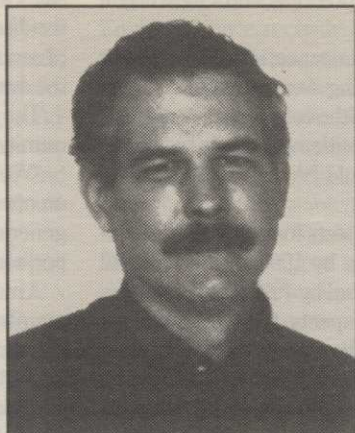


Species-finders endangering projects

BY MARK LESLIE

Opponents of proposed golf courses are hiring scientists for the sole purpose of finding threatened or endangered species that can nix projects, according to environmental experts.

"There are people who come out of our academic or regulatory systems that purposefully go out and try and find a threatened or endangered species on a site and therefore stop the project," said Gary Anderson, director of the Williamsburg, Va.-environmental consulting firm Espey, Huston & Associates, at the annual meeting of the American Society of Golf Course Architects.



Gary Anderson

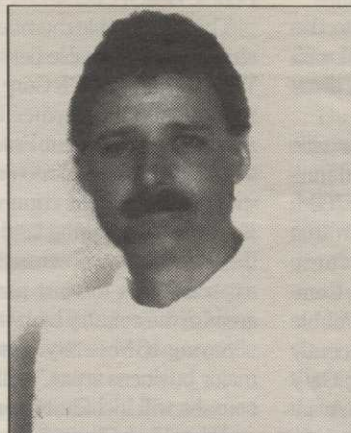
Finding a threatened species "doesn't necessarily represent a fatal

flaw that would end a project," Anderson said. But it can cause a developer to "rack up hundreds of thousands of dollars in costs almost overnight."

While topography and planning restrictions are important, environmental considerations "are fast becoming the dominant forces influencing the design of a modern golf course," said Anderson.

Espey, Huston & Associates staff engineer Ronald Boyd said findings that sites are environmentally or culturally sensitive are not a "fatal flaw." But a poor water supply may very well be a "fatal blow."

"Irrigation supply and water availa-



Ron Boyd

bility: That alone can pose a fatal blow to a golf course," Boyd said.

"Once you start dealing with huge volumes, it becomes an issue of can you get that water. Is it managed by the state or local government? In the Southeast and Mid-Atlantic states, water used to be there for the taking. Now they're talking about water rights. And in the Southwest you need water rights permits."

Boyd said once a developer determines water is available, "you're not done with the situation. You have to look at the demands of the course to determine the size of the distribution system and the size of the ponds where you'll store the irrigation water."

Ponds are sometimes difficult to place. "But generally," Boyd said, "we like to locate ponds in depression areas where there is a natural spring flow. We will also be looking at synthetic liners for the pond if the geology requires it. The easiest supply is an aquifer."

He said that since limitations on ground water approval are severe, developers should look in detail at ground water supplies, and how many aquifers must be tapped.

"The quality of ground water is usually better than surface water. It is more reliable and steadier. But you can generally remove a lot of pollutants from surface water."

The industry may have to look at options to ground or surface water, such as treated effluent and desalinated water, Boyd said.

Effluent can be troublesome. "Golf courses' needs are sporadic," Boyd said. "Plus it requires much research into what communities will allow."

As for desalination, "The cost de-
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Endangered

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pends on the quality of the source and how much you have to treat it. If you take sea water, the cost is going to be very high. If you have slightly saline water, say from a shallow ground-water well in a coastal area, the costs come way down. Desalination will become better and better. We are headed toward better technology and cheaper treatment," Boyd said.

Storm-water management also affects golf courses.

"In a major development the golf course becomes a viable location to the storm-water management concept—wet ponds, dry ponds that will serve the development," Boyd said. "Not only will you have a large pond that will serve as the irrigation supply but will also drain the storm water from the site.

"The other thing is treating storm-water runoff from the golf course. This is a very touchy subject because there are now studies coming out that show that golf courses don't actually have that much runoff. Healthy turf does not have a lot of runoff. The volume of runoff is diminishing, and so does the loading of pollutants.

Meanwhile, golf course architects and developers are increasingly asked to perform "a balancing act" when encountering "sensitive" sites. Threatened or endangered species, culturally significant spots and coastal environments can cause lengthy permitting delays, changes in design, course realignments or major engineering feats, according to Anderson.

Regarding wetlands, the Environmental

Protection Agency and U.S. Army Corps of Engineers have recently battled for jurisdiction over establishing ground rules. What finally emerged was the Unified Manual for Identification and Delineation of Wetlands. It expanded the endangered plant species list and tightened hydrology testing which, "have caused some real problems in how you deal with a site," Anderson said. "You can have American holly on your site and it is considered a wetland. It's wacko."

"Hydrology is now one of the major driving factors in determining what is a wetland," he added. In the past, if there was water at a certain depth from the surface of the soil for 10 consecutive days during the spring, a site was considered wetland. That two-month period has been expanded from February to June.

Anderson said the trend in coastal environments is toward access and stability. Permits are needed to develop along oceans, estuaries, rivers, streams and ponds

Anderson said architects must also contend with "traditional questions and philosophies" like slope stability; erosion sediment control; and protection of the shoreline.

Cultural resources found can often be more easily protected, said Anderson. In some cases the problem can be solved inexpensively, such as by covering over a culturally sensitive spot with a tee box or a green to protect it from earth-moving equipment. But in other cases, like the preservation of ocean shoreline, cost can exceed \$1,000 a linear foot.

Referring again to the Endangered Species Act, Anderson said discovering "upfront" what

species are on a site is crucial.

"If you don't ... you can really be in big trouble... This has stalled projects for a very, very long time," he said.

If a protected species is present, the simplest solution is often not to use the site, Anderson said. But that doesn't necessarily relieve the developer of all responsibility since migratory birds, like osprey and eagles, can cause problems just because they move from spot to spot. During the breeding season, no timber-cutting, ground-clearing, building, or road construction are allowed within one-quarter mile of the nest.

Anderson said President Bush has endorsed the "net loss policy," allowing some destruction if there is no net loss.

Developers must mitigate with authorities through avoidance, minimization (rearranging the design), and compensation.

Mitigation has also changed. While a one-for-one policy was once the rule, developers now frequently must replace damaged wetlands at a 3-to-1 rate.

The ratio of acres damaged to new ones created is often now three-for-one or more.

"The problem is money," Anderson said. "In one case, we did a wetlands compensation area of .95 acres of wetlands. We were in a federal, state and local area of jurisdiction so we got hit on all sides.

So we came in with a very advanced storm-water management plan and had a compensation area of two acres, not including the other things involved in storm-water management. That two acres cost about \$190,000 to do.

"The process took nine months. The developer probably spent another \$200,000. If he'd known up front, he would not have had to spend nearly that amount."

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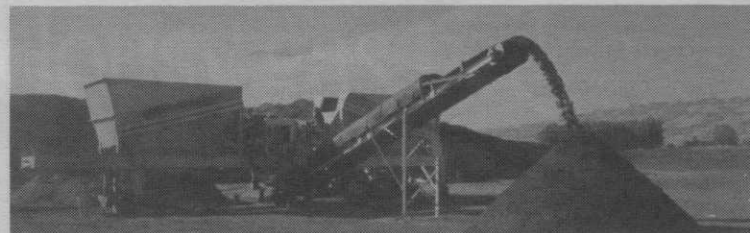
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