Revisiting the Iraqi Marshlands

DUWC Director says restoration efforts are progressing, but the record is mixed

Photo by Jan Vymazal/Duke University Wetland Center

DUWC Director Curtis Richardson (left) and Edward Maltby, Director of the Royal Holloway Institute for Environmental Research, stand in front of the military transport plane that brought the USAID-sponsored research team into Baghdad Airport.

When Duke University Wetland Center Director Curtis Richardson visited Iraq in February and March 2004 to assess strategies for restoring parts of a decimated wetland–his second such visit since the fall of Saddam Hussein–he felt a mixture of optimism and pessimism amid a pervading atmosphere of danger.

Richardson was happy to observe a rejuvenating Iraqi scientific infrastructure working in salvageable parts of Iraq's storied Mesopotamian marshlands. But he also heard from some marshlands residents who have become soured by what they perceive to be unfulfilled promises made following the U.S.-led invasion. He found other former marsh dwellers newly lobbying to keep some of the drained lands from being re-flooded. And he saw and heard evidence of fresh threats to the wetland's future.

The Mesopotamian marshlands, which some scholars identify as the historical model for the Biblical Garden of Eden, began being degraded more than 20 years ago as a result of upstream damming along the watersheds of the Tigris and Euphrates rivers. Saddam Hussein's regime then did more damage through a calculated campaign of murder, destruction, and displacement to eradicate the Ma'dan culture that has inhabited the marsh for more than 5,000 years.

Richardson first visited the area in the summer of 2003 as part of an exploratory team of experts sponsored by the U.S. Agency of International Development (USAID) that evaluated the extent of damage to the marshlands. The team also included a hydrologist-engineer, an agronomist, and an anthropologist. Traveling as many as hundreds of miles a day under the protection of armed guards, the group visited parts of former marshlands that had dried into salt-encrusted dustbowls.

The team members found wrecked laboratories, and scientists and students who were untrained in modern wetlands ecology and management. They encountered water treatment and sewage treatment facilities that had been looted and destroyed. However, Richardson also noted an upbeat spirit among the marsh-dwelling Ma'dan, some of whom were beginning to reoccupy and rebuild roofless houses and return to their former subsistence lifestyles that depend on fishing and grazing hardy cattle and water buffalo off marsh vegetation.

When Richardson returned to Iraq this year from February 15 to March 1, again sponsored by USAID, he felt the new atmosphere of tension in the country even before his plane touched down. His Royal Air Force transport performed evasive maneuvers as a precaution against potential rocket attacks as it landed in Baghdad. "They just dive those big planes right into the runway doing this sort of S-turn," he recalled. "You're literally on your nose, strapped in." The mood of the city had changed since his last visit. "There was more activity in the streets, more cars, and more semblance of order," he said. "However, it was disturbing that we now had to stay in hotels protected by armed guards."

Richardson's group, part of a larger entourage of experts, gathered water and soil samples while in Iraq, just as Richardson had during his previous visit. The results of his 2003 sampling await publication in research journals.

The new group's members–including DUWC Adjunct Associate Professor Jan Vymazal–also joined 20 faculty and students from the University of Basra in scouting potential locations for monitoring re-flooded wetlands and for building "constructed" wetlands. Constructed wetlands are facilities that would harness the cleansing power of natural vegetation to help ease wastewater treatment problems found in villages throughout the country.

One of the villages his group visited included residents who had pooled their resources to buy a grain-harvesting combine. Occupants of such newly agrarian settlements "did not, under any circumstances, want the marshes re-flooded," he said. "They now have prosperity for the first time. They said fishing is very poor now and they really prefer to have these areas stay farmland."

However, many of those same residents acknowledged they would actually like to return water to some the region's marsh areas if the farms could be maintained, he noted.

Richardson visited other villages where Ma'dan had returned to their old ways, moving deep inside marshlands that were still flooded or recently re-flooded. "The reason they went there is they said they are safe," he recalled. 'They said the water is not too bad to drink and they can live off a little rice."

"They told us they were so poor that the only things they had left to sell were their clothes. They're hoping the fish will come back, because they have nothing."

Richardson didn't even try to sample the noxious looking purple bacteria he saw growing in raw sewage from Basra. The sewage treatment plant in that southern city of about one million residents has been shut down since the Iran-Iraq war, and more recently was stripped by looters. "The Iraqis want to try and fix it, but they're going to need about $45 million," he said. "So what they've done was dig a big trench that puts the waste out in the desert."

What especially disquieted his group's members was what Richardson described as growing local hostility in some villages towards such visiting teams of internationals. "We had to move through quickly because some people were very agitated," he said, explaining why some of his photographs were unusually blurry.

Hostility boiled up during his final field trip, to a large village of 1,200 people on Iraq's border with Iran. Western support had financed a water treatment plant there that was built by local contractors. Unfortunately "it was not built correctly, so people were very upset because they had been promised clean drinking water," he said.

When Richardson and others ventured near the border to collect some water samples, they narrowly avoiding stepping on a field of live landmines left as legacies of the Iran-Iraq war. Then they were accosted by some gun-bearing local residents who accused them of being "spies." Tensions were diffused, but not before gunmen deprived group members of some of their water, food and magazines. Richardson then learned what a village leader had said as an aside to an Iraqi member of his team. "I'm so tired of these people coming through, promising us everything, and giving us nothing, I think we ought to shoot one of them as an example," he was told the leader said. Richardson doesn't think this was a serious threat. But "we realized we had worn out our welcome," he said. "I stopped the field trips after that because it was too dangerous."

Meanwhile, Richardson heard reports that "it's very possible that Iraq has more oil than Saudi Arabia under its former drained marshlands, and we could see oil activity in many areas."

There were also signs that some marsh restoration efforts may be stillborn. For example, during a visit to the edge of the Iran-Iraq border, Richardson saw construction under way for a new Iranian dike he was told would divert upstream water that replenishes the largest remaining marsh, known as Haweizeh. "As a result, Haweizeh may well go dry," he said. "What Iran is going to do is sell that water to Kuwait."

Richardson says that "the most important part of our trip was the opportunity to interact closely with Iraqi scientists and graduate students to develop a restoration plan." He watched Iraqi researchers honing skills they'll need to resurrect the marshes. "They're very good scientists," he said. "They just haven't been trained in wetland ecology and management. We spent about 10 days working with them on how to set up a monitoring plan. I think it was very successful." Richardson promises to "be an advisor to help them, but I really don't see myself working in Iraq for years," he added. "It's not going to be possible for a lot of Westerners under current circumstances."

In June, Richardson traveled to Amman, Jordan to attend a workshop on the Mesopotamian marsh project. Sponsored by the Canadian International Development Agency, the meeting brought together Iraqi scientists and researchers from across the world. Much of the information discussed at the meeting was encouraging, suggesting that restoring at least part of the marshes is a feasible goal, even though there is significant concern that adequate water may not be available to the project in an area where water is a scarce and valuable resource.

Still, the research data coming in from the marshes are encouraging. Richardson said, "I have been receiving monthly reports on surveys completed on reflooded areas of the marshes." He added, "Many of these areas are starting to see some return of native species although at a rate slower than many of us would like."

—Monte Basgall
Duke Office of News & Communication

Student News

Wyatt Hartman, a DUWC doctoral student, has been awarded a 2004 National Science Foundation Graduate Research Fellowship. The highly competitive program, administered by Oak Ridge Affiliated Universities, awards fellowships for graduate study leading to research-based master's or doctoral degrees in science-related fields. Hartman received a three-year, twelve-month fellowship in support of his doctoral research proposal, "Influence of microbial community composition on iron reduction, phosphorus sorption and polyphosphate accumulation in natural and restored wetlands." This is the second time in two years that the NSF Fellowship has been awarded to a DUWC graduate student. Ariana Sutton-Grier received a 2003 Fellowship in support of her proposal, "Optimizing wetland restoration site selection in the landscape to maximize ecosystem function."

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