



Rebirth of the Ruaha

A RIVER RUNS THROUGH TANZANIA—SOMETIMES **STORY AND PHOTOS BY PETE COPPOLILLO**

JANUARY 18, 2006: Last night as I lay in bed, I heard something unfamiliar. It was like an unsteady wind that bubbled and hissed. As I left my tent to look for the source of the noise, I knew that it could be only one thing: After 119 days, the Ruaha River was flowing again.

In five amazing minutes I watched a surge of water fill the 150-foot-wide channel below camp. The hissing grew louder as water filtered through dry sand in the riverbed and chased air upward. An hour and a half earlier I had walked in that riverbed and looked nearly five feet down into the hole we'd dug to water our entire camp. Now, brown silty water was moving fast, carrying chunks of foam churned from rapids upstream, and sticks, mats of grass, elephant dung, and all manner of dry-season debris. Within an hour, the chorus of frogs was so loud that a conversation would have been difficult. But it was just me there to watch and listen. The calls of the upstream frogs were out of sync with those downstream, but every once in a while their calls converged, creating a strange and deafening harmonic.

The River is reborn. I'm relieved, thrilled . . . and determined never to let it happen again. Strange as it seems, this beautiful event should not have come about. Not because the Ruaha River should remain dry; it never should have stopped flowing. Indeed, before 1993 the Great Ruaha flowed year round. Since then it has stopped every dry season—and for a longer spell each time. This year's drought—nearly four months—has been particularly bad.

Like many savanna ecosystems, Ruaha is water-driven. Everything from plant productivity to lion cub survival turns on water. During the 12 years of drying, Ruaha's water-dependent species—including hippo, buffalo, waterbuck, zebra, and crocodile—have seen approximately 60 percent of their habitat disappear during the long dry season, which can last from April until the following January. For some species the situation may be even worse. Countless fish concentrate in shrinking pools as the river dries. Their plight gives my colleagues and me a chance to see at least a few of the species that are hanging on. I photograph

some of the less fortunate individuals and send the pictures to Paul Loiselle, who is based at WCS's New York Aquarium. Paul is among the most knowledgeable taxonomists of Africa's freshwater fish, and I'm hoping he'll be able to give us insight into how the fish community is faring.

The culprits of the dry-up are familiar ones. Excessive and illegal diversion of water for industrial-scale rice cultivation has gulped most of this precious resource. The knockout blow came from about 200,000 cattle, goats, and sheep, tended mostly by the Sukuma people who fled environmental degradation and land shortages in northern Tanzania. The grazing and trampling from these immigrant herds has degraded the Ihefu Swamp, which historically regulated flow in the Great Ruaha by filling up during the wet season and draining slowly throughout the long dry season.

Ironically, the rice farms don't produce any more rice per hectare than the small-scale, rain-fed system they replaced. The only benefit of irrigated rice is that it can be produced out of season, when prices are higher. Adding insult to injury, few of the small-holders—the intended beneficiaries of the “modern” system—realized the higher prices; these were captured by middlemen with the economic means to transport rice to markets and the craftiness to collude and keep prices down in the villages.

A maddening situation? Yes. But we feel hopeful. Our WCS Rungwa-Ruaha Program is helping the local water authority set up a cooperative that will bypass the middlemen and link small-holder rice farmers directly to the markets. This will allow small-holders to capture the higher prices from irrigated rice. But increasing the profitability of rice could draw other producers into the market and exacerbate the water problem, so there's a catch: To gain access to higher prices and profits, rice growers must play by the rules. Only those producers who use water sustainably are allowed into the cooperative, and the cooperative itself will pay for water use according to efficiency and sustainability.

The second issue, livestock, is equally thorny. The Sukuma, Tanzania's largest tribe, are renowned for their hard work, and the fruits of their labor are stored on the hoof. As Shinyanga—their traditional homeland—became degraded, the Sukuma fanned out and have now colonized every other region of Tanzania. But Sukuma and their cattle are not welcome in most places because they compete for pasture with other cattle-keeping tribes and encroach upon fields tended by farming tribes.

When the Ruaha River is flowing, hippopotamuses crowd together (opposite). Right: The view as seen from the author's tent on January 22, 2006 (top), before the resumption of the flow. By February 16 (below), waters from the Ihefu Swamp and Usangu wetlands had reached his camp. Page 10: The unmistakable goliath heron, the world's largest heron.



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The Ihefu Swamp was one of Tanzania's last pastoral frontiers, until its ecological importance was recognized and the government of Tanzania established the Usangu Game Reserve to protect it. This happened decades ago, making trophy hunting the only legal use of the area. Unfortunately, it remained a "paper park" until after it was invaded by hundreds of thousands of livestock, and their eviction has become a political hot potato. The result: Ihefu resembles a feedlot with almost nothing left for wildlife. A 2003 survey by WCS and World Wildlife Fund found the ratio of livestock to wild ungulates to be more than 170 to 1.

Luckily, Tanzanians' birthright is abundant land, and the area surrounding Ihefu makes the situation less grim. To be sure, the outlying lands are not as productive as Ihefu. But a closer look at the livestock system shows that not every animal has to be moved to greener, more legal, pastures. Over 80 percent of the cattle herds in the Ihefu area tested positive for bovine tuberculosis, undermining their suitability for meat production. Disease, quarantines, and low productivity mean that well under 1 percent of all animals make it to market. Therefore, the economic returns from these huge herds are negligible. And because Sukuma use their cattle more like a bank account than do other cattle keepers, replacing the big herds with fewer, higher-quality animals is a realistic goal.

We're hoping to establish livestock extension and marketing opportunities with District Livestock Officers, to draw herders from the illegal pastures of Ihefu into less sensitive areas. We have also engaged the District Land Offices to ensure land tenure for the herders using the new areas. Fortunately, Tanzania's new land law provides for protecting grazing areas, but few herders know of or how to apply the new law. So while enforcement is an inevitable necessity, by helping pastoralists find a secure, legal place to graze their animals, we hope to soften the stick by presenting a carrot at the same time.

It will take a long time to restore the Ruaha River's year-round flow, and there will be setbacks and political hurdles. Sadly, I suspect that I will witness the Ruaha River's rebirth a few more times. But someday soon, we need to make the rebirth a thing of the past.

POSTSCRIPT, JUNE 12, 2006: The flow that started on January 18 lasted only two days. The tadpoles that filled the ephemeral pools were eaten or dried out as the pools vanished. After 26 more days without flow, a little over an inch of rain got the river running again. As I write, it is still flowing. I witnessed the bittersweet rebirth twice in two months, but I confess, the second experience still feels more bitter than sweet.

Later in January, after the first rebirth, Tanzania's hydroelectric plants cut production to about 35 percent of normal for lack of water, making power rationing a costly necessity across the country. Each day of rationing costs the power company \$200,000 and the Tanzanian economy over \$2 million. The rains brought a short reprieve, but rationing has resumed until the rains return in December—if they come on time, that is. The plight of the Ruaha is front-page news, and we're working hard to translate all this attention into action.

But the Great Ruaha isn't finished. Paul Loiselles has told me that some of the species we've seen indicate that the river is still fairly healthy. There are apparently some deep pools with enough dissolved oxygen to act as refugia for fish, and the hippos are likely helping to keep the pools oxygenated by stirring up the water with their wallowing and jostling for space. So, there's cause for hope as we commit, for the second time this season, to prevent future rebirths.

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