

The Future of Golf: How Green are Your Greens?

"Man plays golf to be with nature." Is that right? PAUL SPENCER SOCHACZEWSKI looks into the sport's relationship with nature and the new trend in golf course development, which, done right, can justify the phrase.

Ah, an afternoon of golf, a chance to think about nothing but the eternal mysteries -- the birds, the bees and why you slice your three wood off into the next postal code. It would appear that no major sport is closer to nature than golf.

Those innocent days are ending, some pundits predict. Look around and you'll see that golf is embroiled in countless environmental conflicts.

Legendary American sports writer, Grantland Rice, observed, "Golf is 20 percent mechanics and technique. The other 80 percent is philosophy, humor, tragedy, romance, melodrama, companionship, cussedness and conversation." Well, to that list you might add "environmental and social complications."

Here are examples of golf/environmental interfaces which illustrate that golf course architects and managers in the new century will be forced to deal more coherently with the sport's relationship to nature.

Dangerous chemicals - be careful what you lick

Golf course managers use agricultural chemicals to ensure the smooth, green carpet-like fairways and greens that golfers prefer. In general, golf courses use far less chemicals than similar areas of agricultural land. While many people are probably more at risk when they use chemicals in their home gardens than they are of having an acute toxic reaction on the golf course, that stuff they spray to provide you with a beautiful putting surface isn't particularly good for you.

- United States Navy Lieutenant George Prior, 30, died after coming down with nausea and headaches after playing several rounds at the Army Navy Country Club course in Arlington, Virginia. The Navy forensic pathologist ruled that the cause of death was a severe allergic reaction to Daconil, a fungicide used on many golf courses. The pathologist speculated that Lt. Prior might have licked one of his golf balls laced with Daconil

to clean it.

- Conor Burke, an Irish doctor, treated a man with an inexplicable case of hepatitis. The cause: the ill golfer licked his golf ball, ingesting an herbicide that is described as a "cousin of agent orange".

Nature destruction

Conservationists will give you numerous examples of how rural forests and mangroves are considered wastelands by city-based land developers and business people. Their belief is that wilderness areas will be more productive, useful, and of course profitable, when converted into "useful" creations such as golf courses.

- Worldwide, pristine nature is destroyed to make way for golf. Construction of a Malaysian golf course, for example, damaged coral reefs and mangrove forests. Taiwan and Thailand have allowed parts of rainforest-rich national parks to become golf courses. Even if rich habitats are not destroyed directly, the impact of sediment resulting from construction, road construction and other damage can severely damage natural habitats.

Overuse of water

Many critics argue that water-guzzling, emerald green golf courses are an obscene anomaly in water-scarce parts of the world, such as North Africa, the Middle East and southern Spain.

- In the desert city of Phoenix, for example, anticipated water shortages forced the government to spend \$4 billion on an aqueduct, yet sprinklers operate almost continually on the city's 70 public golf courses.

Elitism and globalization

In many parts of the world golf is seen as an affront to social egalitarianism

- A group calling itself the Anarchist Golfing Association has claimed responsibility for sabotaging experimental grasses at a research company in Oregon that was developing a grass used on putting greens -- creeping bentgrass -- that has been genetically modified to resist the herbicide Glufosinate. The group was not against the new grass variety as much as it was against the idea that golf is perceived as an elitist activity. "The biotech

industry usually hides behind the racist aura of 'feeding the Third World,' but as you can see, it is quite obvious that these crops are grown for profit and the pleasure of the rich and have no social value," the group wrote. Anti-globalization protesters worldwide destroy genetically-modified crops - imagine what they could do if they saw golf courses as part of the same issue.

What does the future hold?

For one thing, the golf boom is likely to continue as long as the global economy continues to expand, itself not a sure thing. In the United States, some 1,600 golf courses are planned or under construction.

Questions of appropriate land use will continue. A golf course requires some 80 hectares of open space. From an environmental point of view, would this space be better for nature if it were a golf course or another application, such as industrial land, a shopping center, a farm, a park or a nature reserve? And since golf courses are built on private land should there be restrictions on how the terrain is developed?

While predicting is a tricky business, here are some educated guesses about what we might see in the next decade:

Green guidelines will increase, along with industry-wide support

Numerous groups now promote environmentally-sensitive golf course development by providing guidelines and certification programs; these schemes will increase in number and sophistication.

- Audubon International, a large non-governmental environmental organization, grants its "Fully Certified Audubon Cooperative Sanctuary" award to just 200 of America's 16,000 golf courses. Some 2,300 courses participate in their scheme.
- An ambitious Committed to Green Campaign received the endorsement of European Commission President Jacques Santer at the 1997 Ryder Cup at Valderrama, Spain. Santer urged golf course developers to act as role models for good environmental practice. The Campaign proposes a holistic approach in which golf operators are encouraged to consider conservation of biodiversity, landscape quality and cultural heritage; water conservation; safe use of agrochemicals; energy conservation; appropriate construction; and management of waste. Being a good environmental citizen also yields

considerable public awareness benefits, they argue.

Eco-Ratings Will Become Standardized

Just as the handicap system is universal and there is more or less general agreement about the rules of play, we might similarly see a universal eco-grading system.

- In addition to the universally accepted "slope rating" which indicates how hard the course is to play, a golf course will be asked to indicate its "green rating" which tells duffers how eco-friendly their round will be.

Multi-purpose golf courses will flourish

While the primary objective of a golf course is to support golf, courses will also recognize that they can meet other needs without sacrificing the quality of play.

- Golf courses will become important de facto nature reserves; perhaps even open-air zoos. Most golfers revel in seeing deer wander around the course. Golfers in Africa and Florida are used to being told not to go too near the water hazard because of aggressive crocodiles and alligators, respectively. Nervous lionesses with their cubs sometimes force courses in Zimbabwe to close. The best place for bird watching in Singapore is around the reservoirs that run through the Singapore Island Club's courses. The bottom line is that wildlife likes an eco-friendly course.
- An example of the nature reserve function can be seen on the American state of Hawaii. Golf courses on the Big Island and Maui are prime habitats for the flightless Hawaiian goose, the *nene*, an endangered species. Most golfers accept these birds as, at most, a minor distraction. Terry Purpus, 53, however, became enraged when a *nene* got in his way during a round on Maui, and he whacked the bird with his club, killing it. Purpus was fined US\$ 4,000 and ordered to perform 300 hours of community service.
- Courses will also increasingly provide public access via walking and jogging paths. In some communities they will be forced to do so by law, in other areas the courses will open up in search of good community relations.

More imaginative conversion of wasteland to golf courses

As pristine land becomes scarcer, golf course developers will become more imaginative and build courses on wasteland.

- The Phuket Golf Club in Thailand, for example, is built on the site of a former tin mine, while the \$20 million Jack Nicklaus-designed Old Works Golf Course in Anaconda, Montana, was built on the grounds of a now-defunct copper smelter and one of the country's largest and most reviled Superfund sites. "Heck, we've got herons in the water and deer eating the apples," says Derf Soller, superintendent of the Old Works Golf Course. "You didn't see that before. We put up 20 bluebird boxes, and there's a gal who comes out regularly to survey the eggs."
- The site of the Widows Walk Golf Course in Scituate, Massachusetts, was devoid of wildlife. It was an abandoned gravel quarry, just an eyesore of dirt -bike trails and illegally dumped tires and refrigerators. Today it is as biologically diverse as many nature reserves.

Innovative habitat management

Watch for a boom in research on innovative land-use techniques.

- In a research project funded in part by the U.S. Golf Association, James Howard wants to make water hazards friendlier to frogs. Frogs, with their permeable skin and exposure to both water and land, are particularly susceptible to environmental disturbances, according to Howard, a professor at Frostburg State University in Maryland. He is testing alternative designs in Rocky Gap State Park, about 120 miles west of Baltimore, near an 18-hole course under construction. The six experimental wetlands, 70 to 120 yards into the rough along the 15th fairway, meet federal requirements for replacing wetlands destroyed by the golf course construction. Some of the wetlands are planted with cattails and other aquatic vegetation to provide cover for amphibians and food for their larvae. Three of the ponds are designed to dry up in the summer. Because of their rich vegetation, Howard notes, "they have the ability to detoxify a lot of the fertilizer and a lot of the pesticides that get introduced through runoff."
- The USGA has invested some US\$18 million over the last

13 years on research into pesticide and nutrient runoff, breeding more environmentally friendly turfgrass, learning about alternative pest management and establishing best management practices.

Water treatment techniques

Fresh water, or more properly the lack of it, will continue to be one of the major environmental issues of the new century and course operators will welcome innovations in irrigation techniques and improved grass varieties.

- Robin Nelson, a well-respected golf architect, was asked to design a course at Ewa Beach International Golf Club on the arid side of Oahu, Hawaii. In addition to a novel irrigation system using a system of purpose built groundwater lakes, Nelson used a new variety of turfgrass called Seahorse Paspalum, or Paspalum vaginatum, a highly salt-tolerant grass adapted from Australia which uses readily available brackish water, leaving intact valuable fresh water supplies.
- The Society of Australian Golf Course Architects notes that the use of secondary treated effluent for golf course irrigation has the added advantage of supplying up to 70% of the nutrient requirement needed to maintain "quality" turfgrass, thereby lessening the need for chemical support.

These promising developments do not mean that everything is fine. Many golf courses today remain environmentally unfriendly. And golf course developments, particularly in the Developing World, can be notoriously arrogant in their treatment of local people - for example in the way they expropriate land and move people around. But there are enough positive examples that indicate that Jack Nicklaus was right: "Man plays golf to be with nature."

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