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Tim Moraghan, principal, ASPIRE Golf [tmoraghan@aspire-golf.com]. Follow Tim's blog, Golf Course Confidential at www.aspire-golf.com/buzz.html or on Twitter @TimMoraghan

ART OR SCIENCE?

Has science killed the art of growing grass?

Is science taking the art out of growing quality turf grass?

I've been mulling that question as my travels have made it obvious that superintendents are relying more and more on data, research, and high-technology while losing the feel and connection to the golf course.

Being somewhat old fashioned — I came of age in the white shoe, hard-collar, plaid-pants era — I'm concerned that the next generation of superintendents doesn't know the art of greenkeeping. They are so wrapped up in the bells and whistles, so glued to their screens, that they neglect to look up (and down) and are unable to take in, touch and feel the very real world around them.

Please don't think that I'm anti-science, some sort of technophobe who wants to return to sheep as mowers and the wind as seed-spreader. There was science when I was starting out in the business. But it wasn't nearly as developed or all-encompassing, and as a result we were forced to view our golf courses from a true "grassroots" perspective. My most important tools 30 years ago were a soil probe, a knife and pair of Ray-Ban sunglasses.

Yes, there are more and better tools available today, without question. However, I strongly suggest that superintendents and others who want to succeed need to learn how to manage by touch as well as by tech, and have a real feel for the environment rather than automatically referencing a computerized graph or a smartphone app to explain where, when and how to apply water or chemicals.

Because only with this feel can you make the best use of the tools and technologies available.

One of golf's fundamental tenets

is that it's a touchy-feely business and sport: Architects and builders touch the ground, feel the dirt; superintendents have a close relationship with the turf; and golf professionals place their hands on the shoulders of students when teaching the game. Science has made many inroads the last few years, from equipment technology to apparel that wicks and warms, GPS devices and lightweight shoes.

But as always throughout history

“I've used this column for years to advocate more out-of-the-box thinking in agronomy. I fear that a science-only approach puts us back in the box, a box that is now a computer or a smartphone.”

— not just golf history but world history — even the most dramatic breakthroughs in science only work as adjuncts to our human senses.

I asked a number of prominent people in our business their thoughts on the art vs. science debate to see if my view made sense. I received a range of responses. A noted superintendent in my age bracket echoed my sentiments when he asked, “Are these young guys looking at their golf courses and knowing what they are seeing? Are they really thinking about what is in the best interest of their golf course?”

Another looked at the landscape of our industry today and said, “Science versus art is actually a trick question because you need both. But if I had to pick one, I would take science over art because it's nice to have paint on a ripped canvas.”

I agree that we need both, and I see the logic — if not quite agreeing — with placing science first. But the

fault in that logic is that you can only put science first if you also understand and have art in your arsenal. I'm worried that art has all but disappeared. Echoing an argument often used when talking about how golf is played, I'm fine with the new equipment until it takes the golfer's skill out of the game.

When I was moving up in the industry three decades ago, the practice of agronomy varied with each super-

intendent, who practiced his trade any way he wanted. The science was new and not very widespread, so each superintendent made his course as a personal laboratory. Today, with the science blanketing the industry, we're all doing the same thing pretty much the same way, often without regard to whether it's right for our courses.

Talking early one morning to a very successful superintendent, I asked what his game plan was for the day ahead. His answer sums up my feelings exactly: “I don't know,” he said. “I need to walk around and see what my golf course needs.”

Is that your first thought every day? It should be.

Here are some thoughts from others in our business regarding art vs. science.

From a prominent turfgrass management Ph.D.: “Golf turf management has evolved over the past

(MORAGHAN continues on page 64)



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Rough life

Roughs populated with native species are not maintenance-free. Key problems to be aware of to keep your native areas from going wild.

By John Torsiello

The pros and cons of the native – or naturalized – roughs is pretty simple. “The pros are that native rough areas are aesthetically pleasing to the eye, easier to maintain and are good for wildlife,” says Tim Moraghan, founder of Aspire Golf Consulting in New Jersey. “The cons are they are a pain in the ass when you hit your \$5 Pro V into them and can’t find it due to density.”

Moraghan’s assessment is intentionally glib, but it strikes a chord. A \$5 hit in the wallet for the paying customer notwithstanding, more and more owners and superintendents are turning to a wide variety of grasses to naturalize rough areas on their courses.

“Converting mowed, irrigated rough areas to native grasses can reduce water, fertilizer, and pesticide inputs and may reduce mowing,” says Dr. Anthony Koski, extension turfgrass specialist, Colorado State University Department of Horticulture and Landscape Architecture. “However, it is important to understand native areas will not be maintenance-free. In fact, if they are neglected they can quickly become weedy and unsightly.”

Older areas must also be maintained to prevent the invasion of shrubs, brambles and trees, Koski says. Grass species – especially if a mix of grasses – will change over time. “The species of weeds, and you will have weeds to deal with, will change over time, as well.”

Major advances in breeding

of turf type tall fescues since the early 1980’s has encouraged more use of tall fescue as primary or secondary rough, says Zenon Lis, vice president of sales at Ohio’s Birmingham Seeds. In traditional cool-season grass growing climates and the transition zone of the U.S., interest in less maintenance has driven the use of tall fescue.

“Tall fescue is used now in areas where there are limits placed on annual fertility and chemical applications,” Lis says. “The turf quality in high performing NTEP-rated tall fescues is excellent, mimicking a wide bladed bluegrass. They can be cut at 1.5 inches or higher, up to natural plant heights non-mowed.”

Another group of species that has garnered more interest in golf rough use, are fine fescues. These species consist of hard, sheeps, creeping red and chewings fescues. The hard, chewings and sheeps fescues have been used more as “no mow” grasses in far roughs and out of bounds areas. They can grow to 8 to 18 inches high and cascade over themselves if left in a natural state.

Fine fescues have an interesting ornamental look, Says Lis says. “In warm-season grass areas in the lower transition zone and further south in the U.S., weeping lovegrass performs similarly as the fine fescue ‘no mow’ grasses above. These all have the potential to be left alone with literally no maintenance when established, except for occasional weed control and spot seeding for fill in.”

A similar scenario occurs regarding mowing height adjustments for roughs further south where Bermudagrass is the prevailing fairway grass. The roughs are also defined as primary and secondary by height of cut. So, the cut gets higher the further away from the fairway.

Out of bounds or far rough areas may be near or around sensitive waterways, so “no mow” grasses can be used here, says Lis. Native grasses such as buffalograss, little and big bluestem, switch grass, wildrye and other species are being used to define extreme far rough and out of bounds areas of play. Some native grasses take a year or longer to show their “true potential,” and weed control can be difficult in the establishment year. Some of native grasses above have a far reaching geographic potential for usage, in both cool- and warm-season grass areas.

Traditional cool-season grasses for golf roughs are the normal species used in fairways, including Kentucky bluegrass, perennial ryegrass, fine and tall fescues.

“Generally, the roughs start as a higher cut area from normal fairway heights,” Lis says. “So superintendents mow at 1.5 inches for a primary rough, and a further out secondary rough would be mowed at a 3-inch or higher height of cut.”

An easy way of transforming mowed rough to native is to simply stop mowing and irrigating the grass, Koski says. Unmowed bluegrass and fes-

cues (both tall and fine fescues) can make for an attractive rough. Similarly, unmowed Bermudagrass in the south can provide a native look as well. This can be a good test to see what the native rough will look like in certain areas of the course. If the look isn’t a good one, the grass can be mowed back to down to turf height.

While grasses are generally the plant of choice for native areas, wildflowers are an option. The advantage of using grasses is they are familiar to the superintendent when it comes to management. Further, weed control is easier with grass roughs; selective weed management in wildflowers is complicated (for some mixes) to impossible. An added plus of going native, says Dr. Koski, is that, “Conversion to the native look – and especially if using true native species – can be attractive for many forms of wildlife on golf course: birds, butterflies, and bees and native pollinators.

Depending on the grasses established, the native area will require some sort of vegetation/biomass management. This might entail mowing in the fall or spring and clipping collection. Burning every other year is an effective biomass management tool, where practical and allowed. Dr. Koski says weed management is essential during the establishment years one to three. When established successfully, weed management can be done on a spot basis. He adds, “Fertilization of native areas should not be

necessary. Fertilization often encourages weed growth and provides little benefit to the establishing grasses. However, on some very poor soils, including those low in organic matter, some starter fertilizer might be warranted."

The most common mistake made in the establishment and ongoing maintenance of native grass areas is excessive irrigation – especially once the grass has become established, leading to weed problems in native areas. Excess irrigation creates a stand that is so dense that it is impossible to find a lost ball – much less give the golfer an opportunity to attempt a shot.

Depending on whether grasses are warm- or cool-season species, there are specific windows of time when they can be planted in rough areas for optimal success. While combinations of cool- and warm-season species are "natural" and commonly sold by seed companies for native conversions, weed management is complicated with a cool/warm mixture. Herbicides safe for use on warm-season species (imazapic; Plateau, for example) are often not safe on cool-season grass, and vice-versa. If burning is desired as a biomass management tool, then warm-season grasses are a better choice, since they burn more easily. If true natives are preferred, it is important to do your homework to find the best-adapted natives for your area – and a good source of seed for those grasses.

One true native grass that seems well-adapted for use throughout the U.S. is little bluestem, Koski says.

"This is a native, warm-season, shorter-growing species that has a remarkably

“Converting mowed, irrigated rough areas to native grasses can reduce water, fertilizer, and pesticide inputs and may reduce mowing. However, it is important to understand that native areas will not be maintenance-free. In fact, if they are neglected they can quickly become weedy and unsightly.”

— Dr. Anthony Koski, Colorado State University

broad native range, from the Northeast to California, and fairly far south into the humid Southeast," he says. "A couple of other widely-adapted natives, though taller than little bluestem, are indiagrass and switchgrass. The grama grasses, particularly blue and side-oats, can also be used throughout a broad range of the U.S."

While not native, the fine fescues (hard, chewings, sheeps) can provide a native look and will do well everywhere except the deep Southeast.

Dr. Fred Yelverton, co-director of the Center for Turfgrass Environmental Research and Education at North Carolina State University, cites studies that show a wide variety of plants are used in naturalized rough areas. "The main thing people need to know about these naturalized areas is that they are not low maintenance. Superintendents who have these areas on the golf course will tell you they are pretty high maintenance."

He says plant species sometimes best for naturalized areas are Andropogons, but probably the most common species used are fescues. "Fine fescue is very common but many of these areas have other plants

(Andropogons) planted in the naturalized areas. The more species you put in these areas, the greater the difficulty in managing them. Weed management is typically the most important part of maintaining naturalized areas."

Choose a plant that performs well in your area. If not, you will be in constant re-establishment mode, says Yelverton. The most common symptom of poorly adapted plants is weed invasion. "For instance, fine fescue typically gives the desired look for most of the country, but in the warmest climates or the desert, fine fescue will not work."

If unsuitable plants are used in a region, they may not survive, leading to the cost of

replanting something else, says Chris Hartwiger, a USGA senior agronomist.

"If the proper plant is used in the wrong location, extra maintenance may be required to facilitate less searching for lost golf balls," he says. "If expectations are not communicated clearly to management and staff, the finished product may be disappointing to some, leading to a change in species or different management."

Plants suited for native areas run the gamut and should be researched and selected based on the region a course is located in," Moraghan says. "I constantly preach do not force a square agronomic peg into a round hole."

Fescues, broom sedges, and red top bent grass may work well in cool-season arenas," he adds. Tall fescues for "way out of the way" areas can work. Wildflowers "look great" but are time consuming to establish and can end up with weed patches. Warm-season golf courses may have a limit to fine fescues, but the further south the less successful you will be, Moraghan adds. **GCI**

John Torsiello is a Torrington, Conn.-based writer and frequent GCI contributor.

For more...

Looking for more info about what to plant in your roughs? Just enter the following link into your browser to check out the following articles.

- The Fescue of Your Dreams. If you want it wispy...it must be crispy! By Bob Vavrek <http://bit.ly/1pwibr5>
- The Use of Non-Mowed Fine-Leaf Fescue Grasses on Golf Courses. Fine-leaf fescue is a versatile candidate for use in many areas around the golf course. By M. Alihari Vandi and Kevin N. Morris <http://bit.ly/1m3V0E9>
- Fine Fescue Roughs and Fairways. Green alternative or niche grass? By Robert Vavrek <http://bit.ly/1dKnuxS>
- Native Spaces. A growing trend that's good for the environment – and, in some cases, the budget. By Megan Leonhardt <http://bit.ly/1ix2z5v>

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Rising from the waters

Austin's venerable Onion Creek Club is back on track after devastating late-October flood.





By Steve Habel

After enduring several years of drought conditions, October of 2013 was the wettest October on record in Austin, the capital of the Texas and one of the country's most desirable places to live. In fact, a small flash flood on Oct. 12 ripped up several of the greens at the venerable Onion Creek Club, and knocked down some trees and destroyed all the bunkers on the course's low-lying holes.

The original venue for the Liberty Mutual Legends of Golf Tournament and the birthplace of the Senior (now Champions) Tour, Onion Creek Club was designed by Jimmy Demaret in 1974. An additional nine holes, fashioned by Ben Crenshaw and Bill Coore, were put into play on higher ground in 1996. It is considered of the state's finest courses but was suffering from the same drier-than-dry conditions as most courses in the region. Through the years, Onion Creek Club also battled an overgrowth of trees and a reduction of the size of its greens after a series of floods and the passing of time had compacted the soil underneath and around the putting surfaces.

Onion Creek Club's original 18 holes were built in the flood plain of the burgeoning neighborhood some 15 minutes southeast of Austin's downtown. The club and the community have endured floods in the past, most notably in 1998 and 2001 when the creek overflowed and destroyed parts of the course.

None of the previous floods came close to reaching the homes that border the course's low-lying holes, many of which are set 150 yards and 20 feet above the usual edges of the creek.

Thusly, no one could have been prepared for the cruel surprise Mother Nature had in store for Onion Creek Club or the residents of the community that surrounds the course. When the rains came on the night of Oct. 30, conditions combined for a recipe for disaster.

PRAYING FOR RAIN

The American Southwest – and especially Texas – has been shackled over the past several years by a continuing drought, and when Ryan Crump decided to move from the Carolinas to

the Lone Star State in 2012 to take a position as the golf course superintendent at the Dominion County Club in San Antonio, his first impression of the course he had signed up to care for was that it was dead.

"It wasn't, but things were just a lighter shade of green," says Crump, who'd worked at Wade Hampton Golf Club and Colleton River Plantation Club. "Having things green as possible was the expected condition of the course I had just left, so the reality of the situation here hit me really hard."

By the following year, Crump moved from the Alamo City to Austin and Onion Creek Club, which is celebrating its 40th anniversary in 2014. For 11 years, beginning in 1978, Onion Creek Club conducted the celebrated Legends tournament, as the course more than held its own before the great golfers of the black-and-white television days, players that eventually brought the sport into the modern world with a dash of charm and savoir-faire.

"My main job was to try to find enough water to keep the course's greens alive," Crump says. "With the water rationing that was put in place here in central Texas because of the drought, even the reclaimed water we were allowed from the neighborhood was not enough. It was a constant battle."

Rain was predicted for overnight on Oct. 30-31 but when the storms came they moved to and then stalled over the southeast corner of the Austin city limits and Hays County, a bit further to the south. From 11 p.m. on Oct. 30 to 6 a.m. on Halloween, 18 inches of rain fell in the already saturated region, making a flash flood a certainty.

At one point during the morning, Onion Creek rose 11 feet in 15 minutes and by a few

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hours before sunrise on Oct. 31 the creek's flow rate was 120,000-cubic feet per second. That's nearly double the average flow rate over Niagara Falls.

"I immediately went down to the corner of the original course where the third green and the fourth tee are set," Crump says. "The water there was already about two feet from a security light on the back wall of a home 10 feet above ground level and 20 feet above the golf courses."

The water would go even higher, completely flooding all the homes on the golf-course side of the street that separates the first hole from the third and finally cresting in the middle of the No. 1 fairway, across that street and into another line of houses some 30 feet above the course and 45 feet from the bottom of the creek bed.

"We were just worried about getting as many people to safety as we could – that was our focus," Crump says.

Onion Creek crested at the highest it has been in 92 years and reached into scores of homes in the neighborhood, including a line of houses across the street from the creek and 80 yards across the fairway of the third hole.

"I was called to the club at about 6:30 (a.m.) and when I got here the water was over some of the road bridges," says Justin Jafarian, Onion Creek Club's general manager. "Some houses had four feet of water in them and people just didn't know what to do or how that happened."

Those families that lived in the houses bordering the course are still not back in their homes, some five months later.

But the amount of water that flowed into the valley that forms the course's signature hole – the downhill par-4 third hole on the North course, with a drop of 50 feet from tee to fairway – was almost incomprehensible. Looking out from the tee box of the par-3 17th, which also rests high above the valley that forms the third, all one could see was a lake of water; the green of the third hole was covered by at least 20 feet of floodwater.

Once the water subsided, a better accounting of the damages could be taken. It was not a pretty picture.

A cement and shell barrier encased in chicken wire and weighing tons that was

“When I got on site, I could feel the ground moving under me and hear the water like it was moving through rapids. It was still pitch dark, but when lightning struck – and it did frequently – I could see the whitecaps as the creek rose toward me.”

– Ryan Crump, Onion Creek Club

built to protect the tee box on the fourth hole was twisted and rolled like a wet dishrag – but it did its job, the fourth tee box remains intact.

A cement dam between the creek and pond that fronts the par-3 second hole on the North course was breeched and left with a huge sinkhole.

A dozen putting surfaces were scraped down to sub-turf level, exposing irrigation pipes and electrical wires. Trees were felled and were swept away – a 70-foot tall oak that once stood to the left of the green at the par-3 sixth hole in the original course was uprooted and rolled down the fairway of the adjacent par-5 seventh hole, tumbling some 700 yards before becoming lodged against another huge oak.

Yes, Mother Nature had provided the club with water, but there were consequences aplenty. Damages, to the course were estimated at about \$7 million. The club also lost its course-maintenance equipment when the building where it is housed was swamped with four feet of water; to get to that building, the rising creek had to cross a huge grass berm constructed to keep water away after the flood of 2001.

ONE STEP AT A TIME

After the water subsided, Crump and his crew spent the next few days evaluating