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**In the
Zebra Zone:
Not Just
Black and White**

Secrets of the Hippo Pod

**Learning the Language
of Animals**

**Helping People
Helps Mountain Gorillas**



Apes, Architecture, and Adventure in Africa

BY DREW HUBBELL,
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An American architect journeys to Uganda
to design a green research facility that will
someday help save the critically endangered mountain gorilla.

Have you ever considered what it would be like to design a project to benefit gorillas in their native habitat? Recently this opportunity became a reality for me. My firm's extensive experience creating designs that utilize green building materials, and our previous work with the San Diego Zoo Safari Park, led to a request to work with Conservation Through Public Health (CTPH), an environmental organization based in Uganda, Africa, to help design a gorilla research center in the Bwindi Impenetrable Forest National Park. Our firm is always up for a challenge, especially one that helps conserve mountain gorillas!

OPPOSITE PAGE: Mountain gorillas are gentle, contemplative great apes that will benefit from conservation efforts that include "capacity building" to train, support, and mentor people in the gorillas' range countries to study and protect them.

BELOW LEFT: People living outside national parks use the land both inside and outside the protected areas for subsistence, and this can put mountain gorillas at risk from disease and loss of habitat.

BELOW RIGHT: Gorillas live in troops of females and their offspring, protected by a mature silverback gorilla. They travel in search of succulent shoots and plants to eat.

Founded by Gladys Kalema-Zikusoka, D.V.M., the 2008 San Diego Zoo Conservation In Action Medal winner, CTPH takes a multi-pronged approach to gorilla conservation. Its mission is to "achieve gorilla conservation by enabling humans, wildlife, and livestock to coexist through improving primary healthcare in and around Africa's protected areas." Due to the genetic similarity of humans and gorillas (humans and gorillas share 98 percent of their genetic makeup), diseases are easily transmitted between the local human and gorilla populations. Thus, CTPH focuses mainly on studying and preventing the spread of diseases between humans, livestock, and the fragile mountain gorilla *Gorilla beringei beringei* population. There are only about 700 mountain gorillas left on the planet, and they all live within two forests bordering Uganda, Rwanda, and

the Democratic Republic of Congo. The limited range and profound vulnerability of these great apes makes CTPH's work crucial.

In April 2010, I embarked on a trip to Uganda to visit the project site in Bwindi. I set out in a CTPH Range Rover with 7 other members of the design team for a 10-hour drive to the Bwindi Impenetrable Forest National Park in southwestern Uganda. The drive allowed many opportunities to view the indigenous buildings of the Ugandan countryside, which consist mainly of adobe, wattle-and-daub, and brick-constructed walls with corrugated tin roofs. As an architect, I was taking mental notes for our project.

In Bwindi, we stayed at the Gorilla Research Campground in permanent tents nestled within the Impenetrable Forest. This steep, mountainous rain forest is, in fact, one of Africa's oldest habitats, having



GREAT APES, GREAT SCIENCE

BY KARYL CARMIGNANI, Staff Writer

Gorillas are one of our closest relatives, sharing nearly 98 percent of similar nuclear genetic material with humans. However, gorillas face a plethora of challenges in their African range including habitat fragmentation, disease, and poaching. Securing a future for critically endangered gorillas will take the synergy of conservation managers, scientists, and the commitment of local peoples to protect their wildlife. Tony Nsubuga, Ph.D., a geneticist at the San Diego Zoo Institute for Conservation Research™, is delving into the genetic mysteries of these great apes. He and his colleagues have already discovered significant genetic variability among different populations of lowland gorillas.

DNA samples from zoo gorillas and from wild gorillas across their range are being analyzed to gain new insight into their genetic relationships and population variability and structure. The goal is to classify zoo gorillas, and wild gorillas confiscated from poachers or those orphaned by poaching, into their original geographical or regional wild populations.

Our current genetic studies of wild great apes rely on fecal samples as a noninvasive source of DNA, because they are usually abundant and often yield sufficient amounts of DNA. Samples have been collected from Bwindi Impenetrable National Park, Uganda, and additional samples are being collected from the Ebo Forest gorillas in Cameroon by Bethan Morgan, Ph.D., head of the Institute's Central Africa Program.

"Dr. Nsubuga's work is critical to helping us understand and conserve wild gorilla populations, as well as empowering the next generation of conservation scientists in Uganda," said Allison Albarts, Ph.D., chief conservation and research officer for San Diego Zoo Global and CTPH board member. "At the Institute, we are committed to training Ugandan students who come to us to learn the techniques that allow them to genetically monitor gorilla populations in their home country."

Another key component of gorilla conservation is capacity building, which entails assisting range countries in their science-based conservation programs through training, support, and mentoring. The Institute's Genetics Division plays an important role in hosting range-country scientists—like Dr. Nsubuga from Uganda—so they can apply genetic tools and field methods in assessing and monitoring gorilla populations for generations to come. We are also in the process of forming similar collaborations with scientists from Rwanda, Democratic Republic of Congo, and Cameroon. This is great news for Africa's great apes!



All in the Family: Mountain gorillas share nearly 98 percent of similar nuclear genetic material with humans.

survived the last Ice Age. Working with members of the design team, we analyzed the building site and researched local building materials and methods to help us determine appropriate means of construction.

Early in the morning of my last day in Bwindi, I was lucky enough to join a small gorilla tracking tour. Setting off, we knew that once we found the gorillas, we would only be allowed one hour to view them. The Ugandan government limits human contact with each gorilla troop so the gorillas do not become too accustomed to (or disrupted by) people.

The mountain gorillas live in family units of 5 to 25 members. There are 10 known groups in this region. We trekked to the location where the Rhaga group of gorillas was last seen, hoping to pick up its trail, looking for signs like broken vegetation and indentations on the forest floor made by the group's night nests. Having grown up in arid Southern California, being in a real rain forest was a thrill! The lushness of the undergrowth, the size of the trees, and the limited light penetrating through the forest canopy all added to the magical experience. We hiked up and down steep, slippery hills,

forded a river, and slashed our way through the undergrowth with machetes.

Suddenly, one of our guides came running back, having located the gorilla family. We saw the gorillas climbing down from the giant trees they had been resting in. First came the silverback, the dominant male gorilla famed for his silver-saddled back, which males acquire at maturity. Next was an array of gorillas of different ages, including babies, juveniles, and mothers. The little ones slid down hanging vines like firemen on poles. A few times during our brief encounter we made eye contact, and I felt a strong connection to these gentle apes, something inexplicable.

Our time with the gorillas ended too soon for all of us. My task now is to take the program requirements presented to me by the CTPH staff and create a master plan for their site, which overlooks the Bwindi Impenetrable Forest. Our goal is to design a center that integrates the latest green building techniques while using local materials such as stone, clay bricks, and hardwoods. We plan to create a building that "grows out of the land" and helps the center's staff protect and preserve these amazing animals.