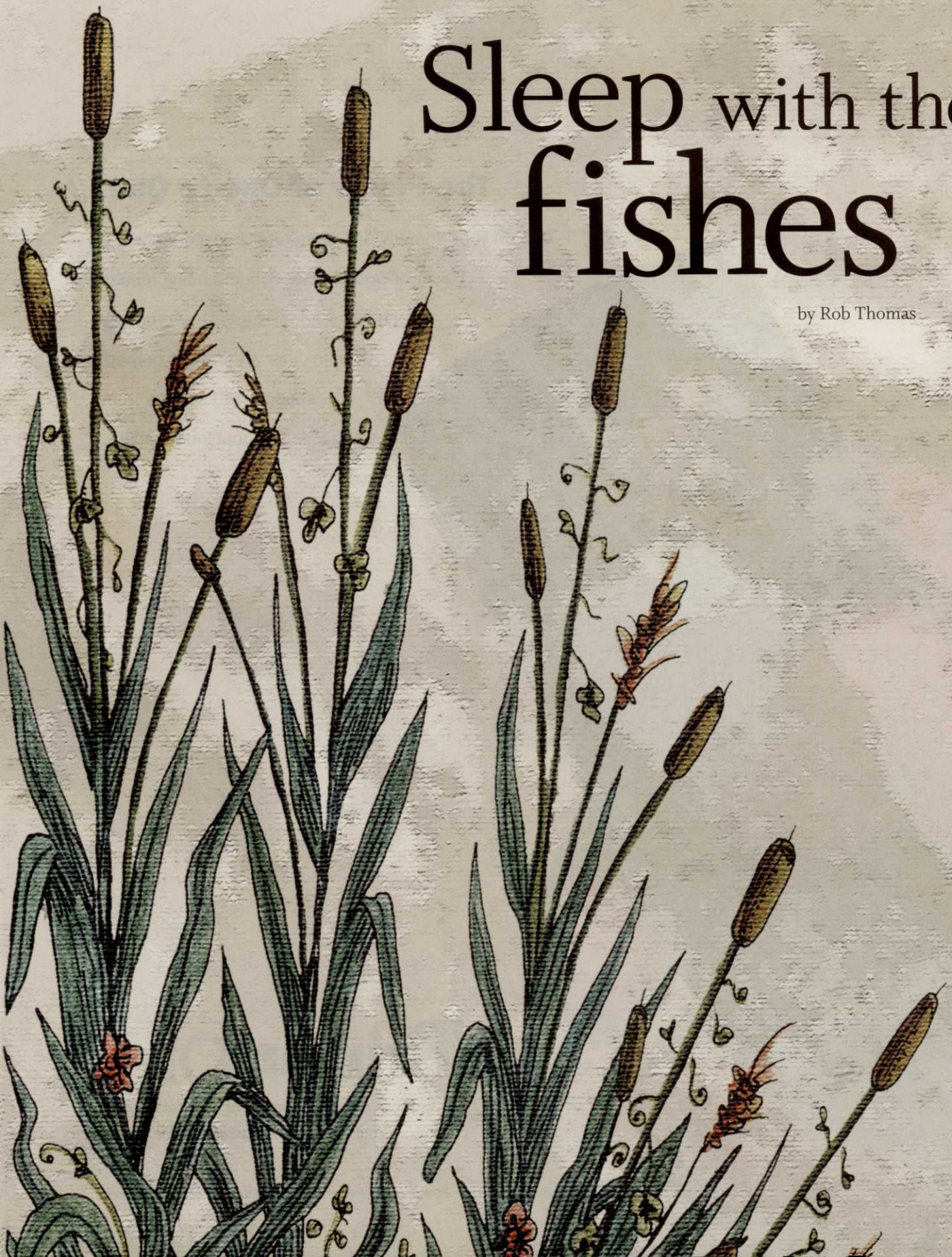
Sleep with the fishes

by Rob Thomas



Three superintendents share how they rub out troublesome aquatic pests like algae, cattails and milfoil on their courses.

There is more in those ponds than just fish swimming and errant golf balls resting in their watery graves. From algae to cattails, aquatic weeds are the superintendent's often evident and sometimes sneaky foes.

CYPRESS LAKES GOLF & COUNTRY CLUB

For Heath Puckett, CGCS, at Cypress Lakes Golf & Country Club in Muscle Shoals, Ala., beauty is in the eye of the beholder. His course a par-71 layout designed by Gary Roger Baird has 20 water features touching 17 of the 18 holes... some with cattails.

"I like the way they look," says Puckett. "And I feel they improve water quality by serving as a buffer... although some would disagree, especially regarding the aesthetics or lack of ability to find an errant golf ball."

Cattails and their accompanying leaves generally stand between 5 and 10 feet high and feature distinctive cylindrical, brown spikes that resemble cigars. They primarily grow in marshes, ditches and shallow water of lakes, ponds and rivers. A fibrous root system and rhizomes often lead to the formation of dense colonies.

While it is illegal to kill cattails in some states, such is not the case in the Heart of Dixie. Puckett says they have seen success with multiple, repeated biweekly applications of glyphosate and oil of limonene.

"We first cut and removed all above-ground plant material, and began treatment immediately after," he says. "It was a very slow process though, and took most of the season to finally get complete control of the cattails. I have also resorted to digging them up with a backhoe in the past."

In addition to cattails, Puckett deals with algae in his ponds. Fountains and aerators help, but aren't practical in every case.

"Since we do not have a lot of resources devoted to lake management, we've only used minimal inputs in our ponds that do not have a fountain or aerator," he says. "Keeping oxygen levels elevated is the best method to curtail algae problems, in my opinion."

According to Puckett, grass carp can also be very effective in preventing aquatic weed problems until their metabolism slows down and they don't eat as much.

Puckett's team applies light rates of copper sulfate preventatively in some of the smaller ponds that are not aerated or stocked with grass carp. For curative applications, late in the summer they use a mixture of Reward, Cutrine and oil of limonene sprayed over the top on sunny days. Last year, he also used Regal Chemical Co.'s Earth-Tec to reduce the algae and eliminate the bad odor with good results.

From fountains and grass carp to barley straw bales and chemical and biological controls, Puckett has mixed feelings on the results.

"Most of the biological control products I've used for algae have not provided enough control to justify the extra cost," he says, adding that they would prefer natural solutions over chemicals. "I have experimented with them in the past, but budget pressure and unsatisfactory results have required us to return to using more cost-effective chemical controls."

A superintendent for seven years, all at Cypress Lakes, Puckett says there are some benefits of having algae and cattails.

"Certain types of algae are beneficial to the pond ecosystem," he says. "However, due to imbalances in the water and high nutrient load from runoff, algae can become a smelly eyesore. Filamentous algae is the source of our problem because it develops into a floating mat."

Though cattails can be aesthetically pleasing to some and provide a buffer for the pond to help filter surface runoff, he says they are very aggressive plants and cannot be left unmanaged.

"They spread rapidly and are difficult to control," Puckett says. "Our best success with them has been on the edges of some of our deeper ponds... where it's difficult for them to establish beyond a few feet. In shallower ponds, they can spread and take over the entire pond basin."

ARIZONA NATIONAL GOLF CLUB

Water may be a precious commodity in the desert, but aquatic weeds certainly do not treat it with reverence. Located in Tucson and home to the University of Arizona's men's and women's golf teams, Arizona National Golf Club is not immune to these nuisances.

Superintendent Rick Darby is charged with maintaining the Robert Trent Jones, Jr.-designed layout situated in the foothills of the Santa Catalina Mountains. Both algae and cattails have tried calling his course "home."

"The only benefit to cattails is [they] provide environment to wildlife," Darby says, adding that he sees no benefit to algae. "Otherwise they are a nuisance and extremely invasive. They can become a major problem if not kept under control."

Cattails are common in a protected water crossing at Arizona National, but the state does not rule against their killing as long as aquatic-label herbicides are used when spraying them. Darby says his team chooses Aquamaster (glyphosate) and sometimes adds Reward (diquat) to spray the cattails, at labeled rates, though mechanical methods seem to work best.

"We did our [mechanical] removal during the winter," he says. "In the previous fall, we sprayed every three to four weeks until the growth stopped. February or March we started mechanical removal."

Darby's team designed a rake made out of $\frac{5}{8}$-inch rebar, which was about 4 feet wide and 2 feet tall and had "about six or eight tines." The rebar handle was roughly six feet long and they used a tractor to pull the rake through the cattails and the mat it had developed over the years. The rake was placed about 20 to

Cattails and milfoil can ruin the aesthetics and health of a pond, but creative superintendents find ways to deal with them like this fabricated cattail rake.

30 feet into the cattail area and a few of the team stood on it to hold it down and dig in. Then the tractor would pull cattails to the edge, where they were then allowed to dry for a day or two.

"This is a messy process but I think the guys thought it was somewhat fun at times, seeing who was the messiest or cleanest at day's end," Darby says. "You definitely need a few good pairs of hip-waders.

"It is a time-consuming process, but the areas I did last year had less than a 10 percent grow-back," he adds.

According to Darby, the removal labor cost used has already been recouped by not cutting the cattails down at water level every month in the summer. When they cut them down monthly, that was six cut downs, with two working for two days.

As if cattails weren't enough, an irrigation lake on the property that holds approximately 4 acre-feet of reclaimed water complete with a waterfall that circulates its contents.

Excess nutrients, often from fertilization run-off near greens and fairways, grass clippings and fish food or feces, are generally the cause of algae. The ability of sunlight to penetrate through to the bottom soil makes shallow, clear ponds highly susceptible to this foe, which not only can leave the water unsightly, but also malodorous. Of the three most common algae superintendents battle – planktonic, filamentous and attached-erect – only planktonic serves any useful purpose.

Darby, who has been a superintendent for 13 years and approaching eight seasons at Arizona National, combats algae by injecting microbes into the lake, which has worked well.

"Other methods on algae have failed," he says. "Using any form of copper is very short lived... only good for a few days."

OLD OAKLAND GOLF CLUB

Paul Anderson, a superintendent for a dozen years, is in the minority. He has not had to worry about battling aquatic weeds since joining Pinewood Golf Course in Elk River, Minn., in 2006. That's because the city-owned executive course has only one pond, which is blessed with a manmade liner.

"This was done three years ago and we haven't had any problems with weeds there," says Anderson.

Chase Walden, superintendent at Old Oakland Golf Club in Indianapolis, is not so fortunate. The 27-hole facility has six ponds in all, totaling approximately four acres. He has hit the trifecta of aquatic weeds: cattails, algae and milfoil.

Milfoil or the scientific term *Myriophyllum*, which comes from Latin *myrio* meaning "too many to count" and *phyllum* meaning "leaf" is a submersed aquatic plant with whorled leaves that are finely, pinnately divided. The leaves above the water are stiffer and smaller than the submerged leaves on the same plant. The flowers are small with four petals and are borne in the leaf axils or in a terminal, emergent spike.

While scientists are looking into ways to turn this invasive plant into biofuel and various animals include parts of it in their diets (like the aquatic weevil, which eats nothing but), superintendents find very little use for milfoil.

According to Walden, Old Oakland had a "bad" Eurasian milfoil problem in 2010. Because it is more common to recreational lakes, he wasn't quite sure what was growing in his ponds.

"I had it identified by two different aquatic professionals," he says. "As for an attack plan... I did a lot of research online."

A representative from SePRO recommended a herbicide treatment to treat the milfoil.

"He performed the application himself and we had very good results," Walden says of the treatment. "Renovate cleared it up with one application."

Control also can be achieved through mechanical management, such as lake mowers, a long-reach lake rake or aquatic weed razor blade tool, but caution must be used since milfoil is a fragmenting plant, and the fragments may grow back. These tools are most effective before seeds set.

Considering the ponds at Old Oakland aren't connected to any recreational lakes through rivers and tributaries, Walden is left to speculate on how it found its way to his property.

"I believe it was brought in on the boats of our pond service company," he says. "I suppose it is possible for geese to transfer it as well."

For Walden, Renovate worked on milfoil, and weekly, contracted copper treatments were a "good success" in managing algae, but he isn't quite sure fountain aeration did much of anything.

Like Puckett in Alabama and Darby in Arizona, Walden is able to combat cattails with little government interference. His team removes them by cutting the weed just below the water line.

Methods for controlling aquatic weeds are seemingly as numerous as the uninvited guests, themselves.

Sometimes, superintendents who have battled the nemesis, or chemical company representatives with expertise on various product offerings, offer the greatest insight into controlling these invasive watery foes. **GCI**

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