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Florida Shares Bald Eagle Population

By: Barbara Bobzin

Gainesville Relocating Florida bald eagles may help revive endangered populations of the national symbol, according to Dr. Michael Collopy, principal investigator for the Southern Bald Eagle Reintroduction Project at the Institute of Food and Agricultural Sciences (IFAS).

Now in its third year, the project has relocated 41 bald eagles from Florida nests to southeastern states having less stable populations of the bird.

The researcher estimates 1,500 bald eagles live in Florida, accounting for about 85 percent of those nesting in the Southeast.

"Florida has one of the largest populations of nesting bald eagles in the nation—ranking second only to Alaska," Collopy says. "For this reason Florida is becoming a focal state for bald eagle research."

The bald eagle reintroduction project is a cooperative effort between IFAS' Department of Wildlife and Range Sciences, the Florida Game and Fresh Water Fish Commission, Oklahoma's Sutton Avian Research Center and game and fish agencies from participating states.

Results of this research were presented at the Raptor Research Foundation's annual meeting Nov. 21-23 at the

University of Florida.

"Our goal is to fine tune methods of reintroduction," says Collopy. "Using solid biology and conservation, we hope to develop positive management activities."

Bald eagles lay eggs once a year, from mid-November through January. If the eggs are taken early enough in the nesting season—typically in December—the parents have enough time to renest.

The eggs are taken to the Sutton Avian Center where they are hatched and the fledgling birds are distributed to participating southeastern states. So far, Oklahoma, Mississippi, Alabama and Georgia have received Florida bald eagles.

The researchers hope to expand the project, releasing more birds to more states. "It is important to take protective measures now while we have stable populations and adequate sample sizes for research," Collopy states.

Miller Brewing Company and the Sutton Avian Center have sponsored the project. "Hopefully more agencies, both public and private will become involved in the future," the researcher says.

Today, the bald eagle's largest enemy is urban development. In Florida the problem is especially keen as bald eagles gradually lose their preferred wetland habitat to large scale development. "Most bald eagles cannot adjust to human disturbance," Collopy says. "While some can live in proximity to people, it takes a special kind of bird with the right disposition." ■

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Golf's Forgotten Heroes:

COURSE SUPERINTENDENTS

By David Zaslowsky
Desert Sun Sports Editor

"The course has to be playable, has to look good, you have to please the members and if you can do all three and keep your sanity and your wife, you're doing a good job."

Golf course superintendent Bill Killen wasn't joking when he made that statement.

Any golfer worth his handicap who fails to shoot up to par may use the course as a scapegoat. It is as simple as the rough was too high or the pin placement was bad. Or half a dozen other excuses.

The people that Killen and others in his profession have to please sometimes pay as much as \$2 million to buy their dream house and a membership at one of the Coachella Valley's more prestigious clubs. The cost at other clubs often runs well in excess of \$250,000. All bring the promise of playing on some of the world's most beautiful courses.

"They (Club members) want the course to look good all year," said Jack Roessinger, director of turfgrass management at The Vintage Club. They want the club to be the best in the world and the members are paying quite a bit of money."

"But they really don't know or understand what we do. They think all you have to do is grow the grass and mow it."

A golf course superintendent's day starts as early as 5:30 a.m. The routine begins with a weather report, followed by an inspection of the course from the greens and fairways to the water pump station and the wells. Then he makes assignments for his crew and takes care of any special projects.

At many clubs, the superintendent spends more time than he wants to in the office, burdened with paperwork and the headache of budgets. It is a year-round job.

"You have to be a manager, accountant, plumber and carpenter," said Don Pakkala, course superintendent at The Vintage Club in Indian Wells.

"You need to know a little about everything."

And a lot about the weather.

In the Coachella Valley that means coping with summer temperatures of 115 degrees and near-freezing or sub-freezing temperatures in the winter.

"Everything we do is dictated by the weather," Killen said. "Our reputation is based on the weather and it's a crap shoot."

Pakalla explained some of the problems that a course superintendent can run into. "Let's say you're irrigating the course on a humid day and you get a rainstorm. It aggravates the situation because you can't control the amount of water. You must adjust your program according to what nature is doing, has done and will do. The weather is the big boss."

The type of work that has to be done also varies with the kind of grass used on the course.

Only a handful of courses—Sunnylands, The Club at Morningside, Mission Hills, The Springs, Eldorado, The Vintage Club and Palm Desert Resort Country Club—have bentgrass. The rest of the courses have bermuda grass.

"Bentgrass is a natural cool season, fine-texture grass that grows great in places like Oregon," said Bud Lombard, a salesman for Foster and Gardner of Coachella, which keeps the superintendents in grass seed, chemicals, fertilizer and the other supplies needed to maintain a golf course.

"Bentgrass is the most well-accepted putting surface, very smooth, but it goes into a warm season dormancy," Lombard added, "and it has disease problems, Pythium. It is a warm-season disease that can completely kill a green in 24 hours."

The courses with Bermuda have a different problem. Each year they must be overseeded because it is a warm-season grass that is tailor made for Coachella Valley summers, but is dormant during the winter when course use is at its peak.

Course superintendents mow down the bermuda as low as possible and plant rye grass on top of that. According to Lombard, most superintendents use one of 15 types of perennial rye for their overseeding. He said overseeding costs, including water, range from \$70,000 to \$90,000.

Overseeding a 150-acre course also means 10 to 12-hour workdays for superintendents six or seven days a week.

Lombard said most of the overseeding in the Coachella Valley is done between October and November when the courses are closed from three to four weeks.

The perennial rye then becomes dormant in the summer and the Bermuda becomes active again, aggressively "squeezing out" the rye grass and growing over it.

Other battles also are being waged at all clubs.

There is an on-going war against insects. And superintendents have to keep their lakes looking like lakes instead of marshes. To combat the growth of vegetation in the lakes, most valley superintendents use chemicals in the summer and a combination of tilipia (a weed-eating fish) and chemicals during the winter. (Tilipia die off when the water temperature drops below 55 degrees.)

In addition to overseeding and battling diseases and insects, summertime is when superintendents are busy preparing the courses for winter. The courses are completely renovated. Cart paths are redone, sand traps reshaped and trees trimmed—all 3,000-or-so when it comes to the more established courses.

All of this takes an annual budget of up to \$1.5 million for some courses and a staff as large as 50 to keep the "beautiful courses" beautiful.

"When you watch a golf tournament on television, you will hear the announcers and golfers say that the course is in beautiful shape," Killen said, "They never say who does it, but you certainly get screamed at if the course is in bad shape."

Topdressing

by JUDITH FERGUSON GOCKEL,
Agri-Systems of Texas, Inc.

Did you ever wonder what an earthworm might think about topdressing practices on our golf courses? If you haven't, then maybe it's time to take a closer look.

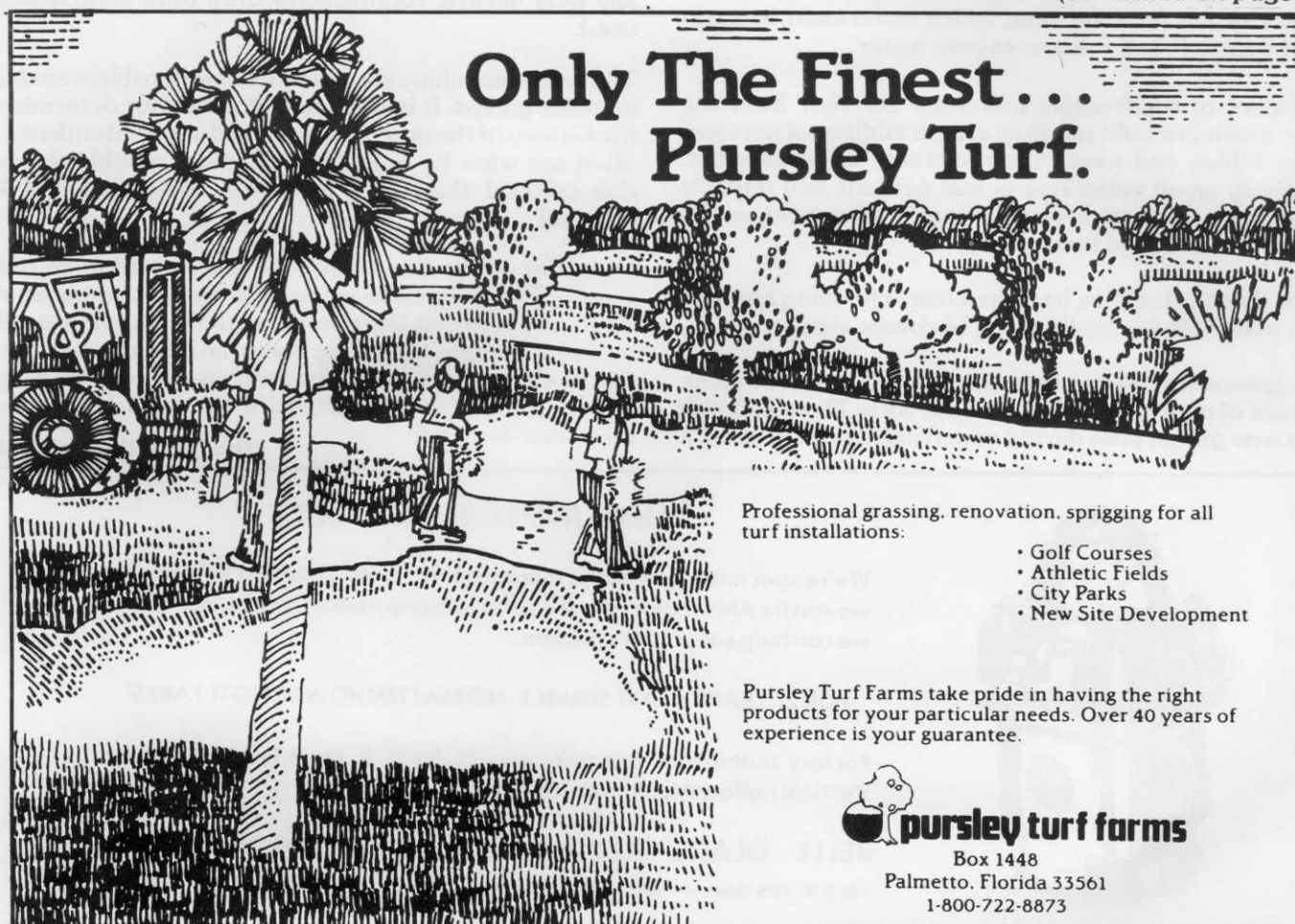
Topdressing for putting green maintenance is an almost universal practice; it is used to true up the putting surface and to help prevent thatch buildup. In recent years, topdressing programs have also been used to increase putting green speeds. If it is done with care and follows some simple guidelines, topdressing can also modify the basic structure of the green. This will improve water handling capacity and add to the life and health of the green and the turfgrass on it.

Topdressing practices are a major reason for the success or failure of new greens. With adequate basic construction and an informed superintendent, a new green can have a predictable life of 20 years or more. Without these fundamentals, the same green can be in serious trouble within a year.

Although topdressing is used widely, the how and why of its function are often misunderstood. We were not

aware of the wide variance in practices until recently, when our laboratory developed a new technique for analyzing rates of field infiltration. The method involves using three-inch PVC pipe to take a profile of the green through the seedbed, intermediate layer, gravel, and into the subsoil beneath the green. The tube is submitted whole, tightly packed to prevent movement of the contents. After doing the infiltration test in the pipe, we cut it open to try to determine the reasons for its behavior. In a startling number of cases, it is apparent that topdressing practices have created the problems we've found. There are cores that look like appetizing Viennese tortes, made up of many layers of differing sands and soils, and cores that have been dubiously blessed with every commercial topdressing of the past 15 years, one after another. We find poor greens topdressed with superb materials, and great greens smothered with the cheapest filler available. We have found we can count layers like the rings in a tree and determine when the course changed superintendents, when the budget crunch came, and the year of the big flood, blizzard, or drought. We also see greens that have been maintained to perfection, and are very successful regardless of their

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age. While it is possible to have problems with the best built and maintained greens, the problems are usually more manageable and involve less brinkmanship on the part of the superintendent to correct.

To understand why correct topdressing practices are so important, it is necessary to think about the growth patterns of turfgrass and to have a basic grasp of water movements in soils.

Where distinct layers of materials exist in a profile, grass roots make little effort to grow through one layer and into the next. If the roots have as much as an inch of one material to grow in, however poor it is, they will not cross into another layer even though that layer may have optimum growth medium characteristics. We often see well-constructed seedbeds with an inch of a different but equally good topdressing. The turf can usually be peeled off like a throw rug at the interface, because the layers aren't bound together by a network of roots. Where shallow root systems exist, turfgrass is vulnerable to problems from many sources.

Not only do layers affect the root systems directly, but there is a further problem with water movements through textural barriers. To visualize this involves understanding the way a perched water table works. The perched water table, which is, incidentally, the basic principle upon which the USGA recommended method of greens construction is based, affects all soils. Simply put, the original research demonstrated that water remains within one layer until that layer is saturated. Then it drains into the next, which again must be saturated before it can release excess water.

As layers of topdressing materials different from the basic green are built up, they create additional perched water tables and cause unpredictable consequences. Relatively small variations in soil content and particle distribution can produce significant differences in the interaction of these materials.

Once these principles become clear, choosing appropriate materials for topdressing becomes simpler.

New greens should be topdressed initially with the same mixture of materials they were built with. Thus, in building a new green, plan during construction to set aside a

supply of construction material adequate to topdress for at least two years. It is prudent to make sure the supplier will have the identical sand available in the future, and keep a supply of the organic material used in construction for an indefinite period.

After a period of time, which will vary greatly in individual cases, the roots will begin to provide enough organic material to meet their own needs for retaining water and for cushioning from the abrasion of heavy traffic. Because this is a gradual process, only by observing the root zones regularly can you know when you reach the point for a gradual cutback in the organic component. This is done best by looking at the root systems regularly. A cup cutter is a good tool to use for this examination. Go to an average area on the green and cut the deepest cup possible. Carefully extract the plug from the cut and look at the roots. In an ideal situation, the material around the roots is very similar to that below, and the roots themselves are plentiful and have a plump, healthy look. There should be no compacted area developing, nor any indication of unusual moisture retention. The topdressing program is ideal if these criteria are met.

If the top two to three inches of the core are hard and the root system scanty and weak, the organic component is very likely inadequate, and there may be an excess of silt and clay. It will be necessary to use aerification with core removal, and topdress with a clean sand of a similar type combined with about 10 percent organic material to correct this development. If the soil is becoming spongy, the organic material should be cut back gradually over several topdressings until pure sand is being used.

The same technique should be used for problem analysis on older greens. It is an excellent means for determining the history of the green; an informed superintendent can often see what he is dealing with more quickly through this method than with any other single tool at his disposal.

A variety of conditions may be discovered in an older green. There may be layering from multiple topdressing. This condition can be relieved to some extent by aerifying several times, removing cores, and topdressing each time with a clean sand in the medium to fine size range. This technique will be helpful if the layer is less than three inches deep.

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Problems may appear in the form of a spongy upper layer, perhaps resulting from on-site mixing during construction, which has left excessive quantities of organic material in the upper portion of the green. This is more difficult to correct, although the same basic technique may be tried. It is sometimes necessary to remove the sod and remix the seedbed before real gains can be made.

The upper layer may be hard and compacted, indicating an excess of silt and clay in the topdressing material, often in combination with very fine sand. Here again a very clean medium to fine sand may be employed in conjunction with aerification. It can be helpful to add up to 10 percent peatmoss in this instance.

Beyond the top three inches or so, it is almost impossible to make significant changes in the green's behavior using topdressing modifications. New technologies developing in some areas may make it possible to modify most of the seedbed. Time and experience will give us a better idea of their long-term effectiveness.

A current trend, which has caused many problems, is the building up of a sand layer on top of greens that are basically soil in order to improve putting speed. While it is possible to modify the greens in this manner, it should be done gradually over a couple of years rather than in an abrupt changeover. The modifying sand should be selected and mixed into the existing topdressing in a ratio of about 25 percent of volume. This material should be used several times and then further divided into a 50-50 proportion for several more topdressings. Continue increasing the quantity of sand in the topdressing until roughly a two-inch transition layer has been built up. This slower procedure usually allows the soil and sand to blend well enough for water to be moved as if there were no change. The infiltration rate will be that of the soil portion of the green, of course. Regular aerification should be done throughout the transition period, and cores should be removed each time.

If the original material of which a good green is built becomes unavailable for topdressing purposes, it is crucial to locate the closest possible substitute. This can be done by taking the particle analysis of the original sand to area sand suppliers to seek a match. Fortunately, similar sands are often available from the same area.

Locating a close substitute will allow a continuing successful topdressing program.

Regular examinations of the seedbed using this core sampling technique are helpful in becoming aware of problems before they develop into serious conditions. Success or failure often takes place on the worm's eye level.

Topdressing is more than a filler. It plays an active part in keeping good greens good, golfers happy, costs down, and aggravations to a manageable level. These are goals well worth pursuing. ■

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Golf course pesticides can harm more than their intended targets

by Bob Condor

More than four years have passed since U. S. Navy Lieutenant George Prior died from a mysterious ailment that doctors traced to the Army Navy Country Club near Arlington, Virginia. Prior played golf three straight days while on leave in August 1982. After the first two, he returned home with moderate headaches and nausea, but following the third day, Prior grew weak and a blistering rash spread across his stomach. He checked into a hospital. Within two weeks, his skin festered and scabbed, his internal organs failed and he died of a heart attack. Prior was 30 years old.

An expert Navy forensic pathologist, Dr. Jonathan Lord, concluded that the cause of death was a severe allergic reaction to Daconil 27⁰⁷, a common fungicide sprayed weekly on the Army Navy course to control brown spots on the greens. Among the Navy doctor's evidence: A chemical similar to Daconil allegedly killed a Florida family after it was used to fumigate their house; Prior had a history of health complaints after playing golf; the club's grounds and Prior's equipment and clothing tested positive for Daconil.

Prior's wife filed a \$20 million lawsuit against the Army Navy Country Club and Daconil's manufacturer, Dimond Shamrock Corp. The case remains in litigation.

Although most golfers play on pesticidesprayed courses without ill effects, Prior is not the first golfer to experience flu-like symptoms after a round. "I used to have all kinds of trouble playing in Florida," says Billy Casper. "One year, in the National Airlines tournament near Miami, I had to withdraw after 36 holes even though I was two shots off the lead. The course had been heavily sprayed, and there was weed killer in a lake. When I got to the course for the third round, I couldn't hit a wedge shot 30 yards — I didn't have the strength. My eyes were bloodshot, my complexion was very ruddy and my right hand was swollen from taking balls from the caddie. My doctor diagnosed acute pesticide poisoning."

Casper, who now credits vitamin and mineral supplements with helping him stay stronger on sprayed courses, says there were times when "I couldn't think my way out of a paper bag" during a tournament round. "I found I couldn't reason on heavily-treated courses."

Dr. Samuel Epstein, an expert on environmental toxicology at the University of Illinois Medical Center, confirms that "Golfers are greatly exposed to pesticides. Direct contact encourages absorption of toxic materials through the skin and sometimes ingestion. Recently-sprayed pesticides do volatilize on hot days, leading to the additional risk of inhalation."

Golfers affected by pesticides will experience several early symptoms, including memory loss, fatigue, headaches, nausea and dizziness. But although Epstein recognizes the potential seriousness of these symptoms, he is more concerned about the long-term ill effects of pesticides. "Golfers spend a good deal of time on golf courses, up to four hours or so a day," he explains. "That's a high level of exposure to a number of chemical agents that produce delayed effects, such as birth defects, neurological disorders and cancer. A golf course is essentially a hazardous site, and it's time golfers realize they are captive to an industry (lawn care) that is indifferent and ignorant about the public health."

In the early 1970s, the Environmental Protection Agency (EPA) was mandated by Congress to register all pesticides used on turf. That means testing and approving any new product on the market. But because many golf course pesticides predate 1970, they were granted exemptions from extensive testing for EPA approval. Now the Federal agency periodically "re-registers" existing pesticides, but testing doesn't appear any more rigid.

The EPA will respond to "any valid data showing chronic effects such as carcinogens, birth defects or bird kill," says Henry M. Jacoby, the EPA's product manager for agricultural fungicides. Jacoby reports that "Diazinon," made by Ciba-Gergy is a pesticide under special review. It is likely to be disapproved for golf course use by year-end, due to numerous incidents of birds (mostly geese and other water fowl) dying.

Golf course superintendents also have their hands full with the pesticide issue. "Some courses forbid spraying when members are playing," says Jim Snow, a turf management director for the United States Golf Association. "They'll close one day each week to apply the pesticides."

However, Snow maintains that attention to spraying seems to have turned into a witch hunt, "making golfers paranoid about something that isn't all that critical. Most pesticides and fertilizers used on golf courses are quite tame, and the people applying them are professionals."

The USGA is studying alternative methods of pest control, as are some local golf superintendent groups. "Pesticides and fertilizers are our biggest expense items," says Ed Nash, golf Superintendent at the Bass River Golf Course in South Yarmouth, Massachusetts, which is participating in a local pesticide study of Cape Cod courses. "We have no economic interest in using chemicals if we don't have to. We're looking at ways to integrate pest management by using less water with safer chemicals. After all, we're exposed more than anybody else because we apply it".

Reprint — Golf Magazine

Editor's Note: The Florida Green does not endorse the article "Killer Courses" but reprints it as a service to our members so you will understand the rebuttal on the following pages. Our thanks to Mark Jarrel and Cecil Johnston for bringing this article to our attention.