



Late afternoon view from behind the par 5, 14th green on the hole named "Ocala Trail." Photo by Brian Walters

The Juliette Falls Golf Course: TREASURE AT THE END OF THE RAINBOW

The Juliette Falls Golf Course is located in the rolling countryside near the city of Dunnellon in Marion County just off State Road 40 and very near the headsprings of the Rainbow River. While the course is relatively new on history's timeline (it opened in 2007), the land on which it sits began to write its recent history back in the 1880s when hard rock phosphate was discovered in the area.

The town of Juliette sprang up and, as a result of the phosphate mining, farming and the popularity of the springs and river, it became a booming community. However, archeological evidence indicates

that the waters of the Rainbow River have attracted and sustained human inhabitants for more than 10,000 years.

I have been to the Juliette Falls course a couple of times over the years, attending Seven Rivers Chapter meetings and their annual Toys for Tots Christmas Tournament. I can't think of the name Juliette without thinking of Shakespeare's play, "Romeo and Juliette!" Back in the 1880s they must have been thinking the same thing as a nearby cattle-raising community called Romeo was founded! Railroads from the two towns intersected at what is now the golf course's driving

range tee area, and Romeo and Juliette got together a couple of times a month to trade beef and vegetables.

In the 1930s Rainbow Springs began to develop as a tourist attraction and hit its prime time in the 1960s. During that era activity increased to include glass-bottomed boat rides, riverboat cruises, log raft rides, a gift shop and café, an aviary, gondola and monorail rides, a rodeo and submarine boat tours. The attraction closed in 1974 when tourists began using I-75 instead of U.S. Highway 41 and an attraction called Disney World opened. The state purchased the area that was

SUPERINTENDENT FACTS



Steve Keller. Photo by Joel Jackson.

Meet Steve Keller

Originally from: Born in Cheboygan, MI. I grew up in Charlevoix, MI

Family: Wife Tina. Sons: Taylor (20) and John (19) and our dog Samson.

Education: 1985, graduated with an associate's degree in the two-year turf program at Michigan State University

Employment history: 1977-1983 Crewmember at Belvedere GC, Charlevoix, MI, 1984-1987. Florida: Assistant Superintendent Pine Tree GC, Boynton Beach; 1987-1989 Superintendent Deerfield Beach GC, Deerfield Beach; 1989-1995 Assistant at Seminole GC, Juno Beach; 1995-2000 Superintendent, The Moorings Club, Vero Beach. 2000-2003 Superintendent, Berkeley Hall GC, Bluffton, SC; 2003-2006 Superintendent, Isleworth G&CC, Windermere; 2006-present Superintendent, Juliette Falls, Dunnellon.

Professional affiliations: Member of the FTGA, GCSAA, FGCSA and Seven Rivers GCSA. Served as board member and vice president of the Treasure Coast GCSA in 2000.

Goals: To keep working to help brand and develop Juliette Falls as a golf destination and a successful residential community.

Personal philosophy of work: The golf course turf doesn't know about weekends or holidays. Be willing to invest the time and effort to present the best product at all times. Also, be very proactive in communicating up and down the chain of command to avoid any misunderstanding of conditions, challenges and needed support.

Personal memorable moments: Playing one of our rounds of golf in Scotland with Tony Jacklin. I have been most fortunate to be able to play most of the British Open venues.

Hobbies and Interests: Normal stuff – fishing, hunting and making golf trips to Top 100 courses.

formerly the attraction in 1990 and volunteers began clearing the overgrown park and the 1,459-acre Rainbow Springs State Park opened in 1995.

Today on the Juliette Falls course there are reminders of the area's past. To the right of the eighth green a huge daunting foliage-filled cavity (think small canyon) that is the vestige of the phosphate-mining days. It is an imposing hazard for wayward golf shots. In the woods to the left of the twelfth tee are the remnants of a cattle chute and corral fence that once housed bulls raised for the Rainbow Springs Rodeo attraction. That's a quick look at the history of the area, now let's talk about what's happening now!

The concept of Juliette Falls Golf and Spa Community was that of a leisure lifestyle near enough to conveniences but far enough away to be a tranquil and relaxing place to live and play. The only problem was that soon after opening its doors the bottom fell out of the economy and, like many developments of that time, it had to hunker down and move along at a slower pace than anticipated.

The property has a couple of things going for it. First, the

owner, Ron Clapper is an avid golfer so he works with superintendent Steve Keller to provide enough resources to keep the course in good shape. Equally important is the John Sanford-designed course itself! *Golf Magazine* recognized the course as one of its “Top 10 New Golf Courses You Can Play” and *Golf Digest* named it among the “Top 5 New Courses in 2008.” Additionally, the course is a certified Audubon International Silver Sanctuary.

That designation plays a large role in Keller’s environmentally friendly maintenance practices.

As we toured the golf course, Keller spoke about specific challenges of the site and the budget-conscious modifications he has made to standard maintenance practices. He said, “The universal challenge we have here is the very sandy soil profile, which is great for drainage and playability after heavy rains, but can be a real challenge during dry spells. The soil here is called the “Candler Sand” which is a state geologic formation designation. As a result, we are on a constant “spot” or hand-watering program when it gets dry. We also have amended our greens with Profile® to help retain moisture in the rootzone.

“The sandy soils also are a haven for nematodes and, as they feed on the roots, it adds to the desiccation of the turf canopy. We apply Neotec® to control any serious nematode outbreaks, but we also found that the Profile® seemed to help reduce their populations.”

Because Juliette Falls, like many courses – and the whole golf industry – is working its way through the nationwide economic slowdown, Keller shared some of the site-specific changes he’s made to conventional maintenance practices.

He said, “We have tried diligently to modify our practices to reduce costs without sacrificing overall quality and playability. When the recession hit in 2008, many courses cut back on fertilizer and chemical applications and labor hours out of necessity. We have tried to adjust those cutbacks to become standard operating procedure, which takes diligent monitoring of plant health, but it can be done. This is when you really need to understand your course’s microclimate, soil and water content and chemistry, and the turf’s response to changes.”

“People may not realize how cold we get here. Last year we recorded 23 frosts, and we have had as many as 40 in past winters. We have seen freezing temperatures lasting five to six hours at a time. Fifteen degrees is the coldest I have recorded. When we first opened we mowed fairways three to four times per week like most courses with overseeding. Once we stopped overseeding fairways we found the extended “no-or-slow” growth conditions allowed us to reduce mowing frequency in the cool season by almost 75 percent.”

“The same was true on the greens. We monitored clippings yield and noticed we cut very little turf. Greens

KELLER FUN FACTS



I stay home to watch:

I’m a channel surfer flipping among sports, news and sitcoms

Favorite performers:

I like all kinds. My first and best concert was The Police in the 80’s

What I’ve been reading:

Florida history and sports psychology books

Raise your hand if you too have landed an albino catfish while fishing in a golf course lake. Photo by Steve Keller.

Favorite meal:

Cedarplank grilled salmon

Personal heroes: My parents. They taught me a solid work ethic and responsibility

Nobody knows that I: Have played 25 of *Golf Digest’s* Top 100 courses

If I could do it over: I would have invested in Apple stock 20 years ago

My fantasy is: To bring Juliette Falls into the mainstream and see it become a hugely successful residential golf community

The one thing I can’t stand: People I can’t trust

If I could change one thing about myself:

Be more assertive

My most irrational act: It had to be something in my youth like taking my younger siblings on perhaps “unauthorized” car and motorcycle joy rides

Most humbling experience: Loss of a close personal friend

The words that best describe me: Determined, serious, follows through

My dream foursome would be: Ron Clapper, George Elliott, Hal Hicks and Tom Watson

My best fish story: Caught a 24 lb. salmon on Lake Michigan when I was 11. My dad told everyone it was the largest one he had ever seen caught.

My most memorable golf shots: Two holes in one. Seminole GC 5th hole, 185 yards, 5-iron, and, Juliette Falls 3rd hole, 222 yards, 3-wood. The most nerve-racking tee shot I ever faced was the par 3, 17th at TPC!



Dawning of the day on the “Viking Challenge” 18th hole. Photo by Brian Walters

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mowers would often report only dumping once after mowing their six-green zone. So, we cut back on frequency during the cooler season. Beginning in November, rolled greens three to four times per week and only mowed two or three times, depending on the weather. If it's over 39 degrees and we need to clean up spike marks, we will mow.

"I took this reduced mowing frequency concept to the warm season as well, and by managing nutrients, irrigation and weather, we found we could back off overall mowing frequency. Less cutting means more leaf blade surface and more efficient nutrient use and overall plant health, enough to help the bottom line without affecting member expectations."

"Nutrient management was another area of significant savings. We now apply a little less than three pounds of nitrogen per year on the fairways and just a little over five pounds of nitrogen on the greens." Keller uses a spray program to apply most of the nutrients. He said that they have not made a bulk application in several years. He added, "For the past three years, I have been using the Pathway® program, which consists of spraying microbial products on our greens weekly and our fairways monthly as part of our nutrient spray program. And I feel that it has helped fix the nitrogen in the soil, making it available for longer periods of time, thus enabling us to reduce over totals and frequency.

"We have also recently reduced our overall water consumption. We have gone from 106 million gallons in 2010 down to 80 million in 2012. We have achieved this reduction by reducing turf area and

cutting off some heads in out-of-play areas and creating native areas. I also believe the fertilizer reductions have enabled us to cut back on overall run times by promoting deeper and healthier root systems. Keeping golfer expectations in mind to aid turf density and balance in loss in color, we apply Primo weekly on the greens and spray pigments on the greens weekly, tees biweekly and fairways monthly."

"Using this overall effective-but-conservative approach has created a few problems in high-traffic areas along cart paths. Turf damage along paths is normal wear and tear and sometimes difficult to control no matter what, but the effect can be magnified with reduced inputs. So, when the budget allows, we focus on these problem areas, giving them a little more TLC with extra fertilizer, soil amendments and installing some hardier Celebration® bermudagrass."

Keller's cultural programs are not so much different from most other courses. The course closes nine days during the slower summer season. They solid-tine and verticut greens, tees and fairways in three days in June and July and they core-aerify and verticut in August. They also do eight solid-tine aerifications the rest of the year when they are open.

In the pest-management department, Keller said, "Sean Plummer, my assistant, is spot-spraying almost daily including wood lines and out-of-play areas to control weeds. In May and June we apply Merit® and Talstar® to most areas. We get good control of worms, mole crickets and fire ants. We also spot-treat known fire ant hotspots with Award® fire ant bait.

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“Because of our naturally phosphorus-rich soils, I also use a bio-amp (microbe enhancing) product called Eco-bionics® in our lakes and ponds to help digest nutrients, bottom sludge and algae.”

Keller re-emphasized that many of these programs are very site-specific. The point is that during these challenging times for golf course budgets, there are some creative ways to help out the bottom line if you and the owners and members are willing to make a few changes.

Steve Keller got into the golf business by geographical proximity. In 1974, when he was nine years old, Keller’s father bought some property next door to the semi-private, Belvedere Golf Club in Charlevoix, Michigan. Keller and his brothers helped clear the five-acre parcel, pick up stones and grass and landscape the property.

When he got older, he got a job on the course in golf operations, tending carts, picking the range, working in the pro shop and, in fact, was planning to go to PGM School at Ferris State College. As he got closer to the game and out on the course, he found his true calling and ended up getting his two-year turf management degree from Michigan State.

Keller started the Florida chapter in his career in 1984 at the historic Pine



Close up of the 18th green showing a few of the waterfalls on the course. Photo by Joel Jackson

Tree Golf Club in Boynton Beach, and methodically worked his way up the coast to Vero Beach before jumping all the way up to Bluffton, SC to work the construction, grow-in and opening of the Berkeley Hall course in 2000. He returned to Florida for a three-year stint at my old alma mater, the Isleworth Country Club near Orlando. Since 2006 he has been at Juliette Falls, where his sons Taylor and Johnny both enrolled at Central Florida Community College and also work on the course.

While Keller’s maintenance programs may have had a strong economic

driver, they are also environmentally friendly due to the reduced inputs. In the current trend of local regulations on fertilizers, Keller’s actions and results speak louder than mere words.

Keller told me soon after my visit that he would be attending a Marion County Springs Basin Working Group meeting over regional water quality concerns. He can matter-of-factly point to his programs, where he can demonstrate how the Juliette Falls Golf Course values their environmental treasure at the end of the Rainbow!



The 15th hole, called “Meadow View.” Native/waste areas are also in play on holes 2, 3, 9, 11, & 14. Photo by Brian Walters

Location: Dunnellon

Number of Holes: 18 holes
Yardage: 7,236 yards
Par: 72 Slope & Rating: 75.4/143

Ownership: Ron Clapper

Playing Policy: Public with memberships available.

Average rounds per year: 40,000.

Designed by: John Sanford.

Opened: October 17, 2007

Management Team: Club President Ron Clapper, Head Golf Professional Travis Daniels, PGA Professional and Golf Course Superintendent Steve Keller

Special and Ongoing Projects: Reducing out-of-play irrigated turf areas and installing native lovegrass plants. They do best when irrigation oversprays those areas. We just finished planting 2000 aquatic plants along shorelines. A company call Lake and Wetland is helping us with weeding and littoral shelf plantings.

Acreeage under maintenance: 120.

Greens: Turf Type: Jones Dwarf
Average size 6,500 sq.ft. Acres: 4
Height of Cut: .110 to .125 inches. Raise HOC after first frost. Overseeding: none. Green speed goals: 10.0

Tees: Turf Type: Jones Dwarf. Acres: 4.0. HOC: .400". Overseeding: None.

Fairways: Turf Type: Tifway 419.
Total acres: 30. HOC: .500-.700
(Higher HOC during periods of stress. Overseeding: None.

Roughs: Total acres: 60. HOC: 1.50 – 2.0". Overseeding: None

Bunkers: Number of bunkers 70. Sand type: G-Angle from Golf Agronomics Supply and Handling. (One of the first courses to use G-Angle sand.) Mostly

JULIETTE FALLS



Juliette Falls Maintenance Staff.

machine raked with hand raking as needed. Equipment: Toro Sand Pros
Naturalized/Native areas/beds: 18+ acres of native grasses. 5 acres of crushed coquina waste areas that also double as cart paths. Waste area in play on holes 2, 3, 9, 11, 14 & 15.

Waterways/Lakes/Ponds: Five lakes covering 4 acres surface area. How maintained? We brew 2 gallons of microbes daily (BioAmp) and disperse in lakes to digest any nitrates, sludge or other organic matter buildup. Watering Restrictions: Allocation amounts via annual consumptive use permit from SWFWMD and any additional emergency drought restrictions when they are in effect.

Irrigation: Source: Well water. Pumps: 2 – 75 hp pumps and a 20 hp jockey pump with a Flowtronex control panel. Irrigation Controller: Rainbird Nimbus II. Number of heads: 752. Spacing: 90 ft. Water Restrictions: None currently in effect.

Water Management/Conservation practices: Injected 150 tons of the moisture retention product, Profile® via the Dry-Ject method in greens, tees and approaches for a total of 12 acres. We have seen a 15-20 percent reduction of water use in these areas. We have also taken the driving-range field out of irrigation,

which has saved 10 million gallons annually. Remove heads in of out-of-play areas and convert turf to native areas.

Staff: 14 full-time crewmembers. Schedule: 40 hours straight time. During winter months, we can have up to 40 frosts per season and the crew will trim trees and clean

up native grass areas when we don't need to mow. Two of the staff work full time taking care of the clubhouse grounds, driving range tee area, community common areas and residential homes.

Key Staff: Assistant Sean Plummer; Head Equipment Tech Tom Reynolds, (aka "Bones," has been with me since 2003 at Isleworth); Pest Control Tech Jesse Ayotte; Irrigation Tech Lucio Salgado. Pedro Ramirez and Sergio Hernandez have been with me for ten years. They have done everything on the course for us except spray. Both of my sons Taylor (20) and Johnny (19) have worked on the course since 2006.

Meetings: Monthly crew safety and company update meetings and daily assignment meetings. I am copied on the weekly Food & Beverage meetings at the clubhouse so we know what's happening with special events. We recycle aluminum cans quarterly and use the money for pizza parties and barbecues to express our appreciation of our employee's efforts.

Wildlife Inventory: As of July 2009, Juliette Falls is a Certified Audubon Silver Sanctuary. We have lots of wildlife including: Wild Turkey, White-tailed deer, coyotes, fox, gopher tortoises, fox squirrels, bald eagles, ospreys, kites, waterfowl and songbirds.

Top: Photo by Brian Walters