

BRIEFS



WILLIAM DANIEL CENTER DEDICATED

WEST LAFAYETTE, Ind. — More than 200 Purdue alumni, friends of the Purdue Turf Program and Daniel family, and industry leaders attended the dedication of the Wm. H. Daniel Turfgrass Research and Diagnostic



Center on July 26. The center is a 22-acre research facility on the edge of Purdue University, adjacent to Kampen Golf Course.

It features research projects on many aspects of lawn, sports, and golf turf and a state-of-the-art educational facility complete with classrooms and labs. The Daniel Center is named in memory of Dr. Bill Daniel, long-time Purdue professor and one of the pioneers in the turf industry.

PA. TURF COUNCIL DONATES \$175K

COLLEGE STATION, Pa. — The Pennsylvania Turfgrass Council has allocated \$175,000 to support the turfgrass science program in Pennsylvania State University's College of Agricultural Sciences. The council designated its support for agronomy, entomology and plant pathology. The department could use the funds for staff and research support for projects designed to solve problems relating to turfgrass pests and other cultural practices used in the turfgrass industry.

NYSTA SHOW ITS 50TH

SYRACUSE, N.Y. — The New York State Turfgrass Association (NYSTA), in cooperation with Cornell University, will celebrate its 50th year at the annual Turf & Grounds Exposition, Nov. 9-11, at the OnCenter here. The conference theme is "Committed to Excellence: Plants, People, The Environment, and You." For more information, people may call NYSTA at 800-873-8873.



N.C. STUDENTS GET SCHOLARSHIPS

CHAPEL HILL, N.C. — Seven North Carolina turf students were awarded monetary scholarships from the Turfgrass Council of North Carolina for the 1999-00 school year. North Carolina State University recipients are James Herns, Casey Reynolds and Matt Fagerness. Catawba Valley Community College recipients are Jerrett Blanton and Brian Plummer. Other recipients are Sandhills Community College's John Clevenger and Brunswick Community College's David Bullard.



Under the charge of Rob Hellstrom, right, Dundarave Golf Club was finished in one season. See story on Dundarave on page 12.



Photo by Peter Blais

Hellstrom: A man for one season

By PETER BLAIS

MONTREAL — Building a golf course in a single season is almost unheard of in snow-packed areas like Canada, the Northeast and Midwest United States. But Robbie Hellstrom, a former superintendent turned golf course consultant, may be changing those expectations.

The Montreal-based, 34-year-old owner of RJH Golf Course Management Services Inc. has turned the single-season trick at two recently built Canadian courses — Le Diable in Mt. Tremblant, Quebec, and Dundarave

Former superintendent builds courses in matter of months

Golf Course and Academy at the Brudenell River Resort on Prince Edward Island (PEI).

"Now that we've done it twice, we may have started a trend that will have to be continued," Hellstrom said.

Hellstrom's firm handles everything from course construction to golf event management. He recently coordinated the Molson's Export A Skins Game featuring John Daly, Fred Couples,

David Duval and Mike Wier at Mt. Tremblant. In addition to building and maintaining the two courses at Mt. Tremblant, he was project manager at Dundarave, the new Michael Hurdzan/Dana Fry design on PEI that opened this summer. Sugarloaf Golf Club in Carrabassett Valley, Maine, also recently hired Hellstrom as course consultant.

Hellstrom started RJH Golf Course Management Services in 1996, while still working for Intrawest, a major North American ski resort operator, at

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Bugged? Try dragonflies

By MARK LESLIE

CASCO, Maine — Superintendent Gerry White had loaded Point Sebago Golf Club with bat and bluebird houses and a purple martin hotel to fight his insect problems. So what else could be done?



ON THE GREEN

Ever hear of dragonflies? As naiads (nymphs) they prey on small aquatic invertebrates, while adults dine on midges, mosquitoes and other insects. The Audubon Society Field Guide to Insects and Spiders states: "Both naiads and adults are highly beneficial predators, destroying huge numbers of mosquitoes."



Gerry White places dragonfly naiads from a container into a pond at Point Sebago Golf Club.

Pursuing the idea planted by a golfer who observed the dragonflies naturally on his course, White set on a mission four years ago to enhance that population in the 10 ponds and various waterways of his 600-acre property. Play a round at Point Sebago today and golfers

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Digital mapping enters various course operations

By KEVIN P. CORBLEY

Unheard of on the golf course just a few years ago, digital mapping technologies are rapidly being integrated into virtually every aspect of course operations.

First, satellite-based GPS surveying was introduced to map irrigation system components, track golf car locations, and calculate yardage from player to pin. Now, superintendents are increasingly turning to another computerized map tool — known as GIS — to manage daily operations and course facilities.

Geographic information system, or GIS, technology has proven so successful at automating land and infrastructure management

FIRST OF 2 PARTS

functions in industries such as forestry, electric utilities and oil production that some firms are touting it as the future of golf course maintenance.

GroundLinkx LLC of Littleton, Colo., developer of the GroundLinkx GIS golf course management program, has formed a joint venture with IntraSearch Inc. of Denver, an aerial photography and digital mapping firm, to create fully integrated GIS software and digital map packages customized for individual golf courses. Packaged under the GroundLinkx name since 1994, the new integrated system also runs on a standard Pentium desktop computer.

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'Aerifier dolly' easily rolls around the shop

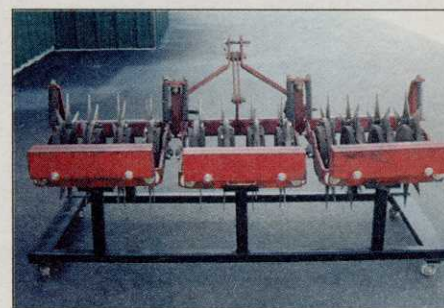
By TERRY BUCHEN

NAPLES, Fla. — Darren J. Davis, superintendent at the Olde Florida Golf Club, and equipment and shop manager Kim Ellis have designed and built an "aerifier dolly" to make their 3-point hitch-mounted aerifier much easier to move around the shop and make repairs, change aerifier tines, slicing blades, etc. without tying up tractor.



SHOP TALK

The frame and five-risers (two front;



Tractor implements can be installed on a three-point hitch easily with this mobile storage system.

three rear) are made of 2-by 2-inch by 1/4-inch square tubing. The 29-by 75-inch frame is lightweight, strong and versatile. The holder or bracket that

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Mapping expands

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"GIS has been slow to reach many industries, such as golf, for financial reasons," said David Mikes, GroundLinkx president and founder. "Recent advances in computer and software capabilities, together with falling hardware costs, have made GIS accessible to desktop computer users."

Superintendents seem to be making up for lost time. The program has already been purchased by 21 courses, including The Vintage Club in Indian Wells, Calif., Olympia Fields Country Club in Illinois, and Meadow Springs Country Club in Richland, Wash.

Earlier this year, the U.S. Golf Association contracted for systems on five courses to site manage their upcoming U.S. Open tournaments.

WHAT IS GIS?

A GIS is sometimes referred to as a "smart map" because it connects database information with features on a computerized map display. In the GroundLinkx GIS, for example, a course map appears on screen, allowing the superintendent to point and click on any course feature — such as a green, fairway or tree — and retrieve information about it.

Stored in an underlying database, this information pops up on screen in dialogue boxes. Hole number, perimeter length and area measurement are provided for two-dimensional features, while item-specific details such as species or pruning schedule are offered for trees or shrubs. Basic data is either entered during development or afterwards by the superintendent. The system calculates other information on the fly.

GroundLinkx has programmed numerous mathematical calculations into the software so a superintendent can click on a defined feature like a green or outline a portion of one to perform any of several useful functions. The system instantly calculates square footage, measures precise distances, computes sand volumes for bunkers, determines product application rates, shows how many tournament hospitality tents will fit in an assigned area and performs many other golf-specific functions.

"The programming gives 'geographic intelligence' to the GIS, allowing superintendents, course agronomists and tournament directors to work smarter, not longer," said Mikes.

MAKING A GIS MAP

Creating a digital GIS map starts with source material — a paper map, aerial photograph or GPS survey. For its early systems, GroundLinkx obtained existing air photos of courses, scanned them and then digitized them. Digitiz-

ing involves tracing feature edges on screen with the cursor and saving each as a file of point coordinates defining feature boundaries. At the same time, a database file is attached to each digital feature for input of its name, hole number and other details.

IntraSearch provides several new mapping techniques to GroundLinkx that dramatically improve the accuracy of maps and calculations. The first is

orthorectification, a computer-intensive process that removes distortion from aerial photography.

"Orthorectification improves the accuracy of the aerial photograph to 6 inches or less," said Mike Platt, president of IntraSearch, which has provided state-of-the-art mapping services for more than 50 years. "Like GIS, orthorectification was cost-prohibitive until recent computer advancements brought the pro-

duction cost down significantly."

For every GroundLinkx system ordered, IntraSearch acquires new aerial photography of the course so the GIS map will be up to date. On the ground, it obtains six to nine GPS survey points — key ingredients in the orthorectification. The result is called an orthophotograph, from which feature locations can be mapped with an accuracy of less than 1 foot.

"The beauty of orthorecti-

fication is that with less than a dozen GPS points, we can make a course map that contains more data than a costly field survey of 200,000 GPS points," said Platt. "Our entire GIS package with the map and aerial orthophoto commonly cost less than a full-course GPS survey."

However, several courses have already been surveyed with GPS, and that those surveys —

Continued on next page

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Assistant superintendents' salaries

Continued from page 1

"They are very important in the operation of the golf course and deserve the recognition for their role in assisting the superintendent," said Gerry White, head superintendent at Point Sebago Golf Club in Naples, Maine, and president of the Maine Golf Course Superintendents Association.

"I also look at it as an insur-

ance policy. Heaven forbid I'm driving down the road and a tractor trailer hits me, the operation won't fall apart because I have a quality assistant. If I leave in the middle of the season or a family emergency arises, it's the same thing. I've explained this to the owners. I've also explained the need for two [well-compensated] assistants. I'm losing my first

assistant this year and my second assistant will step up."

White knows opportunities exist for well-trained assistants to move on, even in Maine, where the mean superintendent's salary (\$46,932) is near the bottom in the country and the average assistant's salary (\$20,400) is dead last nationwide, according to GCSAA figures.

"What I'm trying to get them to do," White said, "when they leave

here is to take jobs that are at or above the average pay scale in this state. That way they help elevate the salaries of superintendents in the entire state. Both of my assistants who have left here have accepted salaries above the average. Superintendents need to educate their assistants to only take superintendent salaries that are worthy of their skills."

By not settling for less than

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Mapping expands

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as well as most other digital map data — can be integrated directly into the GIS.

"An important advantage of GIS is that you can put a lot of your existing course information right into it," said Jason Bass, president of Point Forestry Customized Inventory & Imaging Inc. of Minneapolis, developer of a forest management package now customized for golf course use.

Adding Other Mapping Techniques

GroundLinkx uses the same digitizing technique to make the GIS map from the orthophoto as from the standard air photo, but the orthophoto allows the company to take advantage of another digital mapping capability called photogrammetry.

"Photogrammetry improves the resolution of the photos four to six times," said Platt.

When IntraSearch acquires the aerial photograph of the course, it also shoots two overlapping photos from opposing viewpoints, called "stereo" photos. IntraSearch applies advanced digital processing routines to these stereo photos so they can be viewed in three dimensions.

"Three-dimensional viewing means that GroundLinkx technicians can map much smaller objects into the GIS such as pins, utility boxes, and signs during the digitizing process," said Platt. "Those small objects would just appear as smudges on a two-dimensional photo and would be impossible to map into the GIS."

This type of photogrammetric mapping is offered as an optional service to GroundLinkx clients. IntraSearch also offers a digital topographic map of the course, which is a derivative of the orthorectification process and can be integrated directly into the GroundLinkx program. Most owners purchase the topographic contours layer to use in planning new construction and to determine surface water drainage patterns on their courses.

When the GIS program is in use, the superintendent can stack various data feature layers on top of the basemap on screen. The superintendent has two display options for the basemap — either a colored line map of the course or the orthorectified air photo underlay.

"Most clients use the photo as their basemap because the photograph contains so much more visual information than a simple line drawing," said Mikesch. "Superintendents are quickly learning that digital GIS mapping offers many useful tools and benefits previously unavailable for course management and maintenance." ▶

Next month: Real-life applications of GIS and its future.



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