PAPUA NEW GUINEA

Management Dispute Shutters Tropical Research Institute

Situated in one of the world's most biologically diverse regions, with a spectacular coral reef sitting just offshore, the Christensen Research Institute (CRI) in Madang, Papua New Guinea, has provided researchers from many fields with a temporary home away from home. Last month, with little notice, the lodge and laboratory complex closed, the victim of a festering management dispute between its major benefactor and its former director. The conflict also has derailed a promising collaboration with a major research university that could have made the 12-year-old institute self-supporting.

The sudden closure of CRI has dealt a sharp, short-term blow to researchers like Bill Fenical of Scripps Institution of Oceanography in La Jolla, California, who had already shipped $40,000 worth of equipment to the tropical island north of Australia in anticipation of conducting a 5-year research project there. "It's a tragedy," says Fenical, who spent several weeks at CRI in 1996 and who had planned to study the reefs' chemical defenses against predators. "Not only is this the most biodiverse and species-rich place on Earth, but CRI was such an active, vibrant research environment, with scientists from many different fields interacting with one another. And for most residents of Papua New Guinea, it was also their sole exposure to modern scientific inquiry."

MATTHEW JEBB

Loss of species. CRI was a unique facility, say scientists.

CRI was founded through the efforts of Diane Christensen, a specialist in African art who lived in Papua New Guinea (PNG) in the 1980s while her husband managed a Belgian research station on the island. The daughter of a U.S.-born mining engineer and art collector, Christensen tapped into a family foundation to set up a research station with modern scientific amenities, including wet and dry labs and a 24-hour source of electricity. "We wanted to provide a venue for scientists to identify what existed in this incredibly rich environment," she explains from the Palo Alto, California, offices of the Christensen Fund (CF). Christensen also served as CRI's first administrator before handing over the reins in 1987 to British plant taxonomist Matthew Jebb, a freshly minted Ph.D. from Oxford University who had done fieldwork on the island.

Jebb hewed to CRI's mission as a research station for marine and terrestrial activities. In addition to renting out space to foreign scientists, it helped to fund graduate training for a handful of promising local residents and gave younger students their first look at modern laboratory science. "I had set up research plots in the forests near Madang, and I was sleeping in the bush because I didn't have any money for lodging," recalls one recipient, PNG forester Philip Siaguru. "Matthew found out and told me to apply for a fellowship, which helped me get through my Ph.D.," says Siaguru, now an associate professor at the University of Technology in Lau.

But CRI's role began to change after Jebb returned home in late 1993. (He now directs the National Botanic Gardens in Dublin.) His hand-picked successor, University of California, Berkeley–trained entomologist Larry Orsak, had done extensive fieldwork on the island and had spent the past few years at the Wau Ecology Institute, an independent, PNG-run facility founded in 1961 by the Bishop Museum in Honolulu. At Wau, Orsak had tried to link conservation efforts with economic development by setting up a farm that raised butterflies for sale, using school dropouts to collect and classify the insects. Orsak brought that activist philosophy to CRI.

"I believed that CRI should become increasingly relevant to PNG, which mandated that we go further into training, education, and community conservation," he says. To support that broader vision, Orsak enlarged CRI's annual budget from roughly $150,000, supplied chiefly by CF, to more than $350,000, thanks to grants from the PNG government, the U.S. National Science Foundation (NSF), the MacArthur Foundation, and various international bodies.

Christensen and Jebb, who with Orsak constituted CRI's board until early last year, agree that such activities are important but say that CRI was too small to serve both scientists and the local community. Moreover, they accuse Orsak of pursuing his agenda behind their backs, and in a way that obscured how the money was being spent. "We were misled. Maybe it was his idealism, but he should have come to us first for permission," says Christensen. Orsak left CRI in July (Christensen and Jebb say he was dismissed) and now works for the World Wildlife Fund in Moro, PNG.

In September, he was replaced by Keyt Fisher, a Harvard-trained naturalist who had spent several years at CRI. She was recruited, in her words, "to get the place sorted out." But the problems apparently proved intractable. The final blow, says Christensen, was the auditor's inability to close the books on 1995 and 1996, which made it impossible for organizations like her own to contribute to CRI without jeopardizing their tax-exempt status.

"The mismanagement has crippled CRI's ability to receive funds," she says, "and so closing it was the only option. ... Larry didn't realize that he was killing the goose that laid the golden egg." In November, the board told the 14-person staff, all locals, that CRI would close on 19 December.

Orsak, however, believes that CRI's financial situation was a side issue and that a more fundamental problem was the board's reluctance to take on PNG-based members and to grant local leaders a bigger role in managing CRI. Orsak believes the board chose to "pull the plug" to avoid dealing with the matter. "Had CRI been populated by a PNG-majority board, and had CF behaved like any other CRI donor, the organization would have survived," he says.

That analysis makes sense to Alan Allison of the Bishop Museum, part of an NSF-funded team using CRI to study how the habits of plant-feeding tropical insects affect biodiversity. "I think that governance is the source of [CRI's] problems," says Allison, who helped the Wau Ecological Institute wean itself from the museum in the early 1980s and become a PNG-run organization.

Christensen says the foundation will con-

tinue to support activities in PNG, and the PNG University of Technology is negotiating with CRI and the managers of a nearby hotel and diving resort to take over some of the institute's research and education functions. But in the meantime, researchers may be on their own. Fisher plans to leave CRI later this month on a fellowship to study tool use among orangutans in Sumatra, and scientists on other CRI-based projects are scrambling to find other locales for their work.

The decision to close CRI also may have shut the door on a potential new benefactor. The University of California, Santa Cruz (UCSC), has some two dozen faculty members who have used or would like to use the facility in fields ranging from anthropology to plate tectonics, says Dave Kliger, dean of natural sciences, and the university was interested in meeting that need. Although the school wasn't interested in directly managing the station, Kliger says, it had planned to create an endowment sufficient to support CRI operations and allow CF to play a smaller role. "We were hoping to raise $5 [million] to $10 million," says Kliger, who was one of two UCSC officials added to the CRI board early last year. The plans are now on hold, he adds.

Fenical says there are other countries where he and his students can do similar work. But he's still shaken by the events of the last few months. "It should be clear what an enormous loss this is to science and to PNG," he says. "It was a unique place and a tremendous asset."

–Jeffrey Mervis

AGRICULTURAL RESEARCH

Bill Offers Abundant Harvest for USDA

Soon after members of Congress return to Washington later this month, they will consider the fate of a proposed $780 million, 5-year fund that could more than double what the U.S. Department of Agriculture (USDA) spends on competitive research grants each year. The proposal, part of a bill approved by the Senate last fall, could infuse dozens of plant and animal science labs with the latest molecular biology techniques and pricey new instruments. The bill is also likely to bring more rigorous peer review to USDA's in-house research programs.

Agricultural research "hasn't had that kind of funding boost in decades," says Mike Phillips, director of the National Research Council's agriculture board. The House, however, has approved a companion bill that doesn't include the research fund. So agricultural scientists will be watching anxiously to see if it survives in the final version of the bill that is expected to be hammered out in the coming weeks.

Like a hot-air balloon with a slight tear, the premier program for funding competitive ag research—the USDA's National Research Initiative (NRI)—has struggled to stay aloft. Since its launch in 1991, the $100-million-a-year initiative has supported everything from biosensors for detecting *Salmonella* in tainted food to cottonwoods engineered to yield more paper. But because of flat USDA research budgets of late and a tradition in Congress of earmarking ag funds for pet projects, the NRI has never approached the budgetary stratum—$500 million a year—that its congressional founders staked out for it (see table). Miserly funding for competitive research, experts say, is dissuading many young scientists from an agricultural career. Says National Academy of Sciences (NAS) President Bruce Alberts: "There's really no opportunity for their new ideas in the way that there is for biomedicine."

A kindred spirit on this issue is Senator Richard Lugar (R–IN), who chairs the Agriculture Committee. He argues that a big boost in ag research funding is needed to keep food production apace with a predicted doubling of the world's population in the coming decades. Last summer, Lugar introduced a bill that would overhaul the legal framework for ag research for the first time in 20 years. The bill proposes a research, extension, and education fund for competitive grants amounting to $100 million in 1998, followed by $170 million a year from 1999 to 2002. The bill stipulates that the new program would be endowed mainly by raiding a pot of roughly $1.25 billion a year that states must give back to the federal government for having claimed too much money from the food stamp program. Unlike most other federal accounts, excess food stamp money does not require a separate appropriations law in order to be spent.

Rather than beef up NRI's budget, the bill orders USDA to set up an independent program to target a narrower range of projects in areas such as food safety, human nutrition, agricultural biotech, natural resources management, and a National Food Genome Strategy (*Science*, 15 August 1997, p. 889). The fund would exist separately from NRI because, in part, it's "supposed to be more multidisciplinary" and fund more applied projects than NRI does, says USDA competitive grants administrator Sally Rockey.

Fiscal Year	Budget ($ million)	% of Proposals Funded
1991	73.0	22.0
1992	97.5	26.7
1993	97.5	27.3
1994	103.5	24.2
1995	100.6	24.4
1996	94.2	24.0
1997	94.2	NA
1998	97.2	NA

SOURCE: USDA

Going nowhere. NRI's budget has never come close to expectations.

Although the Senate passed the bill unanimously in October, "a whole series of obstacles has to be overcome" before it becomes law, says Mike Stephens, a consultant for the Federation of American Societies for Experimental Biology (FASEB). The biggest hurdle is persuading the House to go along with the funding provisions. Last November, some House Democrats blocked a conference to hammer out a joint bill in part because they want the extra food stamp cash to get funneled back into welfare programs. The research fund is doubly uncertain, because the food stamp surplus could shrink next month if the Congressional Budget Office revises its estimates for that account. One possible outcome, observers say, is that lawmakers could compromise by agreeing to divvy up the funds between research and welfare. "The science community needs to be doing all it can to support" the bill, says American Society of Plant Physiologists spokesperson Brian Hyps.

The House and Senate bills are in agreement on one measure, however: Both order the agency to strengthen its review of department research. For example, the Senate bill calls for program areas in USDA's $700 million Agricultural Research Service to be reviewed at least every 5 years by panels composed mainly of non-ARS scientists. ARS programs already get reviewed, but a law might make the process "a bit more rigorous and a bit more visible to the public," says ARS associate administrator Ed Knipling. The Senate bill also calls for NAS to review USDA's research and delineate "the role and mission" of federally funded agricultural science.

"We're very supportive" of more peer review in ag research, says John Suttie, a nutritional biochemist at the University of Wisconsin, Madison, who pushed for such changes last year as FASEB president. But Suttie and others are far more excited about the prospect of a windfall for competitive agricultural research. Legislators are expected to lock horns again over the research fund as early as next month.

–Jocelyn Kaiser