FIELD NOTES

Balancing Human and Ecological Concerns in the DRC's Ituri Forest

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Abstract

One of the most challenging aspects of fostering truly sustainable development has been balancing the conservation of tropical forestlands against the demands of a growing population seeking access to new farmland and salable primary resources. While it is easy to justify the motives underlying conservation, implementing strategies that reverse deleterious practices such as slash-and-burn agriculture has proven extremely difficult. In the eastern Democratic Republic of the Congo (DRC), a recent demographic explosion complemented by a large wave of internal migration has driven a rapid encroachment on the region's Ituri Forest which, in addition to being one of the only accessible sources of new cropland, is considered to be one of the most important global biodiversity hotspots[1] and tropical species habitats.[2] These field notes present the current situation on the region's forest-savannah boundary, as well as some of the major variables that are likely to account for future variation in forest cover.[3]

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[1] Russell Mittermeier, Norman Myers, Jorgen Thomsen, Gustavo Da Fonseca, and Silvio Olivieri, "Biodiversity Hotspots and Major Tropical Wilderness Areas: Approaches to Setting Conservation Priorities," *Biodiversity*, 12:3 (1998): 516-520.

[2] S. Joseph Wright and Helene C. Muller-Landau, "The Future of Tropical Forest Species," *Biotropica*, 38:3 (2006): 287-301; Richard Eba'a Atyi and Nicolas Bayol, "The Forests of the Democratic Republic of the Congo in 2008," in Carlos de Wasseige, Didier Devers, Paya de Marcken, (eds), *The Forests of the Congo Basin-State of the Forest 2008*, (Luxembourg: Publications Office of the European Union, 2009), 111-124.

[3] These observations were recorded as part of a summer field session in the DRC funded by the Central African Program for the Environment (CARPE), a United States Agency for International Development (USAID) initiative aimed at promoting sustainable natural resource management in the Congo Basin. The program's objectives are to maintain or increase the region's biodiversity and to support local capacity to manage natural resources through a variety of training and environmental stewardship programs. Field notes were taken as part of a more specific project to inform a joint Sino-American wood fuels project that did not ultimately come to fruition. The underlying goal of the wood fuels project was to sponsor a tree plantation that would yield charcoal for domestic consumption. Field notes were taken by the author in the process of gathering data from a series of interviews and discussions with charcoal producers, consumers, distributors, and retailers.

The Great Rift

The Great African Rift Valley is a continental rift zone spanning approximately from Syria to Mozambique. The valley (actually, a series of roughly parallel valleys) marks the line of divergence of the African Plate into two new tectonic plates. Though the process of plate divergence is rather insignificant as an active process, the implications for human settlement in East Africa have been profound. Since even before the Bantu Expansion two millennia ago,[4] the Rift Valley has been prized for the rich soil resulting from its geological provenance. As such, the region supports some of the highest population densities in Africa, and was the site of many of the largest colonial plantation operations for this very reason. If you draw an imaginary line with your finger along the Rift Valley, what you find is an uninterrupted string of countries whose post-independence histories have been shaken by violent civil conflicts. Although much of this can be attributed to political tension resulting from post-colonial governance, the region's potential for conflict has been exacerbated by high population densities that produce greater competition for land, power, and resources, particularly in times of scarcity.

The recent history of the eastern Democratic Republic of the Congo (DRC) has been inextricably linked to this conflict for resources, as well as the aftermath of the 1994 Rwandan Genocide in which nearly a million Tutsi and moderate Hutu were massacred over the course of a hundred days. In the wake of this event, two million Hutu Rwandese fled across the Congolese border, creating additional pressures on eastern cities such as Goma and effectively displacing the ethnic conflict to the DRC. This influx of population, coupled with a general post-Mobutu political instability in the 1990s, triggered a series of civil wars in the Congo – involving several governments and an 'alphabet soup' of local militia groups – that continue to the present day through clashes between proxy actors and the national army which is composed of 'integrated' militias[5] (see image 1).

Conflict in the eastern Congo has claimed approximately 5 million lives since 1998. Quantifying the exact number remains difficult, as the indirect effects of conflict have been the main cause of death. Many of those who have survived the conflict have been displaced, however, and

[4] Merrick Posnansky, "Bantu Genesis-Archaeological Reflections," *The Journal of African History*, 9:1 (1968): 1-11.

[5] Peter Eichstadt, *Consuming the Congo: War and conflict minerals in the world's deadliest place* (Chicago: Lawrence Hill Books, 2011).

there are currently nearly 1.5 million internally displaced persons (IDPs).[6] The majority of Congolese IDPs do not live in the overcrowded refugee camps run by the UN, but rather with family or friends in neighbouring provinces.

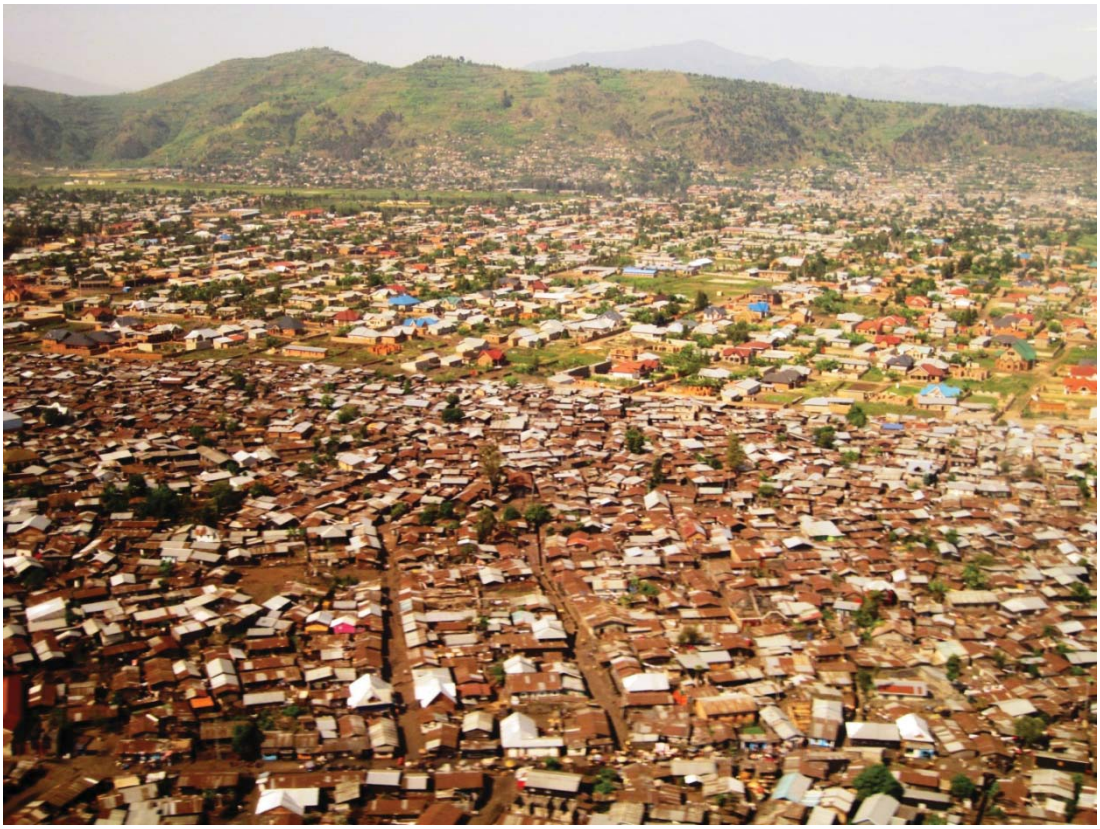

Image 1: Image of the Rwanda/Congo Border in Goma (Photo by Thomas Sigler)

Citoyens, Congolais

After 76 years of Belgian rule, Zaire (renamed DRC in 1997) achieved independence in 1960. In the half-century that has elapsed since this monumental date, the population of the DRC has increased from 16 million to 68 million. This trend shows no signs of abating, as the Congolese population is expected to double again by 2040 to approximately 130 million.[7] This growth will undoubtedly be accompanied by a host of grave economic and public health consequences. At the present, per capita incomes are among the world's lowest at less than $200 per year, and outbreaks of malaria and cholera remain quotidian occurrences. With the rapid addition of over 60 million

[6] United Nations High Commissioner for Refugees, "IDPs in the Democratic Republic of the Congo," http://www.unhcr.org/47b169204.html (accessed 15 March 2012).
[7] United States Census Bureau,"International Data Base: Congo (Kinshasa)," www.census.gov/population/international/data/idb/country.php (accessed 15 March 2012).

people in just three decades, the likelihood of any significant gains in either economic growth or public health are slim to none, barring both major increases in foreign aid and increased government capacity to manage foreign investment in an equitable manner.

One of the most certain outcomes of this population growth is a westward expansion of the eastern DRC's population. At the moment, the majority of the region's population is confined to a narrow corridor within 100km of the Ugandan, Rwandan, and Burundian borders. The populations of eastern cities such as Beni, Butembo, and Goma have swelled in recent years, as rural-to-urban migrants, IDPs, and others arrive in search of slightly better opportunities (see image 2).

Current Threats

As human settlement encroaches upon the Ituri Forest, located just to the west of these growing cities, accelerating slash-and-burn agriculture and projected population growth will certainly engender widespread forest degradation. To date, this encroachment process has been to some degree mitigated by the Congo Basin's moist Oxisols, which are high in acidity and best suited for tree crops, yielding only meager subsistence for farmers lacking access to significant amounts of capital.[8] Furthermore, preparing a field for cultivation is significantly more challenging than the name would reveal, and a widespread of lack of equipment (e.g. chainsaws) has kept the forest relatively intact (see image 3).

To be sure, the rate of deforestation in the DRC is relatively low by both African and global standards.[9] On one hand, the *Institut Congolais pour la Conservation de la Nature* (ICCN) – which has been charged with conserving the DRC's precious natural parks – has also made fair progress in decreasing the poaching of bushmeat as well as maintaining the integrity of park boundaries. Virunga National Park, for example, has been a highly publicized success story,[10] and in the past few years has even seen the return of a few foreign tourists interested in seeing one of

[8] Stanley W. Buol and Hari Eswaran, "Oxisols," *Advances in Agronomy*, 68 (1999): 151-195.

[9] Food and Agriculture Organization of the United Nations, "State of the Forests in the Amazon Basin, Congo Basin and Southeast Asia," *A Report Prepared for the Summit of the Three Rainforest Basins, 2011*, http://www.fao.org/docrep/014/i2247e/i2247e00.pdf (accessed 15 March 2012).

[10] Despite the rhetoric in the international media, conservation efforts in Virunga have been mixed in their effectiveness, with frequent incursions by poachers.

the only remaining Mountain Gorilla populations.[11]

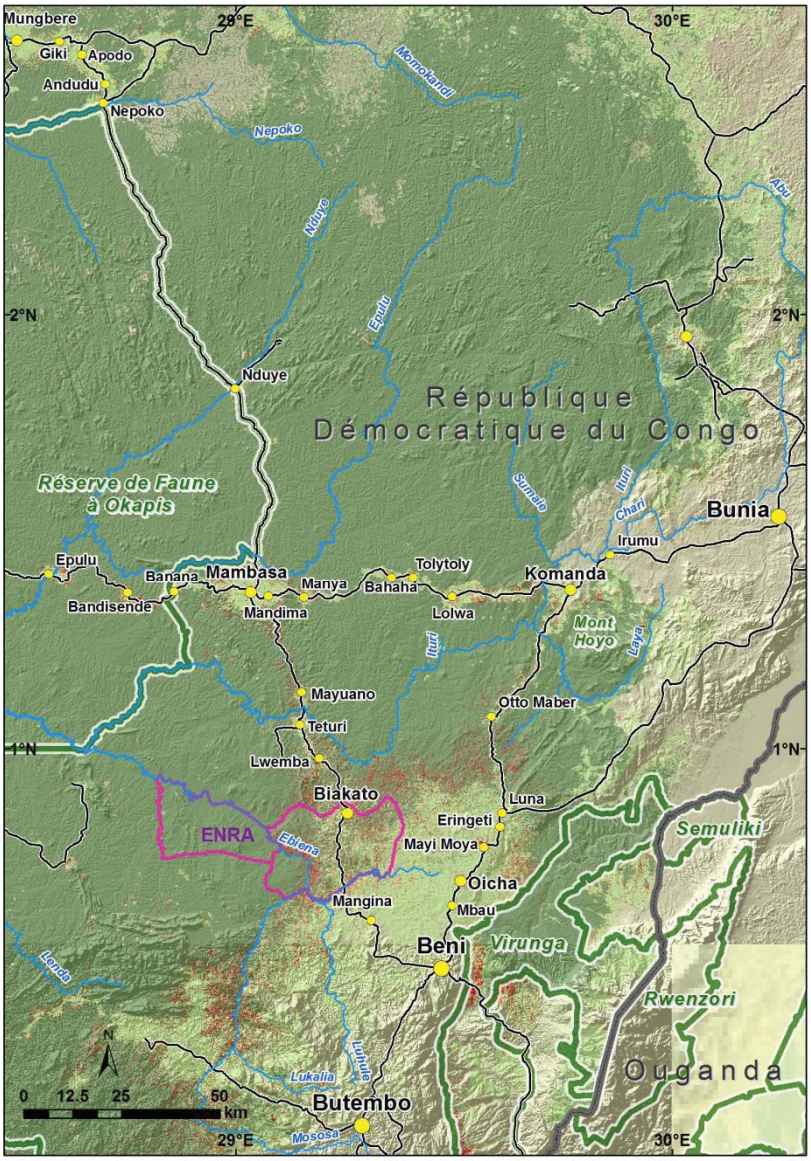

Image 2: Map of Forest-Savannah Boundary in the Ituri Region (Courtesy of Joel Masselink/WCS-Ituri Landscape project - financed by CARPE)

On the other hand, however, the relative intactness of the Congo's forestlands can be largely attributed to the lack of adequate infrastructure – both institutional and physical – to extract the region's untapped lumber and mineral resources. The region's road infrastructure is poor, with three or four dirt 'highways' comprising the national network. At several points, fallen bridges have been replaced by wooden ferries, which are unable to handle large volumes of commercial traffic. Conflict in the

[11] Jeffrey Gettleman, "In Congo, With Rebels Now at Bay, Calm Erupts," *The New York Times* on the Web, 3 March 2009, http://www.nytimes.com/2009/03/04/world/africa/04congo.html?ref=virunganationalpark (accessed 15 March 2012).

Image 3: Slash-and-Burn Agriculture (Photo by Thomas Sigler)

region was also beneficial to the region's forests, as foreign companies were reluctant to maintain operations in or near Ituri (see image 4).

The Future of the Forest

With commodity prices at an all-time high and the return of relative peace, the region's vast mineral resources have newly piqued the interest of foreign mining companies. The DRC's subsoil contains literally trillions of dollars in precious metals and stones, and the country's export of minerals already exceeds $6 billion annually.[12] Between 2007 and 2010, the Chinese government (or, to be more precise, disparate actors connected to China's state-owned mining industries) sponsored over $9 billion in infrastructure improvements nationwide, in return for an equal amount in mining concessions.[13] Many of the eastern DRC's roads have thus been greatly improved, providing renewed access to remote areas in the region *(see image 4).*

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[12] Thomas R. Yager, "Congo (Kinshasa)," *2009 Minerals Yearbook,* Washington, DC: United States Geological Survey, 2009, http://minerals.usgs.gov/minerals/pubs/country/2009/myb3-2009-cg.pdf (accessed 15 March 2012).

[13] Franz Wild, "China to Proceed with $9 Billion Congo Plan, Ambassador Says," *Bloomberg News,* 3 March 2009, http://www.bloomberg.com/apps/news?pid=newsarchive&sid=aGh8yVIndUog (accessed 15 March 2012).

Image 4: Wooden Ferries carrying commercial traffic across the Aruwimi River (Photo by Thomas Sigler)

By export value, cobalt and copper are currently the most significant mineral exports, though diamond and gold extraction has historically been significant and is expected to rise sharply in the near future.[14] In addition, the country is a significant source of tungsten and cassiterite (a form of tin), and has 64% of the world's known coltan reserves, a critical component in the production of mobile phones.[15] Though more recent legislation has sought to legitimize the industry, mostly through partnerships with European, Canadian, and Australian mining companies, much of the mineral extraction is carried out on an artisanal scale, often to underwrite the activities of rebel and militia groups.

As the mining industry moves in, the logging industry follows closely behind. The abundance of valuable tropical hardwoods becomes more readily exploitable as trucks are able to access these remote tree stands. The roads and other infrastructure put in place by mining companies provide artisanal loggers with easier access to key exportable species.

[14] Yager.
[15] United States Government Accountability Office, "The Democratic Republic of the Congo," *Testimony before the Congressional Human Rights Caucus*, Washington, DC: GAO, 2008.

Mahogany and other species such as *Sapeli, Tiama, Iroko* are harvested primarily for export as furniture, flooring, and dimensional lumber to East Africa, and onward to European markets.[16] Once logging companies 'open up' forest lands by extracting key species, farmers and charcoal producers are close behind. Barring the unlikely event of power plants and grid infrastructure providing energy to the region's consumers, charcoal is and will remain the primary source of residential energy.[17] Charcoal fires provide heat for cooking and bathing, and as the DRC's eastern cities expand, the demand for briquettes will need to be sourced from ever more remote lands (see image 5).

With roads in place and many of the largest trees removed, the process of clearing a field for use as cropland or pastureland becomes significantly easier. Farmers with even the most rudimentary tools are able to access new land that can be cleared for agriculture. The potential of the mining-logging-charcoal-farming nexus to increase its regional impact remains great. Representatives from numerous international gold mining outfits, including Anglo-Gold-Ashanti, Kilo-Gold, Loncor, and Rio Tinto are active in the region, and with the increased capabilities of geophysical surveying, are able to target known deposits with increasing confidence.

The continued vitality of Ituri and other segments of Congolese forestlands is highly contingent upon the mining industry's fate. Ceded concessions already cover much of the Ituri forest, and the introduction of industrial mining operations has also attracted many migrants. The industry is the only major sector with the capital resources to rapidly improve infrastructure or to rapidly influence the local economy, therefore acting as a veritable human magnet in the DRC context. Thus, in the likely event that mining activity increases, it is probable that a host of ancillary industries will follow, posing a substantial threat to the region's biodiversity and greatly undermining the government's capacity to enforce conservation objectives.

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[16] Jean-Remy Makana, "ENRA Forest Concession Land-Use Planning in the Ituri-Epulu-Aru Landscape, Democratic Republic of the Congo," in David Yanggen, Kenneth Angu, and Nicodeme Tchamou, (eds), *Landscape-Scale Conservation in the Congo Basin*, (Gland, Switzerland: IUCN, 2010), 91-95.

[17] Deanna Wolfire, Jake Brunner, and Nigel Sizer, "Forests and the Democratic Republic of the Congo: Opportunity in a Time of Crisis," *Forest Frontiers Initiative*, (World Resources Institute, 1998); Jean Noel Marien, "Peri-Urban Forests and Wood Energy: What are the perspectives for Central Africa," in Carlos de Wasseige, Didier Devers, Paya de Marcken, (eds), *The Forests of the Congo Basin- State of the Forest 2008*, (Luxembourg: Publications Office of the European Union, 2009), 209-221.

Image 5: Charcoal for sale on the roadside (Photo by Thomas Sigler)

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