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Perspective

In the fast paced, pressure filled world we live in its easy to get caught up in our own individuality. The responsibilities of being an adult, a manager, a spouse or a parent can and should be the driving force behind our decisions and actions. It is easy to list those responsibilities and live our lives and feel good about our contributions to the lives of those around us. There are many among us who find the time and energy to expand those responsibilities, never seek recognition for their efforts and come away from their efforts with a greater sense of satisfaction than many might realize. These efforts come in many forms and can be as simple as holding a door for someone in a wheelchair or as complex as leading a volunteer activity in their community. Supporting school activities, donating blood, supporting the activities of our faith or working in the community at any level all show a commitment to more than you and should be applauded and celebrated.

My journey of support started 10 years ago with of all things a motorcycle trip to Sturgis, South Dakota. In a chance meeting my wife and I met a wonderful couple from Wisconsin. Kevin and Carrie had come west to experience the motorcycle rally and for 3 days we were inseparable. It wasn't until our final day together that we found out Kevin was serving in the United States Marine Corps as a Major. We parted ways and continued to stay in contact via e-mail. Kevin was taking a position with the 1st Marine Division at Camp Pendleton. They were planning for a deployment to the Middle East in early January 2003 and our last conversation was about the trip we would take that August back to Sturgis. Kevin was killed in Iraq in March of that year.

Most, if not all of us, can point to some link in our families that tie us to the military. Our family remembers one of our own on the Vietnam Veterans Wall and we honor family at the World War II museum in New Orleans. I remember Kevin through the support of our wounded veterans. I know this is something he'd be proud of because of his great support and involvement of the Marine Corp's Toys for Tots Program.

When The PGA Tour became involved with Stonebrae Country

Club I had the great fortune to become involved with an entire network of people who believed that supporting others was the right thing to do. The PGA Tour has raised more money for charity than ALL the other professional sports combined. I leapt at the chance to be a part of Birdies for the Brave.

"Birdies for the Brave" was originally started by Phil and Amy Mickelson and has evolved in to a part of PGA Tour Charities. Since its inception in 1996 it has raised over 7 million dollars to benefit a wide range of military charities that provide support to wounded veterans, the families of soldiers killed and the families of currently deployed troops. Each of the TPC facilities throughout the country hosts an annual fundraising event and most if not all PGA Tour events now host a Military Outpost. These "outposts" provide food and beverages for attendees, recognition of the sacrifices military families make on our behalf and in many cases provide communication links so families can communicate with their loved ones deployed overseas. Our event invites active duty and wounded military personnel to play with each paid foursome. In some cases these have included people that have never even played. It makes for a great day of fun, support and camaraderie. My involvement with this program has been so gratifying. While it has allowed me to keep the memory of a friend alive in my work it has, more importantly, exposed me to some of the most amazing young men and women this country has to offer. The dedication and energy I have seen in those currently serving helps to motivate me to do my best. Meeting wounded veterans and seeing their love of life and their desire to continue making positive contributions is inspiring and has made the word perspective a much greater part of each day. Working with retired veterans still serving to support their comrades in arms shows their dedication to the commitment they made many years ago for all of us. For more information on Birdies for the Brave please go to <http://www.birdiesforthebrave>. Each of the benefitting foundations is listed. Perhaps there is one that strikes a nerve with you. Perhaps a visit only serves to reinforce the benefits to the efforts you currently make. Either way remember how important it is to make a difference.

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SUPERINTENDENT PROFILE



Name: Josh Clevenger
Employer: Claremont Country Club
Position: Golf Course Superintendent
Years in the Business: 12
Previous Employment: Sonoma Golf Club, Metropolitan Golf Links
Education: Merritt College; Oakland, CA
 Two Year Degrees: Landscape Horticulture and Turfgrass and Parks Management

Other Organizations: GCSAA, PAPA

Family: Wife Jill, two kids: Jonas (4) and Ivy (2)

What was the first car you ever owned?

1977 GMC Step Side 4x4 pickup.

How fast did you drive it? As fast as it would go.

What is your favorite band? I'm into many different types of music and artists but if I had to pick one band...the Cramps.

How did you get into the business?

I started at Northgate Golf Club in Reno, NV—did course set up and ran a weedeater for the entire 8 months and I was hooked!

Please list your fantasy foursome:

Grandfather, Father, myself and my son.

What is #1 on your bucket list?

A family vacation with wife and kids.

What's the best bit of professional advice ever tossed your way? Spend the club's money like it's your money.

What accomplishment are you most proud of?

Completing a successful grow-in project while going to school.

Favorite course to play: Sonoma Golf Club

iPod top 5: No iPod yet...still play records any chance I get.

What's your favorite vacation spot? Mexico

Name your top superintendent influences:

Tim Powers, Gary Ingram, Mat Dunmyer, Stacy Wallace, Jason Goss, Mike Kosak, Randy Gai, Dave Wilber

Lowest score you ever shot and course: 78 at Sonoma GC.

The most rewarding thing in your job is: Whether with the staff or on the golf course, I really enjoy seeing the little things pay off.

If you weren't in the business of growing grass what would you be doing? Playing drums in a fledgling Stray Cats tribute band.

What's in your garage? Lots of Junk.

What's in your closet at home? Junk that has yet to be promoted to the garage.

Worst place you have ever slept? Backstage at the Warfield in San Francisco.

Stupidest thing your wife has asked you to do?

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The following article was originally published in the September 2011 issue of GCM
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The worm turns: earthworm cast reduction on golf courses

A byproduct of the tea tree may provide an organic solution to a long-standing and vexing problem faced by golf course superintendents.



“The 12th green has been infested with thousands and thousands of earthworms. The worm castings were so prolific that mowing was not possible without dispersing them. ... The turf was extremely shallow-rooted and about 60% of the bentgrass on the green had died. What can clubs with (excessive) earthworm casts do to overcome this problem?”

— USGA Green Section Senior Agronomist’s email to D. Potter

Excessive earthworm casts — small mounds of soil-rich fecal matter — are a worldwide problem on golf courses and sports fields when they disrupt the playability, aesthetics and maintenance of playing surfaces (8,13). A single worm can produce its own weight in casts in 24 hours. In Great Britain, estimates of the quantity of earthworm casts deposited on the surface range from 16 to 20 tons per acre [40-50 tons/hectare] per year on sports turf pitches, and more than 2 tons per year on a typical 5,000-square-foot [465-square-meter] push-up golf green (8).

Casts adversely affect ball roll and muddy and smother the grass when smeared or compacted by tires or foot traffic so that golfers find themselves

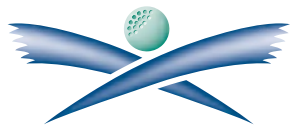
playing on surfaces that are more mud than turf. Compacted earthworm casts reduce water infiltration and provide ideal seedbed conditions for weed establishment. Casts also blunt mower blades set at low cutting heights, and they may be so numerous that putting greens cannot be mowed without first physically dispersing them. Earthworm casts on the surface of greens and tees may also affect players’ perceptions of course quality. In 2009 the Sports Turf Research Institute received more queries about earthworms than any other turf management problem.

Earthworms play a vital role in natural and managed grasslands where they literally plow the soil by burrowing through it (7). Earthworm tunnels reduce soil compaction and provide passageways through which air and water can percolate, enhancing penetration and growth of plant roots. Earthworm feeding activity stimulates microbial decomposition of grass clippings and thatch and accelerates nutrient recycling (12). An acre of turf can support more than a quarter of a million earthworms that collectively eat 4 tons of clippings and other plant debris, and turn over 15 tons of topsoil. A moderate level of earthworm activity,



Dry earthworm castings on a push-up creeping bentgrass green. Photos by D. Potter

Daniel A. Potter, Ph.D.
Carl T. Redmond, Ph.D.
David W. Williams, Ph.D.



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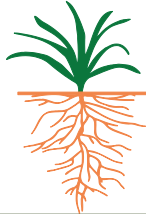
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therefore, is beneficial — even on fairways.

Excessive earthworm populations can cause serious problems beyond golf and sports turf. Hardwood forests in North America and other parts of the world are threatened by invasive earthworm species that consume too much of the leaf litter on the forest floor, robbing tree seedlings of nutrients and disrupting forest regeneration and other processes (16). Likewise, excessive earthworm populations adjacent to airport runways attract flocks of feeding birds that pose significant risk to aircraft during takeoffs, approaches and landings (13).

Earthworm biology 101

Only certain earthworm species produce surface casts. All of the casting problems on U.S. and Canadian golf courses appear to be caused by a small number of invasive (non-native) species of European origin, especially *Apporectodea* species, familiar medium-sized (2–3-inch [5.1–7.6-centimeter]) worms that form horizontal burrows in the topsoil, and the larger nightcrawler (*Lumbricus terrestris*) that makes deep (3–6 feet, [1–2 meters]) vertical tunnels, emerging at night to feed on fresh surface litter that is pulled down into the burrow (13). *Apporectodea* species seem to predominate on fairways and greens in the eastern United States and nightcrawlers are relatively more problematic in the Pacific Northwest, but both worm types produce casts on golf courses throughout the cool-season and transitional turfgrass zones (1,13).

Earthworm casting tends to be highly seasonal, with most of the activity during cool moist periods in fall and spring. In late fall when the topsoil starts to freeze, or in summer when conditions become hot and dry, earthworms burrow deeper and enter a dormant state called aestivation (7). During aestivation, the earthworm curls up into a knot and becomes pinkish. Overwintering earthworms produce natural antifreeze in their blood. Earthworms breathe through their skin and require a moist environment to allow for respiration, but too much water (for example, after heavy rainfall) displaces oxygen dissolved in the soil, forcing earthworms to the surface where they may be quickly killed by exposure to sunlight.

Reproduction

Earthworms are hermaphrodites, that is, each individual has both male and female reproductive organs (7), and most earthworms require a mate of the same species to reproduce. After mating,



each worm deposits one or more capsules containing the fertilized eggs, and one or two fully formed tiny worms will emerge from each capsule. Although each worm may mate and lay eggs several times each year, a single worm may produce only 10–15 offspring annually. The time required for the young to reach full size and sexual maturity varies from about a month to as long as a year, depending on the species and environmental conditions.

Earthworm management

Early turf culture evolved in rainy Great Britain where earthworms are very abundant, so controlling earthworms and casts has long been a concern of golf course superintendents and sports field managers in the U.K. Rolling was the main management practice before 1890, but it had negative effects in terms of soil compaction. Two other main approaches evolved, one based on cultural control and the other on chemical control using pesticides or expellants (8).

Cultural controls

Cultural controls, including use of soil-acidifying fertilizers (most earthworm species are intolerant of acidic soils), clipping removal to reduce earthworms' food resources, or topdressing with angular sands or abrasive aggregates will sometimes reduce casting (1,2,17). However, those methods rarely are effective enough to be relied on by superintendents. Indeed, an extensive study done on golf course fairways in Washington state (1) indicated that "clipping removal, soil acidity, and sand topdressing had no consistent effects on castings deposited on the turfgrass surface by *Lumbricus terrestris* earthworms." Earthworms

Earthworm castings can muddy the turf and interfere with ball roll and play.