

marsh. When that estimate was released, Zedler recalls, "proponents of [the project] said we just had to be patient and give it a little more time. Well, now it's been 13 years, and it is still not functionally equivalent." She and San Diego State's John Callaway predict it will take at least 20 more years for the new marsh to match the reference sites for just one criterion: soil nitrogen. By other measures, Sweetwater may take much longer to resemble a natural wetland, they say.

Based on Zedler's findings, FWS faulted the project for producing stunted grass—a violation of an agreement between FWS and Caltrans requiring the wetland to have the tall vegetation favored by the clapper rail. To compensate for the flaw, Caltrans must now restore other potential rail habitat on the Sweetwater refuge by removing debris that has clogged tidal channels. But the restored marsh, Zedler believes, will "never provide tall grass habitat for clapper rails, because the soils are too coarse to hold nitrogen."

Some wetland experts, however, argue that time is on Sweetwater's side. "A tidal wetland constructed on sand is going to

take more than just a decade to approach natural function," says Ed Garbisch of Environmental Concern Inc., a nonprofit wetlands restoration group in St. Michaels, Maryland. Zedler's reference wetlands, he argues, "do not provide a legitimate comparison—she should compare her site to natural wetlands that are being created on [similar] mineral soils," such as those found at some river mouths.

Three years ago, the need for such one-to-one comparisons led ecologist William Mitsch of Ohio State University, Columbus, to launch one of the largest wetland experiments in the nation by building two identical 1-hectare freshwater wetlands along the Olentangy River in Columbus, Ohio. Mitsch believes that the two marshes—one stocked with plants and animals by hand, the other by nature—will eventually be indistinguishable. At the meeting, he presented data suggesting they are becoming just that, with both plots showing similar growth patterns. "The convergence in such a short a time has surprised us," he says.

But perhaps the largest current test of nature's ability to reclaim lost wetlands with just a nudge from people is currently playing

out along the Delaware Bay in New Jersey. There, an electric utility—Public Service Electric and Gas Company—is using heavy equipment to breach dikes protecting farmland and surrender it back to the sea. By the end of 1999, the company—forced by regulators to undertake the \$100 million project—hopes to re-create 2500 hectares of tidal marsh in an attempt to boost the bay's seafood stocks and replace millions of fish killed by operations at one of its nuclear power plants. Such megaprojects, which typically include long-term monitoring programs, should help settle longtime debates over how best to restore tidal marshes, Zedler and others say.

But government officials keen on rebuilding the nation's wetlands may have to be more patient, says John Teal, an ecologist with the Woods Hole Oceanographic Institution in Massachusetts. "Regulators typically want creation and replacement right away," he says, "but it's going to take time for Mother Nature and Father Time to do their work."

—David Malakoff

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HUNGARY

Bailout for Drug Research Institute

Western drug companies have transformed Eastern Europe's pharmaceutical markets in the decade after the fall of the Iron Curtain, buying enterprises or forming joint ventures in search of new customers or a place to test drugs cheaply. But their investments, for the most part, usually don't help local researchers, many of whom have abandoned their labs in hopes of finding better jobs. For New York venture capitalist Steve Kanzer, however, such talent was too good to pass up. So his company, Paramount Capital Investments, has acquired a majority stake in the Institute for Drug Research (IDR) in Budapest, Hungary, with the idea of reclaiming its role as a regional R&D titan.

The deal, announced last week, is expected to revitalize a research powerhouse that specializes in drugs for cardiovascular and central nervous system diseases. "Combined with a clear direction from the new owners, [IDR] can be as good as anywhere else in the world," says immunologist Vince Pozsgay of the U.S. National Institute of Child Health and Human Development in Bethesda, Maryland.

The Hungarian government created IDR in 1950 as a central R&D shop for the country's drug industry. "They had very good-quality research there," says Balázs Sarkadi, of the National Institute of Hematology, Blood Transfusion, and Immunology in Budapest.

Over the years, IDR developed 11 original drugs that were sold abroad. But the institute floundered after the Hungarian Communist Party gave up power in 1990 and the country's six drug companies assumed ownership of the institute. Thrust into new roles as competitors, the companies focused on in-house re-



Revival? U.S.-led acquisition may save struggling pharmaceutical research institute in Budapest.

search staffs and mostly ignored IDR, Kanzer says. "A flood of people left, and quality went down," says Sarkadi about an institute that shrank from 900 to 250 people.

To stay alive, IDR began doing contract research for Western drug firms. That work "kept the lights on," Kanzer says, and helped the institute retain talent. Of the 100 or so scientists left, says Pozsgay, "there

are many young, talented people."

Kanzer, Paramount's senior managing director, says his group was impressed with IDR's "tremendous capability" in a country that he calls "the drugstore of Eastern Europe." After six visits in the past 6 months, Kanzer concluded that IDR "could serve as a beachhead to access science and research going on in Hungary." As a result, Paramount and three partners bought out five of the six Hungarian drug firms that owned the institute; terms were not disclosed. Kanzer is serving as IDR's interim chief executive officer and plans to move to Budapest soon. He hopes to tap the country's universities for talent and also to push IDR's lead compound, a potential drug against benign swelling of the prostate gland.

Besides developing its own candidate drugs, IDR will expand its contract drug testing. That strategy, Kanzer says, should help Western firms to hold down their costs. "The bottleneck is beginning to occur in the preclinical phase," he says, in which toxicology and other tests cost up to \$2 million per candidate drug. Thanks to the low cost of labor, says Kanzer, such tests in Eastern Europe cost a tenth of what they would in the United States. But the deal also highlights a willingness on the part of investors to foot the bill for research. Says Pozsgay, "Hopefully, IDR will regain its former shine."

—Richard Stone