

# STUDENT ARTICLE

Kentucky bluegrass tended to be less likely if sedge and rush cover was  $\geq 2.5$  cover rating. Sedge cover was also important in the proportion KBG model. Sedges are grass-like plants that inhabit a variety of environments but are very typical of wet areas where they can form what are referred to as sedge meadows (Cochrane et al., 2006). The affinity of sedges for wetter areas is in contrast to KBG, which varied in its tolerance to water-logged conditions (Wang et al., 2009).

Soil C  $> 1.06\%$  as an indicator of KBG absence was a surprising parameter to appear in the regression tree model due to C being associated with higher organic matter, which can be an indicator of high fertility. Anthropogenic carbon additions in the form of sawdust or sucrose to restored prairies reduced N-availability thereby decreased KBG biomass (Clark and Tilman, 2010).

Kentucky bluegrass was more common when the number of meters from a sampling quadrat to a prairie edge was  $> 285$  m. This is in contrast to many invasive species studies where invasive species were found near the edges of study sites (Tyser and Worley, 1992;

Larson et al., 2001).

A regression tree was also constructed for the proportion of the quadrat occupied by KBG within each quadrat. This tree was sorted by sending "less KBG" to the left side of the tree and "more KBG" to the right (Figure 2). The first split was for slope as designated by Web Soil Survey (WSS) which explained the greatest proportion of variability. Lower slopes tended to have less KBG (0%, 0 to 3%, 0 to 4% and 4 to 6%) while steeper slopes (2 to 6%, 1 to 6%, 6 to 12%, 0 to 2%, 1 to 3%, 1 to 4%, and 3 to 5%) tended to have higher proportions of KBG (Figure 2). The next node was WSS Soil Type where more productive soil types tended to have less KBG except clay loam and pit or gravel (i.e. coarse and extremely sandy) type soil (second most variability explained). The final split of that branch consisted of sedges and rushes  $\geq 2.5$  cover rating (5-50% cover) as a factor for less KBG. A secondary branch showed that the proportion of KBG was greater if the number of years since the last burn was  $> 4$  years. This tree for the proportion of KBG explained 38.8% of the vari-

ability within the data (Figure 2). From the data we collected, it was easier to explain the proportion of KBG rather than its presence or absence meaning forces other than those we explored likely drove its presence within the site. The factors in the proportion KBG tree simply govern the amount of KBG in a given area of the site.

Steeper slopes and more productive soils tended to favor KBG. While many sites and some areas within the sites were low and relatively flat, these often were somewhat wet. Upland areas had better drainage which likely facilitated KBG presence and growth. In addition, drier upland areas with better drainage would have facilitated agricultural practices from haying to grazing to plowing. While we attempted to ensure survey sites were as remnant prairie as possible, KBG may have also been planted at our sites prior to any current knowledge. Carrier and Bort (1916) discussed KBGs spread westward without disturbance, which supported the lack of agricultural disturbance being part of our regression tree model.

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Management activities may have prevented KBG from establishing at the site or management practices long term may have decreased KBG below levels detected by our survey. The proportion of KBG modeled showed that areas burned over four years ago were more likely to have higher proportions of KBG in their quadrats. Kentucky bluegrass and many other exotic species are decreased with frequent burns; however native species richness may also be decreased Smith and Knapp (1999).

Former agricultural disturbance at the site (i.e. grazing or haying or limited plowing with restoration) as well as environments around the site had no effect on KBG presence or on the proportion of KBG. Many of our sites were grazed or hayed; however, these did not factor into either model.

Surprisingly, N, size of the site, area:perimeter, and distance of the quadrat to the edge from cardinal directions other than west were not factors explaining presence or proportion of KBG at these tallgrass prairies. It was expected that large sites or those with greater interior would be less invaded compared to small sites or those with less interior as suggested by other studies (Kraszewski and Waller, 2008). Edges create areas where soil moisture, light, and resource availability is different than other areas within the site and may face an influx of propagules (Parendes and Jones, 2000). Nitrogen has been proposed as a limiting resource for many vegetation communities and increases may produce a legacy effect (Larson et al., 2001). Soil water holding capacity, drainage class, hydrological classes and depth to water table were also not factors in either model as they did not explain enough variability relative to other parameters.

Kentucky bluegrass was found across the prairie landscape in areas at moderate frequency with sparse cover and plants completing their life cycles. Sedges, soil type and slope, soil C, age of the site, and number of years since burning all contributed to explaining where KBG was found and the extent of its patches.

Kentucky bluegrass does exhibit some

traits of invasive species including high seed set and vegetative reproduction (Richardson et al., 2000), but other factors appear to be keeping KBG proportions relatively low. KBG does not appear to create monocultures outside of maintained lawns or golf courses. 

***“Surprisingly, N, size of the site, area:perimeter, and distance of the quadrat to the edge from cardinal directions other than west were not factors explaining presence or proportion of KBG at these tallgrass prairies.”***

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# STUDENT ARTICLE

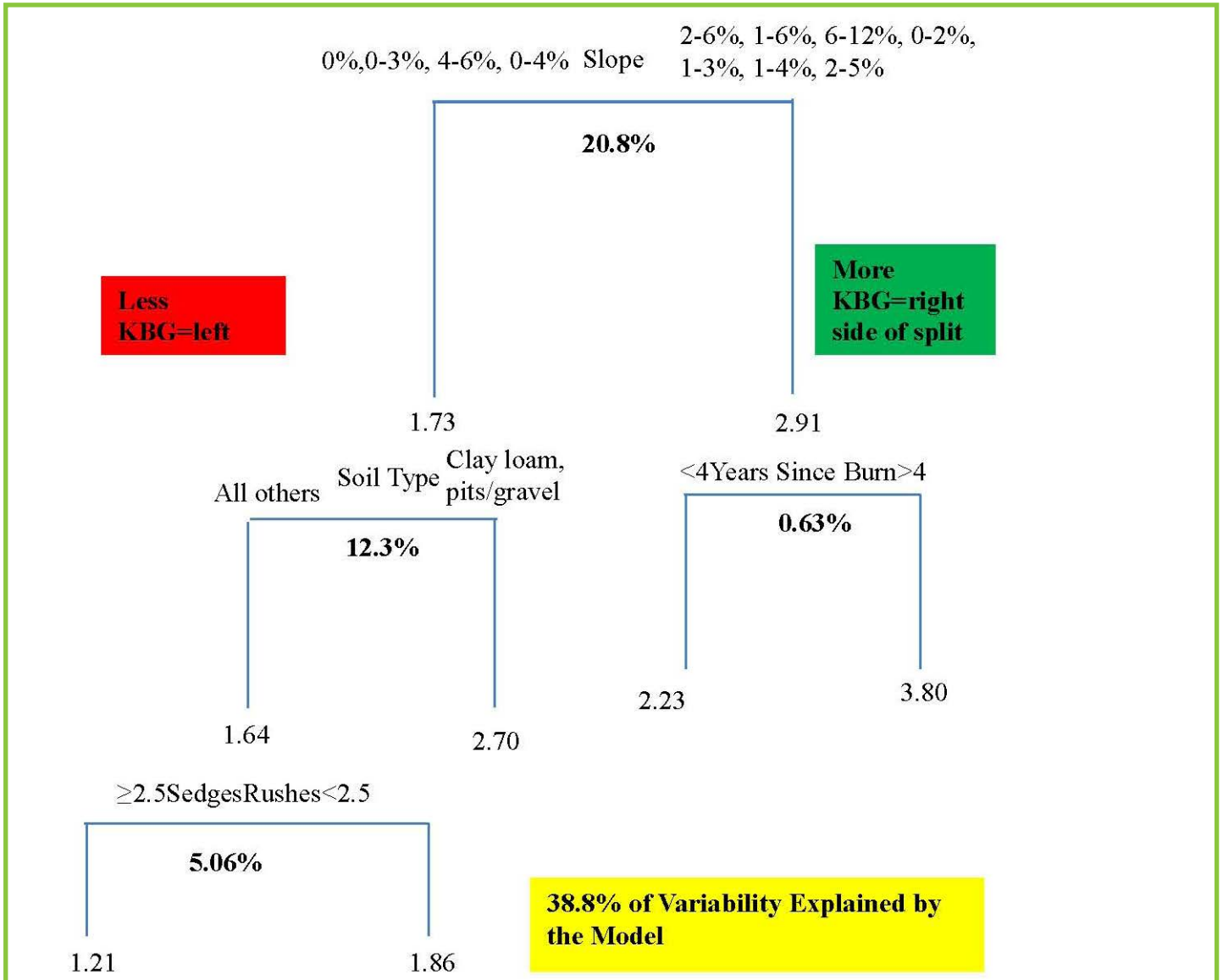


Figure 3: Regression tree model explaining the proportion of Kentucky bluegrass (KBG) in remnant tallgrass prairies of the Upper Midwest. Lower proportion of KBG is sorted to the left. Plant cover (i.e. sedges/rushes) was based on the Daubenmire cover class system. Soil types (WSS Soil Type, from Soil Survey Staff, Web Soil Survey) for “all others”: silt loam, silty clay loam, sandy loam, loamy sand, muck, loamy alluvial, loam, silty clay, sand. Numbers at terminal nodes indicate proportion of KBG as determined by Daubenmire cover class



## News and Notes From WGCSA Members

By Matt Kinnard, Pro Turf Solutions

### Career Moves

Hidden Glen Golf Club in Cedarburg, WI has hired **Garrett Luck** as their new golf course superintendent. Garrett was most recently the golf course superintendent at North Shore Country Club in Mequon, WI since 2005. He started his golf career when he was 16 years old at Kettle Hills Golf Course working under Bob Belfield. It was very convenient for Garrett, since it was just down the road from his house.

After a couple years at Kettle Hills, Garrett decided to attend Kansas State University where he received his Bachelors Degree in Horticulture. During his first two years attending Kansas State, Garrett spent his summers working at North Shore Country Club where he would eventually become the Assistant Superintendent then Superintendent. However, before graduating college, he would work at Hallbrook Country Club and Wolf Creek Golf Club as their Assistant, both located in Kansas City.

With his new job, Garrett and his family were fortunate not to have to move. His wife, Ann, daughter, Taylor, and son, Caden, were all happy about that. In his spare time, Garrett coaches freshman basketball at Wisconsin Lutheran High School. With only four years under his belt as coach, his freshman class won the state championship last year. Congratulations Garrett on all your success!

**Rob Nixon** accepted the position of golf course Superintendent at Koshkonong Golf Club in Fort Atkinson earlier this year. Rob graduated from Southern Illinois University in 2001 with a degree in Plant and Soil Science. Before college, Rob started working at Arlington Lakes Golf Club in Arlington Heights, IL while in high school. He did his first internship at the Jack Nicklaus designed course, Wynstone Golf Club, in Barrington, IL then a second internship at Country Club of the Rockies in Vail, CO. From there, Rob went on to become the Assistant Superintendent at Bull Valley Golf Club in Woodstock, IL for three years. His first Superintendent position came to him in 2008 at Rock River Hills in Horicon, WI. Rob was the Superintendent at RRH for six years.

Rob said, 'I enjoyed golf and the work I was doing and realized I could go to school for it. It was a no brainer!' Besides work, Rob enjoys jet skiing, boating and listening to live music. Congratulations Rob!

Earlier this spring Kenosha County hired **Rich Heinisch** for the Superintendent position at the 45-hole track, Brightondale Links Golf Course. Rich started working for Kenosha County in 1982 working in various departments within the county. He found a home at Brightondale in 1991 as the Irrigation Technician and eventually became the Assistant Superintendent in 1998. Rich has been married to his wife of 29 years, Sherri, and they have an English Cocker Spaniel. In his spare time Rich enjoys fishing and hunting. Congratulations Rich!



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# BADGER STATE TURF CLIPPINGS

Bristol Oaks Golf Club in Kenosha recently hired **Andy Bentley** as their new golf course superintendent. Andy has worked at New Berlin Hills and Geneva National. Most recently he was the Assistant Superintendent at Hawks View Golf Club in Lake Geneva. He has been married to his wife Staci for ten years. When he's not at work, Andy enjoys running, golfing and watching sports. Congratulations Andy!

Ozaukee Country Club Superintendent, Brett Hosler, hired **Bryan Fenney** as the new Assistant Superintendent at the Mequon club. Bryan's first golf course job was with Erin Hills at the age of 14. Bryan worked on the Erin Hills crew for a total of seven years. From 2011-2012 he held an intern position there and helped prepare for the US Amateur. He then went on to become an Assistant Superintendent at Geneva National. Bryan graduated from UW-Madison in 2013 with a Bachelor of Science Degree in Soil Science. Congratulations Bryan!

### Birth Announcements

**Mike Bremmer** and his wife, Emily, added a new member to their family. Sarah Grace Marie was born on August 21 at 6 lbs, 8 oz. Mike is the Superintendent at The Wisconsin Club in Milwaukee. He said, "Big brother, James, has stepped into his role very well and is already letting his Mom and Dad know when his sister needs something. He is a very proud big brother!" Congratulations Mike and Emily

Please call or email me with any significant news or happenings around the state so we can spread the good news. I can be reached at [matt@pro-turfsolutions.com](mailto:matt@pro-turfsolutions.com) or (262) 720-0251



**Kristopher Pinkerton** harvested this 420 lb male black bear just west of Iron River. It took 7 years for Pinkerton to draw a tag and he shot this bear on day two of the hunt with his friend Greg Stratz.

This one was shot with a Remington .260 rifle and next time Kris hopes to use his Hoyt compound bow.

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## 94th State Open At The Bull At Pinhurst Farms By David Brandenburg, Golf Course Manager, Rolling Meadows Golf Course

The 418 acre Pinehurst Farms existed for over 150 years in Sheboygan Falls. Started by the Giddings family and purchased by the Reiss family in 1910 with a goal to create a showplace of agriculture. The farm was known for its Grand Champion caliber Holstein cattle.

In 1950 the farm was purchased by Reiss's grandsons Peter and David Bachmann Sr. with David becoming the sole owner in 1955 continuing with Holstein breeding and exporting.

A barn fire in 1993 marked the end of Pinehurst as a dairy farm and increased the dream of creating a championship golf course on the property. Construction on The Bull at Pinehurst Farms started in August of 2000 with and opened for play in 2003. Each of the holes of the Jack Nicklaus layout is named after a bull bred by the farm with its own unique story.

The course is currently ranked as the 77th Public Golf Course in America by Golf Digest and has hosted many previous events including the State Amateur, State Match Play and State Senior Open.

The course is set on over 400 acres of hardwoods, wetlands and is crossed by the Onion River and a 40 foot ravine. The course features 5 sets of tees with the back (Bull) tees playing 7,354 yards with a slope of 147 and rating of 76.3.

Pat Shaw has been the Golf Course Superintendent at The Bull since 2007 and is no stranger to high profile operations after hosting the Great Milwaukee Open from 1987-1993 at Tuckaway Country Club.

Shaw started in golf as a caddie at Oconomowoc Country Club at age 12 before joining the golf course maintenance staff under the tutelage of superintendent Harvey Miller at age 15. After high school Pat went to Carroll College and graduated in 1982 with a degrees in math and physics.



**Above: Hole 15 called Landmark plays 180 yards**

**Middle: Hole 10 called Renaissance plays 469 yards**

**Bottom: Hole 9 called Dynasty plays 454 yards**



### **2014 Wisconsin State Open Qualifying Sites and Host Superintendents**

**The Legend At Bergamont – Jered Kamin**

**Greenwood Hills CC – Scott Sann, CGCS**

**Mascoutin GC – Bruce Livingston, CGCS**

**La Crosse CC – Jack Tripp, CGCS**

**Racine CC – Mike Handrich, CGCS**

**River Club of Mequon – Gerald Panella**

**Chenequa CC – James Shaw**





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## Member 9 With Pat Shaw

1. **First Vehicle?** 1964 Chevy – Biscayne
2. **Favorite Piece of Golf Course Equipment?** Fairway mower, nothing better than putting on a pair of headphones and kicking back to mow grass for three or four hours.
3. **18 Hole Handicap?** 14
4. **Current Vehicle?** 2000 GMC Sierra with 120,000 miles.
5. **Favorite TV Show?** Modern Family, NCIS
6. **Favorite Pro Sports Team?** Green Bay Packers – Is there any other professional team?
7. **Favorite Main Course Meal?** A good pot roast and mashed potatoes. No veggies.
8. **Pets?** Golden Retriever – best pet I have ever had.
9. **Favorite Thing About Working In Golf Industry?** Sunrise – getting out early in the mornings and seeing the sunrise, all the wildlife and just the solitude of nature.



Top Left: Pot Bunker on the Par 5 13th Hole  
Top Right: Deep bunkers protect the green on hole 12.  
Bottom Right: Mowers on Hole 18 the 485 Yard Par 4  
Bottom Left: The Bull has a number of boardwalk type bridges over the river and wetlands.







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# COVER STORY


In 1983 Pat started a masters program at UW-Milwaukee before being called by a desire to be outside. Pat went to work for his brother Jim at Chenequa County Club for three years before being hired as superintendent at Muskego Lakes CC. In 1997 Pat went to Tuckaway Country Club where he stayed until he went to build The Bog in Cedarburg in 1994.

Shaw stated when I saw him on the course that every property has its challenges and The Bull is no different. The size of the property alone makes getting around difficult but the 8 bridge crossings add to the challenge.

The beautiful Nicklaus design offers steep hills and bunkering to add quite a bit of hand labor while the Onion River has a mind of its own as it crosses the golf course.

The Bull hosted The 94th Wisconsin State Open August 18, 19 and 20 with 156 competitors trying to make the 36 hole cut. The top 60 players and ties move on the play 36 holes on the third day of play to declare the champion.

In 2014 Ryan Helminen shot a final round 67 to finish 9 under par for the 72 holes and win the open by one shot over two time champion Dan Woltman. Helminen who serves as the teaching professional at Ridgeway Country Club in Neenah also won in 2008 and has been in the top 3 three times since 2006.

Congratulations Pat and your staff and the entire operation at The Bull for a successful tournament. 



**Top Left: A deer jumps the fence on Par 4 11th Hole**

**Top Right: Hole 16 plays 422 yards to a well protected green.**

**Bottom Right: Hole 6 plays 193 yards over a ravine.**

**Bottom Left: The Open Flag**

## **Future Wisconsin**

### **State Open Sites**

- 2015 University Ridge GC, Verona,
- 2016 Blackwolf Run, Kohler
- 2017 North Shore CC, Mequon
- 2018 North Shore GC, Menasha