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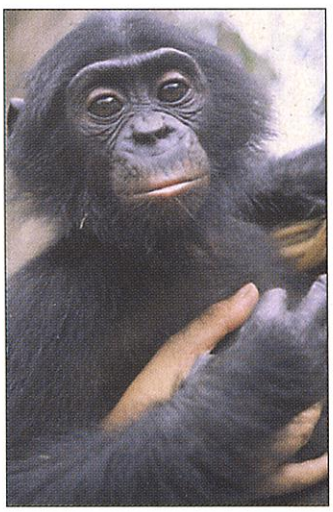
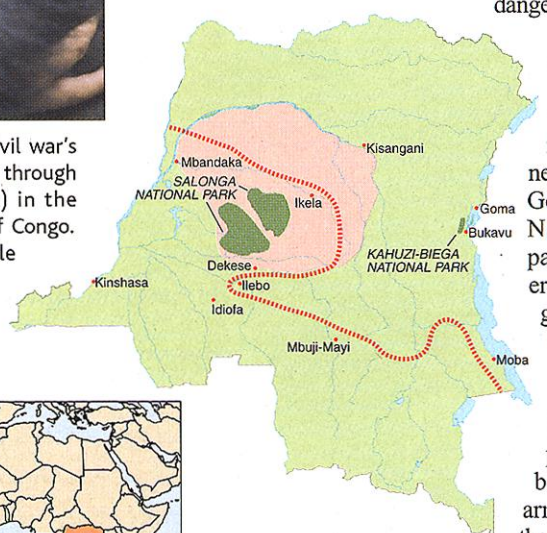
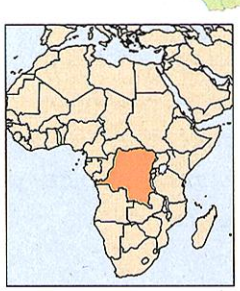
CONSERVATION

Conflict in Congo Threatens Bonobos and Rare Gorillas

The war that has gripped the Democratic Republic of Congo (DRC) for the past 18 months, killing thousands and displacing many more, is also taking a devastating toll on great apes. The front lines of the war, which involve troops from a half-dozen central African nations, cut through the heart of the range of bonobos, the so-called pygmy chimpanzees famous for their language-learning ability in captivity and their complex social behavior in the wild. Data are scarce and largely anecdotal because most researchers have left the country, but local conservationists have been warning in e-mails over the past few weeks that both bonobos and gorillas are severely threatened in parts of the country.







Collateral damage. Civil war's front lines (in red) cut through bonobo habitat (pink) in the Democratic Republic of Congo. Infant bonobos for sale *(above)* may signal increased poaching.

The bonobos and other apes are not caught in the crossfire but rather are falling prey to poachers as hungry troops and refugees seek out animals for meat. And they are especially vulnerable because military leaders have disarmed the guards in national parks, leaving them unable to patrol regions that might otherwise provide a safe haven.

The alarm went out in late February, when a conservation worker reported a sharp increase in the number of bonobo orphans arriving in Kinshasa, capital of the DRC, since January. Claudine Andre-Minesi, who runs a sanctuary in Kinshasa for young bonobos confiscated from illegal traders, told colleagues in an e-mail that in the first 2 months of this year, she confiscated eight orphans. The preceding year, she received only two. Eight orphans may not sound like a crisis, but to capture an infant, hunters usually have killed several family and group members, says Jo Meyers Thompson, a bonobo researcher in Snowmass, Colorado, and head of the Lukuru Wildlife Research Project in central DRC. "Those eight and their family members are the tip of the iceberg," she adds. "If that many infants are visible, there are an even greater number that are not making it in [to Kinshasa]."

Although Thompson acknowledges that the recent influx of young bonobos might be due to easier river transport between bonobo habitat and the capital, she sees it as an ominous sign. Conservation workers fear that if hunting continues at these "catastrophic levels," the species, which lives only in central DRC and is relatively little-studied in the wild, could be wiped out.

Some researchers are skeptical, however. When Michael Worobey, a graduate student with the late William Hamilton at Oxford University in the United Kingdom, traveled in northeast DRC in January, he and his colleagues were "overwhelmed" by the apparently intact forest that stretches over the region. Hunters the team hired to collect fecal samples from bonobos and chimps had little trouble finding animals in the area around Kisangani, a city in northeast DRC controlled by rebel forces. "The impression was that, at least in the area around Kisangani, chimp and bonobo populations have not suffered greatly," he says.

But there is little doubt about the threat facing gorillas farther east. Workers in the Kahuzi-Biega National Park, which overlooks Lake Kivu on the DRC's eastern border with Rwanda, report that poachers are devastating the eastern lowland gorilla, which was already threatened. More than half of the 240 gorillas known in one study section have been killed by poachers, according to an e-mail report from primatologist Juichi Yamagiwa of Kyoto University in Japan, who was in DRC last fall and has regular communication with people there. Several researchers say the situation is likely to be even worse in outlying areas of the park, which are more difficult to patrol. More than 80% of eastern lowland gorillas live in or around the park, and the subspecies "is now in critical danger of extinction," Yamagiwa says.

To protect the gorillas, several conservation groups have recently negotiated with rebels who control eastern DRC to rearm the park guards, says Annette Lanjouw of the International Gorilla Conservation Program in Nairobi, Kenya. Although the park has been cut off from government funding since the war began, conservation groups and the German development agency Deutsche Gesellschaft für Technische Zusammenarbeit have funded the guards for the past several years. Training will begin in April, says Lanjouw, and armed patrols should resume soon thereafter.

It is more difficult to protect the bonobos, says Lanjouw, because most live outside official parks. One of the best deterrents to poachers is the presence of researchers, says Sue Savage-Rumbaugh of Georgia State University in Decatur, who studies the language capability of bonobos in captivity. But that could be risky. Although the warring factions signed a cease-fire last summer and the United Nations has agreed to send peacekeeping troops to the region,

CREDIT: (PHOTO AND MAP SOURCE) E. VAN KRUNKELSVEN AND D. DRAULANS

clashes between government and rebel troops continue. Indeed, Thompson recently heard that her station had been looted and her Congolese collaborators had fled heavy fighting in the area.

Nevertheless, several research groups are looking into the possibility of returning to the DRC, whether or not the fighting stops. Photojournalist and conservationist Karl Ammann, for one, believes some limited research might be feasible even now. He traveled to northern DRC in February and says that rebel leader Jean-Pierre Bemba expressed support for conservation efforts and invited researchers back to the territory his troops control. Many researchers are reluctant to be perceived as supporting the rebels but are eager to return.

"The civil war might take several more years," says bonobo researcher Ellen Van Krunkelsven of the University of Antwerp in Belgium. "We cannot just sit and wait," she says, because bonobos might not have that long. **–GRETCHEN VOGEL**

FRANCE

Allègre Loses Job, Research Split Off

PARIS—Geochemist Claude Allègre was dumped this week as France's minister of research and education in a Cabinet reshuffle. Allègre, whose 3-year tenure invoked strong reaction from scientists and a series of protests and recent school closings from the powerful teachers' unions, was replaced on 27 March by Roger-Gérard Schwartzenberg, a lawyer and veteran politician. Prime Minister Lionel Jospin also sacked three other ministers and split Allègre's domain into two smaller ministries, with Jack Lang, a former culture minister, taking the education portfolio.

Gone. Allègre became a liability for the Jospin government.

Firing Allègre was not an easy step for Jospin, who has known the scientist since their university days 40 years ago. But for many researchers and teachers, Allègre had become the man they loved to hate. Allègre combined far-reaching reform proposals with an aggressive, combative style, and the mix was highly combustible (*Science*, 4 February, p. 781). With support for his Socialist government slipping, Jospin apparently had little choice but to dump Allègre and other unpopular ministers.

Allègre's departure leaves researchers wondering about the views of his replacement, who has no background in science. A professor of civil law at the University of Paris, Schwartzenberg served as secretary of state for education before being elected to the National Assembly in 1986. However, an initial interview with the French radio station France Info, in which Schwartzenberg stressed the importance of research to economic growth and pledged to encourage French industry to invest more in science, has some French scientists hoping for the best. Many researchers criticized Allègre sharply for pushing them to link up with industry without putting similar pressure on companies to take research more seriously. "Nothing was done to induce industry to treat research as other than a furnisher" of raw data, says Harry Bernas, a physicist at the University of Paris's Orsay campus.

Allègre's director of research, geophysicist Vincent Courtillot, says his boss had launched much-needed reforms. He cites the creation of hundreds of new research positions in the universities and of a fund to allow young researchers to gain independence early and start their own labs as examples of Allègre's commitment to research. Ironically, Allègre's departure came just days after part of his controversial reform package of the basic research agency CNRS was approved by its executive board. Two key elements, CNRS president Edouard Brézin told *Science*, are "greater freedom" to set its own research agenda and the creation of a "fully independent scientific council."

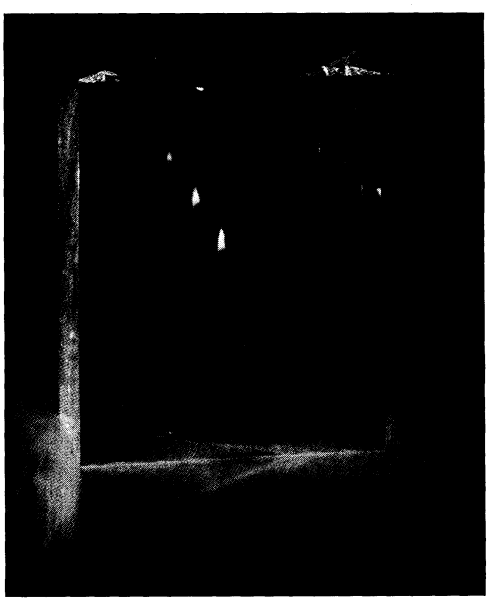
The reshuffling leaves unclear the status of Courtillot, a longtime Allègre colleague and his right-hand man at the ministry. And although many French scientists may rejoice at Allègre's departure, they agree on the need to shake up French research. "He was asking a lot of the right questions," says Bernas, "but giving the wrong answers." **–MICHAEL BALTER**

With additional reporting by Peter Coles in Paris.

MATERIALS SCIENCE

Mirror Film Is the Fairest of Them All

Imagine holding a rainbow in your hand—a flimsy plastic bag that glistens red, blue, green, violet, yellow, and orange as light bounces off it from different angles. Imagine holding another flimsy bag that is a perfect mirror for light waves oscillating in one direction, or polarization, while transparent for others. Now combine the two, and you can begin to picture the dance of light on a new plastic film produced by researchers at the 3M Corp. in St. Paul, Minnesota, and reported for the first time on page 2451.



Bright idea. Layered plastic can be tailored to play new tricks with light.

The new material is an assembly of thin, alternating layers of two common plastics that reflect different colors and amounts of light depending on the angle at which the light strikes them. And unlike previous multilayer mirrors, which are best at reflecting light that's traveling perpendicular to the mirror's surface, the new films can reflect light coming in at all angles equally well. That's likely to make them useful for everything from improving the light emission from laptop computer displays to funneling outdoor light deep inside buildings.

"It looks like a nice idea that can be used in a general way," says Shaul Mukamel, a chemical physicist and optics expert at the

CREDITS: (LEFT TO RIGHT) A. CLOPET/BLACK STAR; WEBER *ET AL.*/3M