

Robin Lewis Makes His Living Creating Marshes and Swamps

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His Inventions Replace Land
Destroyed by Developers;
Attracting Fish and Frogs

By GILBERT FUCHSBERG

Staff Reporter of THE WALL STREET JOURNAL
ST. PETERSBURG, Fla. — It is Monday morning, the beginning of another workweek, and Roy Robin Lewis III is getting ready to start the day.

He fits goggles to his face, bites down on his snorkel and ducks beneath the waist-deep waters of Tampa Bay. Weights strapped around his chest keep Mr. Lewis slightly below the surface—at 240 pounds, he is naturally buoyant—but one can still make out the words on the back of his yellow T-shirt: "I did a lot of grass in the Keys."

Mr. Lewis has also done a lot of mangrove trees, pickerelweed and seed-bearing mulch. His business is building marshes, swamps and sea-grass beds, like the one he is checking today. He is among a small number of consultants who specialize in creating and restoring wetlands, a business bred of government regulations that often require those who destroy such areas to replace them.

"A lot of people still believe you can't improve on nature," he says. "But I don't believe that."

The 'Resident Pest'

Robin Lewis, 43 years old, has mellowed over the years. In the early 1970s, he was an environmental activist, fighting individuals and institutions that tried to tamper with Tampa's natural environs. He became, he says, the "resident pest" at meetings of the Tampa Port Authority, which regulates development around portions of Tampa Bay. Before long, the agency routinely invited comment from Mr. Lewis. Then, he says, "I ended up starting to recommend modifications to improve projects rather than just saying no."

The nation's view of wetlands has also changed. Long considered wastelands, wetlands are now valued as fish and wildlife habitats. They are also recognized as nature's way of controlling floods and filtering polluted waters. "Wetlands are the kidneys of the landscape," says Lyndon C. Lee, an Environmental Protection Agency ecologist. "They act to purify the water."

The continental U.S. once had 215 million acres of wetlands. But the land was cheap, and developers and farmers bought, drained and filled it. By the mid-1970s, when environmental laws slowed wetland destruction, just 99 million acres remained, an area roughly the size of California. Environmental officials would like to avoid further losses, but wetlands are often located where someone wants to build.



Robin Lewis

To save wetlands without prohibiting development, regulators devised a policy known as "mitigation." It allows landowners who show that they don't have any alternative sites to build on marshes—as long as they replace them. For each marsh they destroy, developers must typically restore a dilapidated marsh or build an entirely new one.

Enter the marsh builders. They evaluate, repair and custom-build marshes—or swamps, which are basically marshes dominated by trees—to satisfy rules administered by a slew of local, state and federal regulators. Their clients range from public agencies planning highways through swamplands, to shopping-mall developers building on marshes, to homeowners looking to replace back-yard bogs with tennis courts.

Marsh building is a curious blend of art

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and science. There aren't any guidelines, and no license or formal training is required. Luck is an important ingredient. Even the best custom marsh can fail if the pit doesn't get wet enough, the plants die, or frogs, fish and ducks keep their distance.

No one keeps statistics on man-made marshes and swamps, but officials are increasingly concerned that many new wetlands won't fully compensate for the ones they replace. As experts begin their first hard look at man-made wetlands, some regulators are backing away from swamp-for-swamp swaps. Last year, for example, the EPA blocked a shopping-mall developer from filling 45 acres of swampland in Attleboro, Mass., despite the developer's promise to build a replacement swamp. "We simply do not have the scientific ability to certify what techniques will assure the success of such man-made creations," an EPA official said at the time.

But none of this controversy has stopped Mr. Lewis, who has been building wetlands for nearly a decade. After consulting for the Port Authority, he founded his own firm in 1975 and called it Mangrove Systems Inc. after a popular species of wetland tree. In 1978 Mr. Lewis created his first marsh from scratch. Since then, he has created or restored a total of 150 acres of wetlands, and this year he began work on a 200-acre mangrove-forest restoration.

A Three-Boat Firm

Mangrove Systems, based in Tampa, has grown from a one-person, one-boat operation to a 10-person, three-boat business that had revenue of \$750,000 last year. The company was purchased in April by a subsidiary of Proctor & Redfern Ltd., a closely held engineering and architecture concern based in Toronto, but Mr. Lewis continues as president, and he is still in charge.

Marsh building is labor-intensive and sweaty. For company employees, the biggest threat is heat exhaustion. "After about three hours, you really need some water and maybe potato chips, to get the salt back in you," says Robert A. Mattson, a 30-year-old biologist who works for Mangrove. Adds Mr. Lewis: "We can't employ

people who don't believe in what we're doing."

From Mr. Lewis's description, creating a marsh seems simple enough: "Make sure it's wet and put the plants in green side up."

It is, of course, more complicated than that. Consider the 1,900-acre housing development in Apollo Beach, south of Tampa, where Mangrove has been hired for \$44,000 to turn 4.71 acres of what was once grassy pasture land into two freshwater marshes. The marshes will replace 4.70 acres of similar wetlands that were displaced by the construction of a sewage-treatment facility.

One recent afternoon, the site was a panorama of mud and vegetation. On their own, the two large pits dug for the new marshes had filled with water. A worker stood knee-deep in one, shovel in hand, anchoring the roots of a young arrowhead plant. A total of 21,000 individual plants, four species in all, were to be brought to the site over the course of a month, some transplanted from a roadside ditch 45 miles away. This winter, more than 1,000 pine and cypress trees will be planted to provide a screen between the new marshes and the sewage facility.

Bugs and Birds

Though no special provisions are made for animals or fish, the marshes will be connected by a small stream to natural marshes nearby so that frogs and turtles may float over. Bugs and birds already abound. Under current rules, marsh builders don't have to worry about animals, only about soil, water and plants.

Though these marshes-in-the-making appear nearly complete, it may be more than a year before their success can be measured, Mr. Lewis says. If fewer than 70% of the plants survive over the next year, Mr. Lewis will return to the site and replace the dead ones. It is part of his written guarantee. Mr. Lewis says that he must repair as many as half of his new projects each year but that his long-term success rate is about 90%.

The possibility of failure isn't the marsh builder's only problem. Mr. Lewis says that he is often caught between his clients, many of whom consider wetlands requirements a costly nuisance, and regulatory officials, who view developers as a threat.

"It's the developer versus the agencies—not one, but several, and they're always changing their rules," Mr. Lewis says. "It's great for my business, but it's a quagmire out there."

Robert C. Wallace, an executive vice president of U.S. Homes Corp., which is developing the Apollo Beach property, doesn't much like the rules that force his company to build marshes. But he prefers them to the obvious alternative: an outright ban on wetland development. "It's a situation you have to deal with," he says. "The only question is, 'What does it cost?'"

For a client interested in displacing an acre of marshland, Mr. Lewis says, he might charge \$25,000 just to prepare the necessary applications. Then there is a \$10,000-an-acre fee for actually planting replacement marsh, plus the cost of excavation.

Still, Mr. Lewis, whose salary will be \$50,000 this year, says he doesn't build marshes for the money. "A farmer will tell you he likes to see his corn grow," Mr. Lewis says. "For me, the fun part of this is coming back to a site months from now and seeing that what you have done has in fact created a swamp or a marsh... to see the birds and the fish enjoying it."