can be proactive and cooperative or you can comply under threat of fines and lawsuits. If your facility is not addressing this problem and is not operating on an impervious surface to collect and/or recycle rinsate from mixing or washing operations you are only delaying the inevitable and may be headed for an expensive hazardous waste clean-up citation.

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Stewardship Notes

FIFTY in FIVE

By Shelly Foy

Audubon International's "Fifty in Five" campaign was designed to get 50 percent of all golf courses in the U.S. to become members of the Audubon Cooperative Sanctuary Program for golf courses within the next five years.

Let's see, if there are more than 17,000 golf courses in the U.S., and only 2108 are currently enrolled in the program - or only 13 percent - it leads to the question, "Can this be done?" Absolutely! However, it will take work from a lot of people to make it happen.

Back in February at the GCSAA Conference & Show in Atlanta, Catechee Golf Club in Hartwell, Ga. hosted AI's first International Environmental Leadership Summit. Catechee is an Audubon Signature course designed by Mike Young, a long-time Georgia friend.

This summit was designed to put together a Golf Advisory Council of influential members of the golf industry. According to Kevin Fletcher, AI's director of programs and administration, "The Golf Advisory Council's job is to lend industry support for AI's environmental education and outreach efforts, while opening new doors and creating new ways of making environmental stewardship the norm in the golf industry". There are currently more than 35 members of the Golf Advisory Council and they include golf course superintendents, architects, owners, manufacturers, distributors, golf media, association representatives and educators.

One goal identified so far is to document the business value of ACSP affiliation. Does it save you money, and how? Another goal is to explore the possibility of creating business incentives. For instance, is it possible to receive supplier



Joining the ACSP program provides a simple plan for documenting and getting recognition for the environmentally friendly things courses are already doing. Photo by Joel Jackson.

discounts for ACSP members and would it be possible to get reduced insurance rates?

The "Fifty in Five" campaign is ambitious, with very high goals. However, it is pretty much a given that without something to strive for, no one would ever get anywhere.

A year ago, the Delaware State Golf Association was the first to decide to step up to the plate. They met with the Delaware GCSA and agreed to fund membership of all of the Delaware golf courses into the ACSP. Granted, there are only 30-plus golf courses in the state, but they did it. Curt

Riley, executive director of the DSGA said, "There is no better way for golfers in the state to keep up-to-date with the latest programs to protect and enhance wildlife and the environment. We are willing to continue this funding each year and hope that other states join us."

Okay, so Florida has more than 1300 golf courses, which is significantly more than 30, but when has that ever stopped our Florida golf industry when it comes to taking the lead?

Joel Jackson recently took the time to break down the Florida ACSP membership by FGCSA chapters. Joel presented this information at the FGCSA board meeting in May and asked everyone to take the information back to their chapters and encourage all non-ACSP chapter members to join the program.

So, just how easy would it be for the FGCSA to participate in the "Fifty in Five" Campaign? Let's take a look.

When you break a big project into smaller pieces, it doesn't seem as hard any more. If each chapter recruited only a few ACSP members a year over the next four years, the FGCSA will have successfully accomplished the "Fifty in Five" goals.

Ideas To Increase Chapter Participation In The Acsp

1. Write a letter to all non-ACSP chapter members encouraging them to join the program. The information Joel provided at the board meeting lists every ACSP member by chapter.

FGCSA Participation in ACSP

Chapter	# Members	# ACSP Members	Percentage ACSP	Needed for 50%	Add Per Year
Everglades	63	48	76%	15 for 100%	4
West Coast	52	21	40%	5 new members	1-2
Central Florida	101	37	37%	14 new members	3-4
Calusa	44	16	36%	6 new members	2
Seven Rivers	37	13	36%	6 new members	2-3
Treasure Coast	78	28	36%	11 new members	3-4
Suncoast	59	17	29%	13 new members	3-4
North Florida	62	15	20%	16 new members	4
Coastal Plains	10	2	20%	3 new members	1-2
South Florida	81	16	20%	25 new members	6-7
Palm Beach	119	20	17%	40 new members	10
Ridge	39	6	15%	14 new members	3-4

EDITOR'S NOTE: Numbers are best approximations based on Class A & B member names. Lifetime and Class C names were omitted during member counts per chapter. There may be some duplication or incorrect listing depending on dual chapter membership, or names on ACSP list but not in FGCSA Directory. This gives an overall snap shot plus or minus a few percentage points.

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2. Appoint one of your board members, or members, to give an ACSP membership update at each chapter meeting.
 3. Have the ACSP for Golf Courses as one of your monthly chapter educational programs. Speaker ideas:
 4. USGA Staff - John or Shelly Foy, Todd Lowe
 5. AI Staff - just give them a call (518) 767-9051
 6. AI's Florida Stewards (see list on sidebar)
 7. Consider incentives for new ACSP members, for example offer a reduction in chapter dues for one year, etc.
 8. Promote existing and new members in your chapter newsletter and at monthly meetings.
 9. Encourage ACSP members to write articles about their environmental programs and projects in your newsletter, or invite them to make five-minute presentations at monthly meetings. A side benefit is the more involved and comfortable your members feel about writing or making presentations at meetings, the more likely they are to become involved in other things.
 10. Put articles in your newsletter about the ACSP. But don't reinvent the wheel! AI and the USGA have information on their websites that you can copy into your newsletters. USE THEM!
www.audubonintl.org and www.usga.org
 11. Free Meeting or Event registration: Join the ACSP and come to the next golf outing for free, etc.
- Bottom Line: Be Creative!

Taking the Plunge

After 11 years of working with this program, I will tell you that you have three steps that you need to take to really get started.

1. Join the Program. This is the easiest step. Call me at 772-546-2620 or e-mail me at sfoyl@usga.org and I will mail you a membership application. You can also join on-line at www.audubonintl.org/store/memberships.acsp

2. Gain Support from golfers, members, club officials. Here again, don't try to re-invent the wheel. There is a ton of information on AI's Web site that you can download and use for your club newsletters, etc. Please note the sample memo from

SAMPLE MEMO

To: All staff
 From: Project Manager
 RE: Participation in the Audubon Cooperative Sanctuary Program for Golf Courses

We have recently decided to get involved in an exciting environmental improvement program for our golf course. The Audubon Cooperative Sanctuary Program (ACSP) provides information, guidance, and support to help golf courses conduct proactive environmental projects that benefit people and the environment. We have many sound environmental practices in place already and this program will help us expand upon these and gain recognition for our efforts.

The program addresses five key environmental areas: Wildlife and Habitat Management, Chemical Use Safety and Reduction, Water Conservation, Water Quality Management, and Outreach & Education. Our first step is Environmental Planning. During the next month, we'll be filling out a Site Assessment and Environmental Plan to tell Audubon International staff about our organization and the types of projects we want to pursue. They will then have a better sense of who we are and what our goals are.

Once we have implemented a variety of projects in each environmental component, we can apply to become a Certified Audubon Cooperative Sanctuary. This exemplary distinction is a national recognition of environmental excellence bestowed on organizations that are taking a leadership role in conservation projects. We believe we can achieve certification within the next year - but we need everyone's involvement to achieve success!

As we begin this program and start the planning process, we welcome your input. We will be hosting a short information meeting on (Date/Time) for all interested employees, members. If you have ideas to share or just want to hear more about the program, please come!

Environmental quality is important to our golf course. We hope you'll support this effort every step of the way.

Common Myths About ACSP

There are a number of "myths" and misconceptions about the Audubon Cooperative Sanctuary Program (ACSP). Here is a short list of these common myths along with the correct information in response to each of these them.

Myth #1: Being in the ACSP is too difficult, and it's too tough to get certified.

It is not difficult, and you may already be taking actions that can lead to certification. Often, members look at the entire certification process instead of simply taking it one step at a time. Focus on fulfilling the Site Assessment and Environmental Plan. When a member gets through that first step, rather than worrying about all of the steps at once, they will be more likely to become invested in the program.

Myth #2: Our course won't be able to join or work towards certification; we don't have the staff, money, or time.

Any existing golf course can join and work towards earning the Certified Audubon Cooperative Sanctuary designation. A course doesn't have to have lots of acreage or habitat to get certified; it just has to practice and document good environmental management, and we're here to help. Likewise, ACSP certified golf courses range from small nine-hole facilities and lower-budget public courses to country clubs, high-end resorts, and PGA facilities.

Myth #3: We're not ready to go the distance (i.e. the certification material must be sent in all at once and be perfect in order to get certified).

The ACSP is not like a test and your certification request is not like a paper handed in to be graded. Instead, we work with you to find ways to meet certification guidelines based on the unique strengths and weaknesses of your site. We're here to help, not create roadblocks.

Myth #4: Due to our golf course policy, there is no way we could ever have children tour our golf course/ put up nest boxes/naturalize all our shorelines, etc., so we cannot get certified.

Out of all the Standard Management Practices that Audubon International would like to see on every certified golf course, we know that some may not be applicable to a given situation, especially in the Outreach and Education category. That is why the ACSP is a flexible program. If there are any questions about suggested or required projects, please contact us.

Continued on opposite page

AI's "Guide to Environmental Stewardship" on the Golf Course that you can use for your newsletter or club mailing. AI also has PowerPoint presentations you can use, all you have to do is ask. Call an AI Florida Steward (listed above) or USGA staff member to make a presentation to your membership or to your Green Committee.

3. Take the First Step toward certification. After joining the program, everyone starts with step one: Site Assessment and Environmental Plan. Taking it right from the Certification Handbook: "The Site Assessment and Environmental Plan are

resources and current conservation practices and develop a plan of action to guide your stewardship efforts. After you complete this step, we will also get to know your course and be able to work more closely with you to implement conservation projects on your golf course."

Part 1: Site Assessment

This form is designed to tell us about your golf course property and its significant resources. By filling out information regarding turf, natural areas, gardens and water features, you will

golf course landscape.

Typical questions:

- Number of holes
- Number of members
- Number of rounds/yr
- Number of golf maintenance staff
- Length of golf season
- Estimates of number of acres of turf surfaces, gardens, ponds and lakes

People, there are some fill-in-the-blanks and a lot of check boxes. Believe it or not, it is okay to estimate or maybe even leave it blank. AI is just

Common Myths About ACSP

Myth #5: There is no way we will ever be able to afford a new irrigation system; a \$40,000 recycling equipment wash pad; have an aerial photograph taken of the course, etc, so we cannot get certified.

These are a few of the many projects that we have heard people tell us they need to complete to get certified. This is simply not true. Once again, if there are any questions about suggested or required projects, please contact Audubon International. We can also send you a list of the Standard Management Practices that we prefer to see on every golf course.

Myth #6: An environmentally managed golf course is a brown golf course.

We understand that in order to have a playable course, chemicals will be used. We do not require that you stop these practices outright. Rather, we look to help you manage a playable course with as little chemical input as possible. Working on certification in the ACSP can help you reduce the amount of chemicals needed (which can save you money), and reduce the adverse environmental impact from their use and application (i.e., runoff and water quality). Likewise, 54 members of the ACSP and the Audubon Signature Program were ranked among America's 100 Greatest Golf Courses by *Golf Digest* in 2002. The list's top ten included six ACSP participants, two of which are certified.

Myth #7: I already have too much to do.

Joining the ACSP and working on certification through onsite projects can be a rewarding experience. Our most recent Managed Lands Survey confirmed this fact with 99 percent of golf superintendents responding that job satisfaction had improved (49 percent) or at least been maintained (49 percent) since joining the ACSP. (You can get PDI Class A and CGCS CEUs from GCSAA for completing these projects as well)

Continued on following page

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Part 2: Environmental Plan

This form will help you evaluate your current environmental management practices and determine appropriate conservation projects for your golf course. It includes goals, objectives, and environmental practices that safeguard and enhance the quality of the environment."

It is simply check-off boxes! Read each item and check: Yes, Partial, No, or Planned Projects.

Under "Planned Projects," all you have to do is list a proposed start and completion date if you are currently working on or plan to work on the listed project.

Let me "let you in" on a little secret here about the goals and objectives of the Environmental Plan. You are already doing the majority of these things and have been for years - it is the nature of your job. The things you will check "No" to are the things you really should be doing. The Environmental Plan is as much for you as it is for AI staff. It won't take a rocket scientist to immediately see your strengths and

The Audubon Steward Network - Florida

Shelly Foy, USGA Green Section, 772-546-2620, sfoy@usga.org

Bob Karnes, superintendent, Osprey Ridge Golf Course, 407-824-2886, robert.karnes@disney.com

Charles Buddy Keene, superintendent, Gainesville Golf & CC, 352-376-8174, ckeeneII@aol.com

Jeff Klontz, superintendent, Country Club of Florida, 561-732-8317, suptklontz@aol.com

Todd Lowe, USGA agronomist, 941-828-2625, tlowe@usga.org

Donald Merritt, principal, Jensen Beach Elementary School, 772-219-1555, merritd@martin.k12.fl.us

Lynne Page, compliance coordinator, The Habitat, 321-676-6125, Lynepage@aol.com

Matt Taylor, superintendent, Royal Poinciana Golf Club, 941-261-4987, matt@rpgolfclub.com

Garth Boline, superintendent, Chi Chi Rodriguez Golf Course, 727-723-0516, garthalbert@aol.com

Fred Yarrington, member, Hole-in-the-Wall Golf Club, 239-261-6317, flyarrington@aol.com

weaknesses.

One thing that I repeatedly tell superintendents is, "You do not have to do all of this yourself." That's why you are the boss and get paid the big bucks. Dole it out! Delegate!

If you are too busy, no worries.

If you have an office assistant, assistant superintendent, irrigation technician, or an IPM person, make certification in the ACSP a part of their yearly job evaluation. The goals are measurable. Give them a set time to complete each section and don't forget to set up a regular time to go over the certification information with them and offer assistance. After all, you are the person that should know more about the property than anyone.

Offer an incentive: a day off; pay for them to attend workshops; give them an extra \$100 bonus; etc.... Be creative!

Don't have enough staff? No Worries.

Find a golfer or member who is interested in the program and give that person the Certification Handbook. What about your Beautification Committee or your Green Committee? For goodness sakes, don't overlook the Resource Advisory Committee you are going to form to help you with this! Again, don't just dump it on someone and forget about them. Meet regularly and offer suggestions!

Some other creative way to "Get it Done"

- Check with a local college or high school to see if they have a student(s) interested in helping out.
- Find a university staff person like Jan Weinbrecht, UF/IFAS, who has a lot of experience working with golf courses on the ACSP Certification.
- Your spouse or significant other might relish the opportunity to spend a few hours a week with you. This would give them the opportunity to be a part of and learn more about what you do.
- Don't forget community resources. Ornithologist George McBath, Naples, works with many golf courses in Florida.

Just remember that the key to success with this program is in the value of the education and outreach. This is a great tool to teach your staff, course officials, and golfers/members that golf and the environment can co-exist, and that the programs and projects you implement are important and do make a difference.

For anyone who has to ask the ques-

tion, "What's in it for me?" my advice is don't join the program, it's not about you. It's about working to ensure that the golf industry is regarded as an environmental asset. It's about sensibly protecting the use of the products we rely on to manage turf. It's about making sure the history of golf stays intact. It's about making sure the world is a better place for your friends and family, and it's about feeling good about yourself and knowing that you are personally doing the right things for the environment.

As always, feel free to call or e-mail me you comments!

IFAS Study Says Water Birds Benefit from Golf Course Ponds

By Amy Gravina

Golf course ponds significantly enhance food sources, shelter and habitat for resident and migratory water birds, according to a recently completed two-year study conducted by the University of Florida's Institute of Food and Agricultural Sciences. Nine championship golf courses within four master-planned communities being developed by The Bonita Bay Group were included in the study that involved on-site monitoring of 12 Southwest Florida golf courses.

"The study was developed to evaluate the extent to which created wetlands within golf courses are used as habitat by resident and migratory water birds," said Dr. Martin Main, wildlife ecologist and assistant professor at the University of Florida, the principle investigator in the study. "As increasing human pressures continue to reduce the amount of wetland acreage nationwide, we wanted to know if created wetlands would become increasingly important as alternative habitats to wetland-dependent species."

LeAnn White, the co-principle investigator, conducted bird counts in the field and monitored 183 golf course ponds. "I did eight field surveys January through April in 2001 and 2002 and identified a total of 42 species in six categories," she

Common Myths About ACSP

Myth #8: My golfers are the worst golfers in the world; too particular; too uptight; etc., and will never accept the changes I would have to make to become a certified course.

We have many success stories of superintendents and assistants who have successfully educated their members and golfers on the ACSP. Once golfers understand why certain steps are being taken (i.e., grass is being kept higher around ponds and streams in order to buffer chemical runoff), they are likely embrace these changes. That is why Outreach & Education is a part of the certification process. Once again our Managed Lands Survey confirms this with superintendents reporting that golfer satisfaction had either improved (66%) or been maintained (34%) since their course joined the ACSP.

Note: Please use these simple "myth-breakers" as a way to reduce the barriers and get others involved in Audubon International's Audubon Cooperative Sanctuary Program for Golf Courses. If there are other "myths" that you need to answer, please let us know at 518-767-9051 ext 12, or via email at acss@audubonintl.org.

The USGA encourages all golf courses to participate in the ACSP for Golf Courses. We feel so strongly about the program that for the past 11 years we have given AI \$100,000 a year for program development and implementation, which is over \$1 million. I can tell you from experience that the USGA is a fairly conservative organization and we would not be supporting this program if we did not believe in it 100 percent.

said - aerial, wading, and diving birds, ducks, moist soil foragers and open vegetation waders. The results show golf-course ponds benefit wading birds in several ways:

- provide permanent sources of water, which is critical during dry spells;
- reintroduce water and food sources for indigenous water birds in areas that once supported wetland areas, such as land used for agriculture;
- add water bodies to areas where none existed before;
- provide substantial food sources and foraging areas for all categories of water birds studied;
- potentially limit human disturbances of feeding and habitat areas.

The nine championship golf courses in The Bonita Bay Group's family of master-planned communities that were part of the study are Bonita Bay Club West's three courses designed by Arthur Hills; Bonita Bay Club East's two off-site golf courses designed by Tom Fazio; The Club at TwinEagles' Talon golf course co-designed by Jack Nicklaus and Jack Nicklaus II; and The Club at Mediterra's South Course, each an Audubon International Signature Cooperative Sanctuary or Cooperative Sanctuary Program certified golf course. In addition, two championship golf courses in The Brooks were part of the study - Spring Run Golf Club and Copperleaf Golf Club's golf courses, both designed by golf course architect Gordon Lewis.

Three additional Southwest Florida golf courses that are not Audubon participants were also chosen: Gateway, Burnt Store Marina and Wildcat Run.

"Bonita Bay Club West's Marsh golf course was the only one in the study that had a bird rookery," White said. The Club at Mediterra's South Course was the only property to host a population of hooded mergansers, an uncommon duck species rarely found in Southwest Florida.

According to Main, water birds travel great distances to find food, and the surface area of golf-course ponds aids the birds to locate sources. "The information gathered during the study demonstrates that golf courses will be an integral part of sustaining wildlife in the future."

The results of the UF/IFAS study are being used to draft recommendations about how to make the ponds even more productive in areas such as slope of the banks, water depth, vegetation type and density, and surrounding landscape features.

"The Bonita Bay Group has been a partner in the Council for Sustainable Florida since it formed in 1994, and they share our mission to promote best sustainable practices and encourage others across the state to implement them," said Executive Director Sharon Cooper. "When our partners are doing the right thing, and those practices are profiled and visible so other companies can learn, it's a great way to help ensure our resources will be here for future generations."



A UF/IFAS study documents that golf course water bodies are great habitats for waterfowl and wading birds. Great White Heron on the Copperhead GC at the Innisbrook Resort. Photo by Joel Jackson.

The Bonita Bay Group contributed \$10,000 in grant money toward the two-year study. The National Fish and Wildlife Foundation and the United States Golf Association are also funding the study.

"The Bonita Bay Group is very happy to support and be part of the UF/IFAS study," said Dennis Gilkey, president/CEO of The Bonita Bay Group. "Our company is built on a foundation of environmentally responsible development, and we seek out opportunities that will allow us and our peers to do an even better job of being good stewards of the land. We thought the study was one of those opportunities." In 2000, The Bonita Bay Group earned an Outstanding Performance Award,

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the CSF's highest recognition, for Bonita Bay, the company's flagship community. The Brooks Commons Club Beach Club earned the top award in its category as a turtle-friendly amenity during the 2002 Sustainable Florida annual award competition.

This Tournament is Strictly for the Birds

By Jean McKay, Director of Educational Services Audubon International

An experienced team of bird watchers at Olympia Fields Country Club was up and out at 6 a.m., scouting for birds in the oak woodlands, restored prairies, and brushy areas of the 36-hole private golf course in Olympia Fields, Ill. Led by Marianne Hahn, Linda Radtke, Penny Kneisler, and Marlys Oosting, and fueled by sweet rolls and electric golf carts, the group was on a mission: to identify as many bird species as they could during this year's North American Birdwatching Open, hosted by Audubon International.

Birdwatching teams from 82 golf courses participated in the sixth annual North American Birdwatching Open on Saturday, May 10. Collectively, they identified 319 species in the 24-hour event. The average number of birds sighted per course was 41, with a range from 8 to 94. The results provide a snapshot of bird activity on golf courses at the height of bird migration in May.

"Golf courses offer much more than golf," explains Joellen Zeh, Staff Ecologist for Audubon International. "Non-play areas, which can account for 40 percent or more of a golf course, often consist of woods, meadows, and wetlands. These areas provide habitat for numerous species of birds."

Florida Courses and Bird Counts

Amelia Island Plantation	78
Heritage Pines GC	62
Hammock Dunes Club	60
Waterlefe G&RC	53
River Hills CC	48
Colony G&CC	48
Twin Eagles CC	47
IGM-Aquarina	47
Bonita Bay Island GC	46
Indian River Club	44
Majors GC	43
Bonita Bay Creekside GC	42
Royal Poinciana GC	41
IGM-Habitat GC	41
LaPlaya GC	38
Bonita Bay Club East	37

The early bird catches the worm, and the early birder gains a great advantage in seeing and hearing birds when they are most active. Mark Chant was also out at 6 a.m. to search Aspetuck Valley Country Club in Weston, Conn. In four hours, he listed 68 bird species. Across the country at Meadowood Napa Valley in Mt. Helena, Cal., Jim Root combed the golf course throughout the day and discovered 69 species. Among his most satisfying finds were six different species of swallows and six species of woodpeckers, including his favorite, the Pileated Woodpecker.

Experience also counts in birding, and many courses took the opportunity to introduce themselves to local bird clubs and invite them to see just how many birds can be found on golf courses

"What a great time! We had 35 people come out, including eight volunteers from Manatee County Audubon and Sarasota Audubon," wrote David Williamson, superintendent of Waterlefe Golf & River Club in Brandenton, as he turned in his results. "We found 10 birds that were not on our list previously (the course has tracked 91 species in all) and counted 53 species total for the day. That's fantastic considering our migrating birds are almost all gone this time of year."

In the end, birders know that perseverance pays off too. Undeterred by cold, rain, and a mid-morning thunderstorm, the team at Olympia Fields logged a full 11-hour day of birdwatching and turned in a list of 94 species to rank first in the friendly competition. Close on their heels - just three species shy - were birdwatchers at Eagles Landing Golf Course in Berlin, Md., who have ranked first for the past three years.

"That was a big surprise with all of the activity here getting ready for the U.S. Open," says Dave Ward, CGCS. "There are trucks and tents and guys hauling equipment all over, but the habitat is still there - and that's what is most important."

As those who participated in the Birdwatching Open can attest, getting to 90 species in one day on a single property is no easy feat. A diversity of vegetation and habitats is critical. Birders at Olympia Fields identified among their 94 birds: 22 species of warblers and five species of vireos, as well as numerous wading birds, swallows, and sparrows.

"We had so much fun doing it," says Marianne Hahn, "we just like the whole idea of providing good habitat. Our experience at Olympia Fields shows you can have all kinds of activity and still live with nature. You can do this in your yard and in your community and make the world a better place."

Best of the 2003 Birdwatching Open

Many birds migrate along fairly predictable routes known as flyways. These follow major rivers, coastlines, and mountain ridges. In addition to highlighting this year's highest ranking golf courses, we've divided our "2003 Best of" list along migratory flyways to account for regional variation, particularly in the Southern Zone (Florida



Florida led the nation in the number of courses participating in the 2003 Birdwatching Open sponsored by Audubon International. Roseate Spoonbill at The Moorings Club in Vero Beach. Photo by Craig Weyandt.

and the southern portion of Louisiana, Alabama, Georgia, and Texas) where most migratory birds have already left by May 10th.

For additional information and maps of migratory flyways, go to <http://www.pacificflyway.gov/About.htm>. The site has excellent flyway maps that you can download. For a complete list of participants, visit our website at www.audubonintl.org/projects.

Best of the Birdwatching Open- Overall

- Olympia Fields Country Club, Olympia Fields, IL, 94 bird species
- Eagles Landing Golf Course, Berlin, MD, 91 bird species
- Gull Lake View Golf Club, Augusta, MI, 80 bird species

Best of the Atlantic Flyway

- Eagle's Landing Golf Course, Berlin, MD (91 species)
- Aspetuck Valley Country Club, Weston, CT (68)
- IGM - Marlborough, Upper Marlboro, MD (66)

Best of the Mississippi and Great Lakes Flyway

- Olympia Fields Country Club, Olympia Fields, IL (94)
- Gull Lake View Golf Club, Augusta, MI (80)
- Heritage Bluffs Public Golf Club, Channahon, IL (65)

Best of the Central Flyway

- Lake Quivira Golf Course, Lake Quivira, KS (79)
- Shadow Glen Golf Club, Olathe, KS (67)
- Prairie Dunes Country Club, Hutchinson, KS (42)

Best of the Pacific Flyway

- Meadowood Napa Valley, St. Helena, CA (69)
- Crystal Springs Golf Course, Burlingame, CA (63)
- Alta Sierra Country Club, Grass Valley, CA (32)

Best of the Southern Zone

- Amelia Island Plantation, Amelia Island, FL (78)
- Heritage Pines Golf Club, Hudson, FL (62)
- Whispering Pines Golf Club, Trinity, TX (61)

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Short Answer: Revolver Does the Job

By Phil Busey

First I want to thank John Paige of Bayer, and superintendent Curtis Nickerson and Barry Troutman of ValleyCrest for their excellent cooperation. Assistant Sean Plummer, also of ValleyCrest and Bonaventure, has also been a big help.

This is one of five field experiments that I have conducted comparing Revolver and MSMA for control of mature goosegrass in bermudagrass. The short answer is, "Revolver can substitute for MSMA, and do even better at cleaning up mature goosegrass in bermuda turf, in tank mixture with Sencor in two applications. For fairways, Revolver + Sencor is outstanding. But for very mature goosegrass (over 8 inches in diameter) and in tall grass (roughs, ball fields), it's going to take luck, cunning, and courage (e.g., 4 ounces Sencor per acre per application) to do the job."

On April 7 and 14, Nickerson and I used the 160-gallon commercial Toro Spray Pro (filled to only 8.5 gallons) to treat goosegrass on the No. 9 fairway and adjacent rough on the Joe Lee-designed East course at Bonaventure Resort and Country Club in Weston.

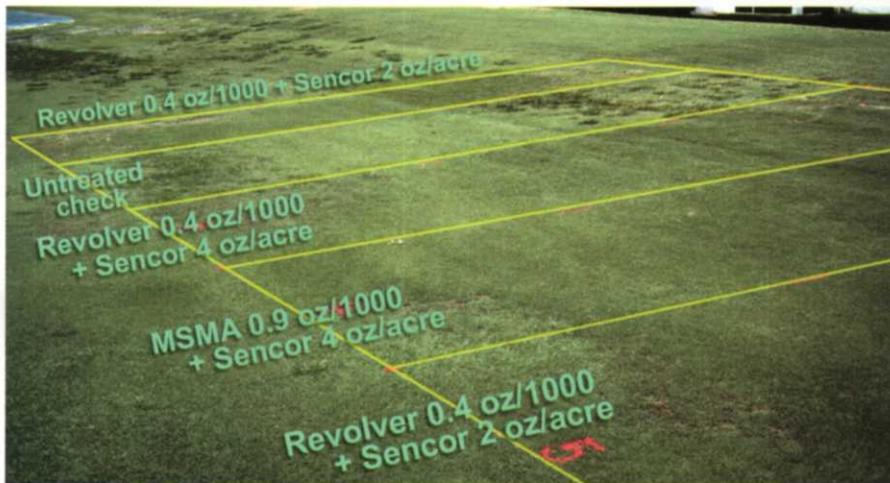
The intention of using commercial spray equipment in larger (8 X 40-foot) experimental plots was to gain a more realistic comparison of the effects of Revolver (active ingredient foramsulfuron) with the effects of MSMA, both products in tank mixture with Sencor (active ingredient metribuzin).

Because there wasn't enough high-quality goosegrass, the experiment was limited to 12 plots, that is, three replicates of four treatments (including an untreated check treatment). This is the reason that I was not able to include MSMA + 4 oz/1000 Sencor, even though ideally MSMA should be mixed with a higher rate of Sencor than Revolver.

The Results:

A. Revolver at 0.4 oz/1000 sq ft + Sencor at 4 oz/acre

1. 97% control of mature goosegrass in the rough, 21 days after the second application.
2. 95% control in the fairway, which did not differ from the rough.
3. By 32 days after application, when the dead goosegrass was disappearing, a small amount of goosegrass remained in both the rough and the fairway.
4. The amount of goosegrass remaining in the rough was very small, a rating of 12, which represents few scattered plants, compared with a rating of 60 in the untreated check, which represents close to a 60% cover.
5. The amount of goosegrass remaining in the fairway, a rating of 5, represented 1-2 plants per half



Test plots on the No. 9 fairway and adjacent rough on the Joe Lee-designed East course at Bonaventure Resort and Country Club in Weston. Photo by Phil Busey.

plot, and can be considered total control.
6. Injury to bermudagrass, up to 25% discoloration, was noticed, particularly in the rough through nine days after application, but not later.

B. Revolver at 0.4 oz/1000 sq ft + Sencor at 2 oz/acre

1. 83% control of mature goosegrass in the rough, 100% in the fairway
2. However, the amount of goosegrass in the rough, a rating of 32, will be a problem. Although these are weakened plants, they are growing back.
3. The amount of goosegrass in the fairway, a rating of 8, will not be a problem.
4. Less injury to bermudagrass.

C. MSMA at 0.89 oz/1000 sq ft + Sencor at 2 oz/acre

1. Even worse results in the rough compared with both Revolver treatments
2. Very acceptable results in the fairway.

D. We sprayed out the considerable remnants in the tank in solid areas.

1. In front of the bunker on the left side of No. 2, where 0.4 oz + 2 oz was applied, goosegrass plants up to 8 inches in diameter were completely killed. Plants 8-16 inches are recovering, but this was still a very outstanding cleanup.
2. In front of the bunker on the right side of No. 16, where 0.4 + 4 oz was used, goosegrass plants were dramatically cleaned up; however at this



Revolver/Sencor combination will take out mature goosegrass. Just be prepared for the brown-out appearance and thin areas when it goes. Photo by Phil Busey

high rate of Sencor, there was considerable injury in two areas, consisting of brown patches with tufts of green bermuda coming back.

Conclusions and recommendations

Because two applications of the 2 oz rate of Sencor with Revolver causes essentially complete cleanup of very mature goosegrass in fairway bermudagrass, the same as MSMA, for many golf course uses this is as far as superintendents will go without risking injury to bermuda.

Because two applications of the 4 oz rate of Sencor with Revolver leaves very little mature goosegrass in the rough, some golf course superintendents may cautiously approach this high rate in difficult areas, or even a compromise at 3 oz of Sencor, to see if they can clean up goosegrass without injuring the bermudagrass too much.

For very mature goosegrass in tall bermudagrass, I think a third application of something (Revolver) may be needed.

The Revolver + Sencor mixture is more effective in controlling mature goosegrass than is MSMA + Sencor, at the same rate of Sencor. This is consistent with previous, small-plot observations.

Other aspects that should be considered for a very effective goosegrass cleanup program are to ensure adequate nitrogen and water, to enable the bermudagrass to quickly regrow into areas of dead goosegrass. Dead goosegrass is very unsightly for four to six weeks after treatment, and the bare areas associated with dead goosegrass are also the places where seedling goosegrass can quickly take over. For this reason, there must be complete protection of Revolver-treated areas with a preemergence herbicide blanket, to prevent goosegrass reinfestation.

I am continuing to experiment with other kinds of treatment strategies, such as a sequenced split application, e.g., Revolver first at high rate, followed by Sencor by itself. Today I sprayed the second application of a very good experiment on a soccer field, also managed by ValleyCrest, involving four replicates of the same treatments plus the sequenced split applications. Plots are 8 X 30 feet, and this is tall bermuda turf with even taller goosegrass.