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Deadly invader. Scientists are using money from an earmark to battle the spread of giant salvinia in Texas's Caddo Lake.

U.S. SCIENCE POLICY

Ending Earmarks Also Means the End Of Many Research Projects

The last pillar supporting congressional earmarks crumbled last week, dooming the controversial practice for at least the next 2 years (see p. 654). That's good news for Tea Party activists, who think that such directed spending exemplifies the profligacy of the U.S. government. Many scientists will approve too; they argue that earmarking reduces the amount of money available for peer-reviewed competitive research by forcing agencies to pay for things they did not request.

But ending earmarks won't be painless. By one estimate, they amounted to $16.5 billion in the 2010 federal discretionary budget of more than $1 trillion. And this isn't just about stopping the next bridge to nowhere (the infamous $230 million Alaskan highway project). The same spigot pumped $2 billion into university facilities and research activities last year. Turning it off will have a dramatic impact on the scientists who receive the money and perhaps also on the societal problems they are tackling. In fact, B. L. Harris has a message for anyone who thinks that all earmarks are a boondoggle. "Let them come to Caddo Lake," says Harris, director of the Texas Water Resources Institute at Texas A&M University in College Station.

Caddo Lake, which straddles the Louisiana-Texas border and is the second-largest natural body of water in the South, is under siege from an invasive aquatic fern. Giant salvinia (*Salvinia molesta*), which is native to South America, produces 30-centimeter-thick mats of vegetation that crowd out native species and kill fish by depriving them of oxygen. "You can almost walk on it," says Harris. To stem its rapid spread—its size can double every 5 to 7 days—Senator Kay Bailey Hutchison (R–TX) inserted a $1 million earmark in the 2010 budget of the U.S. Department of Agriculture to create the Center for Invasive Species Eradication within the water institute. "I want you to kill it," Harris says Hutchison told him.

Texas scientists have used the money to build greenhouses to raise and deploy a weevil that they hope will devour enough of the alien plant, first detected in the lake 6 years ago, to keep the delicate ecological system in balance. Biological control is preferable to harsh chemical sprays, says Harris, and the weevils can reach portions of the lake that are impenetrable because of thick stands of cypress, the largest in the world.

Harris says every penny of the earmark goes toward the eradication effort—"There are only two paid staffers, and I don't charge any of my time to the project"—and that the center also works with local, state, and national parks and wildlife agencies. He was hoping for another $1 million earmark this year to expand eradication efforts to other bodies of water in the region, and he fears that, without additional funding, Texas will lose the war. "The best outcome would be to get it back under control and let the natural system contain it," he says. "But now I'm not sure we can save the lake."

Jeff Muhs of Utah State University in Logan faces an equally pressing problem, with no solution at hand. Muhs is director of the university's Energy Dynamics Laboratory, founded 18 months ago and fueled by a $10 million earmark inserted into the Department of Energy's (DOE's) 2010 budget by then-Senator Robert Bennett (R–UT). Muhs, a mechanical engineer, came to Utah State in 2007 to help launch its biofuels center, which then spun off the energy lab. He brags about the new lab's successful test of a system for charging vehicles wirelessly and its initial work on an intuitive lighting system that adapts to the occupants of a room. His immediate challenge, however, is to find ways to support the lab's 30 employees and 10 to 15 graduate students before money from the earmark, which Utah State had hoped would be followed by similar awards in 2011 and 2012, runs out early next year.

"Our state budget is in desperate straits," says Brent Miller, vice president for research at Utah State, which has given the lab millions in start-up funds, "and is in no position to pick up the cost of sustaining the lab." Muhs, who spent nearly 20 years at DOE's Oak Ridge National Laboratory in Tennessee, says his best bet is to "pick a few areas that are up and coming and network with the established players and try to bolt ourselves onto existing DOE programs." He'll also look for new sources of industrial support. But he says some of the graduate students could wind up at other, out-of-state universities "because we may not have the research opportunities to keep them here."

For computer scientist Thomas Sterling of Louisiana State University (LSU) in Baton Rouge, the abrupt termination after 1 year of what he had hoped would be a 3-year, $3 million earmark in the Commerce Department budget will mean slashing his graduate workforce in half. He planned to use the $1 million he received last year for the new Center for Digital Innovation, courtesy of Senator Mary Landrieu (D–LA), to build up his research on extreme-scale computing, with a focus on parallel computing on large-scale machines. "The 3 years are as important as the money," says Sterling, a former NASA and California Institute of Technology scientist who came to LSU 6 years ago. "The center was also going to be an environment for undergraduates who are thinking of going further in the field."

Asked about his prospects of sustaining the center's research agenda, he's refreshingly honest. "I've been around the block. I know how to win and lose, and I never quit." But he's less sanguine about the country's ability to stay at the leading edge in high-performance computing. "I've seen Tianhe-1 [the new Chinese supercomputer recently anointed the world's fastest], and I'm impressed with what they've done. I just hope that by the end of the decade the [computer] manuals are still being written in English and not Chinese."

–JEFFREY MERVIS