



After a successful start, let's continue our cooperation

By CAROL BROWNER

Enjoyment of outdoor experiences is one of the primary reasons so many Americans place high priority on protecting the environment. For more than 14 million Americans, golf provides this kind of enjoyment — and a solid connection to preserving and enhancing environmental quality.



Carol Browner

What else would one expect from an activity whose goal is literally, "The Green"?

For that reason, it is important for us to remember that the U.S. Environmental Protection Agency and the golfing community share the goal of a beautiful and healthy outdoors.

This message of cooperation and understanding is one that I conveyed three years ago, when I first wrote in *Golf Course News*. Since that time, I am proud to say that, working together, we have made a great deal of progress on our joint mission to build stronger ties, and to make them work for the benefit of both golfers and the public at large.

Let me recap some of our proudest joint accomplishments:

- The Golf Course Superintendents Association of America (GCSAA) signed on as a full partner to the EPA Pesticide Environmental Stewardship Program (PESP), while the U.S. Golf Association has become a supporting partner. GCSAA has developed a pesticide safety training course for members under a grant from PESP.

- With GCSAA's support, EPA has launched a program of fast-track registration of reduced-risk pesticides. This program is already paying off for all parties by reducing environmental risks and product development costs for registrants and making new pesticides available for users.

- Three years ago, EPA joined with environmental and golfing organizations to convene the first-ever Golf Environment Summit Conference, which was held at Pebble Beach. This commitment continued through to the following year, when a second conference was held at Pinehurst. Those conferences produced an excellent

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Carol Browner is administrator of the U.S. Environmental Protection Agency.



Photo courtesy of Audubon International

Wildlife Links begins to bear fruit

By JOHN TORSIELLO

WASHINGTON, D.C. — The firstfruits of the 3-year-old Wildlife Links program are expected this year, according to the National Fish and Wildlife Foundation, which has undertaken the program for the United States Golf Association (USGA).

Established to fund research, management and education projects to provide information on wildlife management issues on and around golf courses,

Wildlife Links is funding several ongoing studies, including preparation of manuals on bird conservation and wetlands management for golf courses, both of which are due out this year.

Meanwhile, progress is reported on a study on amphibian conservation on golf courses; restoration of pollinator habitat on and around golf courses; and a managed lands database project.

"We were funded \$100,000 by the
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Turfgrass info goes on-line

Latest NTEP study findings on site

By MARK LESLIE

BELTSVILLE, Md. — No longer will golf course superintendents need to wait month on end to see progress reports on turfgrass tests from the National Turfgrass Evaluation Program (NTEP).

NTEP is on-line, with its own home page: www.ntep.org/ntep OR hort.unl.edu/ntep.

"It makes sense that we allow people easy access to the information we have," said NTEP National Director Kevin Morris from his office here. "We can post updates, corrections, etc. much quicker than in print. It is a way to circulate information accurately and quickly."

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Michigan State's TIC full of data

The Turfgrass Information Center (TIC) at Michigan State University has announced the global debut of the Turfgrass Information File (TGIF) database online through the World Wide Web. The continuing 10 year project to provide access to turfgrass research online is now fully available through almost any computer and features easy search capability and convenient access. Over 40,000 items are searchable using more than 300,000 keywords.

For full details about TIC and TGIF, Turfgrass Information Center homepage on the Web is at: <http://www.lib.msu.edu/tgif>.

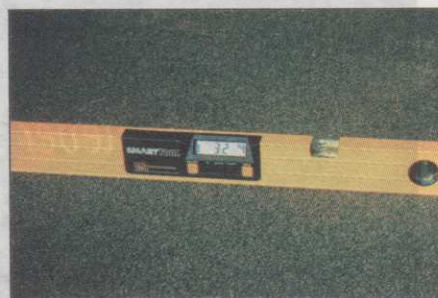
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Gadgets can make jobs more efficient

By MARK LESLIE

EDWARDS, Colo. — Some of the most effective tools for golf course superintendents are found, not at the turf equipment supplier's, but at your friendly neighborhood electronics and hardware stores.

Kevin Ross, the Country Club (CC) of the Rockies superintendent who has gained a reputation for innovations that solve problems on the golf course, told a Public Golf Forum audience they can save time — and anxiety — with a few purchases from this unlikely source. Among



Kevin Ross photo

The Smart Level at work.

the items, he numbered:

- The Smart Tool, which measures slope.
- The Pocket Secretary voice organizer.

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On being a conservator

By RON DODSON

The word "conservation" has a thrifty meaning. To conserve is to save and to protect, to leave what we ourselves enjoy in such good condition that others may also share the enjoyment. It is an expression of good manners to nature and to our fellow citizens, including those generations that have not yet been born. Why shouldn't that politeness extend beyond our own parents and offspring to our great-great grandchildren?

Only a little more than 300 years ago, the whole North American continent had been little altered by human activities. It was a temperate-zone Garden of Eden, the last of the sort that existed on earth. In the forested parts of what is now the United States, trees not only covered the ground, but they also grew to their greatest size and then continued to live until storms or lightning overthrew them, or until they died of old age. Other areas of the continent were carpeted with long prairie grasses, which served, like the forest and its undergrowth, to bind the soil and thus prevent it from being washed away by rainfall

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Taking advantage of GIS & GPS

By KEVIN P. CORBLEY

LAKEWOOD, Colo. — What good is a computerized map of a golf course, anyway?

"Ninety-five percent of golf course maps are no good at all because they're paper and they're out of date," said Larry Rodgers, president of Larry Rodgers Design here.

Computerized digital maps, on the other hand, are accurate, easy to update and gaining wider acceptance every day among golf course superintendents.

People are finding new uses for them in maintenance, construction and daily operations at courses around the country.

Digital maps would have found their way into course superinten-

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Using GIS & GPS

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dent's offices sooner or later, Rodgers said. But what brought GPS and GIS mapping technologies to his attention was the efficiency and quality they could provide his irrigation design business. He has been using these cutting-edge techniques for over a year on all design projects at new and existing courses.

"To lay in an irrigation system, we have to know exactly where the turf is — all the fairways, greens and tees — as well as the water hazards and bunkers," said Rodgers. "Invariably we had to find a way to map these ourselves or rely on outdated blueprints."

At the outset of a project, Rodgers' crew takes about three days to walk the course with a portable GPS receiver, collect-

ing position points and attribute information for all features to be mapped. They are stored in a GIS database via pentop computer in the field and then transferred to AutoCAD back at Rodgers' office where the irrigation design takes place. Once the system is designed in AutoCAD, Rodgers creates the construction document and sends it out for bids.

"The project bids seldom ex-

ceed the estimate because the design is so exact thanks to the accuracy of the GIS map upon which the design is made," said Rodgers.

And, perhaps more importantly, mistakes in the field are drastically reduced.

Construction contractors can use the same GPS and GIS equipment to go back to the field and lay the pipes and place the sprinkler heads precisely where the

design dictates. Change orders and project re-dos are reduced to less than one percent.

"Contractors do much more exacting work because the guessing and interpretation of blueprints are eliminated," said Rodgers. "With the design map in the GIS, the GPS can lead a contractor or maintenance worker directly to any sprinkler head location on the course."

MAPS USED FOR MAINTENANCE AND OPERATIONS

When Rodgers first started using GPS and GIS, he only mapped those features relating to irrigation. But after he began leaving the maps behind as a courtesy to his clients, they started asking him to map trees, bushes, cart paths, utility equipment and property boundaries.

Although only a small percentage of golf courses have full-scale GIS software, a growing number have AutoCAD or other digital viewing software with database capability. They immediately saw the value of the maps and databases.

One of the most common uses of the GIS maps is to manage the trees, bushes and turf. Course managers are storing information about when each bush was planted, what fertilizer should be applied to each tree, and what pesticide has been applied on the grass that year.

"They are saving money by making their chemical applications much more efficient," said Rodgers. "And with the push of a few buttons, the superintendent can print out exact totals of pesticide applications to provide to the EPA in accordance with government regulations."

Many superintendents are printing out hard copy maps to give to their grounds crews so they know exactly which trees to trim, signs to repair and irrigation system components to service. Some are even using the digital maps to arrange the layout of grandstands, retainer ropes and concession stands during tournaments.

"Of all the current digital mapping applications, the most ingenious may be at Badlands Golf Club, where GPS receivers have been attached to every golf cart. The starter can monitor the progress of play around the course by viewing a large GIS screen showing actual cart locations in real-time," said Rodgers.

"Now that's a practical application."

Next month: The last in this series, will examine future applications of GPS and GIS technologies on golf courses we will see in the coming years.

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CRABGRASS CONTROL			
PRODUCT	Rate (lb ai/A)	% Control 97 DAT	% Control 129 DAT
PENDIMETHALIN 60WDG	3.0	97	97
PENDIMETHALIN 60WDG	1.5+1.5	98	98
BARRICADE 65WG ^a	0.75	100	100
DIMENSION 1EC ^b	0.5	99	99
TEAM .87 FG ^c	1.5+1.5	88	82

Ohio State University 1996

CRABGRASS CONTROL		
PRODUCT	Rate (lb ai/A)	% Control 120 DAT
PENDIMETHALIN 60WDG	1.5	97
BARRICADE 65WG ^a	.48	92
DIMENSION 1EC ^b	.38	95
RONSTAR 2G ^c	3	92

Penn State University 1996

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which makes the weed seed

CRABGRASS CONTROL			
PRODUCT	Rate (lb ai/A)	% Control 84 DAT	% Control 154 DAT
PENDIMETHALIN 60WDG	3.0	100	93
PENDIMETHALIN 60WDG	1.5+1.5	100	99
BARRICADE 65WG ^a	0.75	100	95
DIMENSION 1EC ^b	0.5	100	86
RONSTAR 2G ^c	2+2	97	24

Virginia Polytechnic Institute & State University

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^aTM Novartis ^bTM Rohm & Haas Company ^cTM Rhône-Poulenc ^dTM DowElanco



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