Mapping Evil – A GIS Analysis of Events Associated With the Lord's Resistance Army of Uganda 2009-2011

This project attempts to document and analyze using spatial statistics, the activities of the Lord's Resistance Army (LRA) in the period of 2009-2010. This analysis is derived from geospatial, unclassified open source intelligence, to include open source press statements, academic journals and articles, and international and NGO databases. The multi-layer analysis relies heavily on Open-Source analysis, geospatial techniques and modeling. While data gaps remain, it is hoped that the displayed outputs can be used to focus limited resources on locations with the highest likelihood for success.

Transient populations are often associated with regional conflicts and are referred to as internally displaced persons (IDPs). Predicting them ahead of time is often difficult. Secondary problems include recruiting activities, impact to remaining/local population, and forcing incompatible populations together. These populations are often vulnerable. To first bound the analysis the following questions must be asked:

- How does Lord's Resistance Army (LRA) activity relate to IDP activity?
    - Where is LRA activity occurring?

- o   What data are useful/needed for this analysis?

- o   Is the LRA cycle tied to recruiting/conscription?

- Where is Internally Displaced Population (IDP) activity likely to occur?

  - o   Where are IDP settlements likely to be located?

  - o   How do these locations overlay with natural resources and other strategic assets (e.g. social factors) on the continent?

We first should begin with a basic understanding of the sheer scope of the problem based on such geographic factors as size, access and the movements of IDPs on the African continent as well as a short description of what the LRA is. Figures 2 and 3 provide a perspective as to how large the African land mass actually is. Africa is over 30.3 million square km. Combined, the lower 49 of the US, India, Argentina, Western Europe, the British Isles and China make up just 29.8 million sq km, so, these entire landmasses could be fitted into the boundary of the continent with 500k sq km to spare. The misunderstanding of the size of Africa is due to the fact that most people are familiar with a transverse Mercator projection of the world. While it is beyond the discussion of this project, simply put, the Mercator is a projection that stretches distances east-west and distorts the north-south areas excessively in high latitudes[1] making land masses centered around the equator appear smaller than they actually are. So while in Figure 4, the Area of Interest (AOI) appears small when overlain on the continent, the area contained within the red box is approximately 80% the size of California. This is the current operating area of the LRA and crosses over the national boundaries of the Central African Republic (CAR), the Democratic Republic of the Congo (DRC), Uganda and Sudan. This area comprises one of the poorest and most isolated areas of the world – both factors that contribute to the longevity of the LRA. Roads and communication in the LRA's area of operation are severely degraded, hindering

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[1] From http://en.wikipedia.org/wiki/Transverse_Mercator_projection accessed on 21Aug2011.

international and regional trade. While al-Qaida affiliates, such as AQIM, rely on major trade

routes and smuggling networks for facilitation, day-to-day sustainment, and operational

movement, these major trade routes do not appear to be a supporting factor for the LRA. Rather,

just as inaccessibility in this area leaves villages cut off from security and humanitarian services,

this also creates the circumstances for allowing the LRA to take advantage of these remote
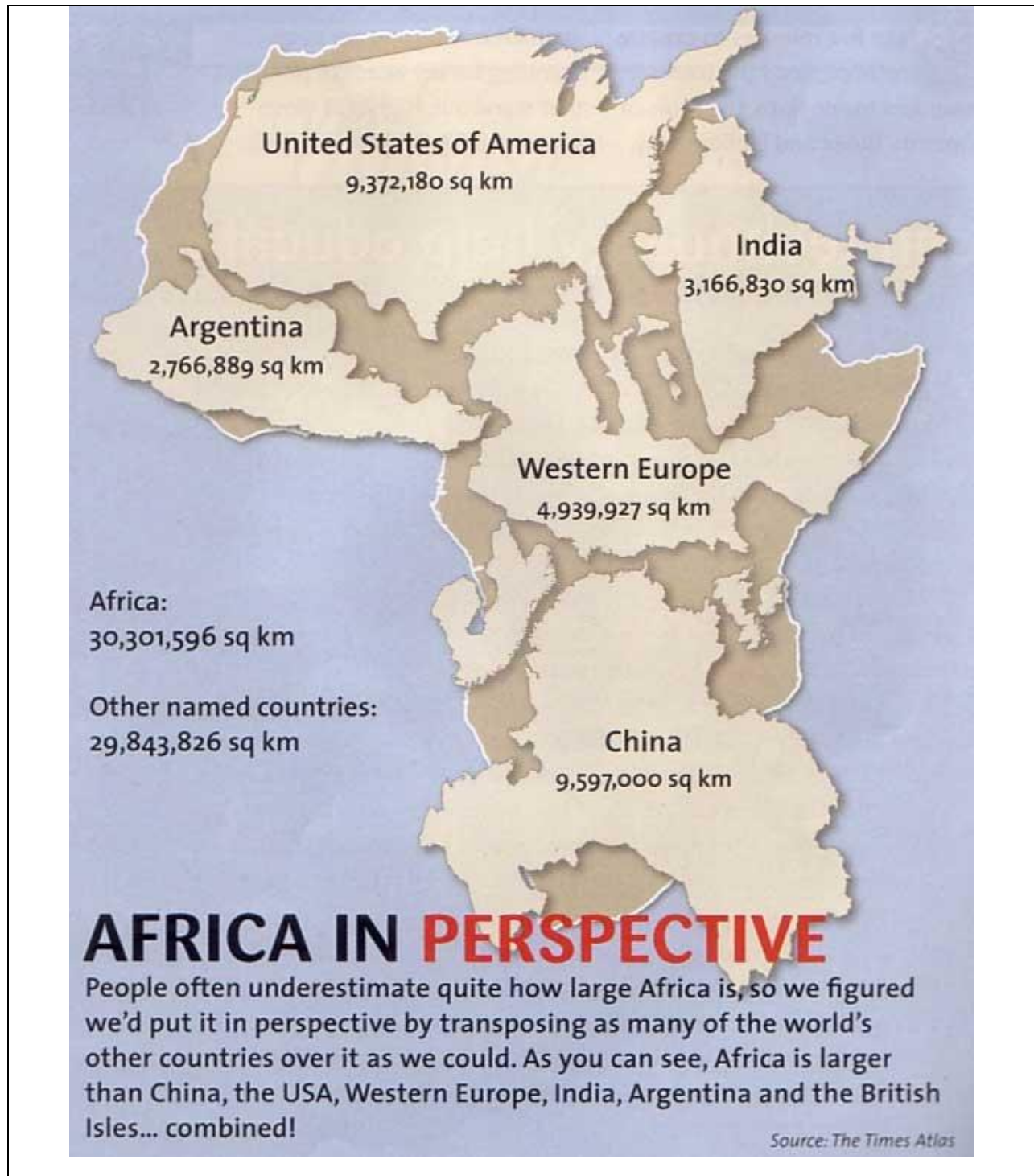
villages for logistical support.

Figure 1. Africa is a huge landmass that could easily contain much of the rest of the worlds land areas with room left over. http://african-dawn.blogspot.com/2010/10/africa-according-to-worldand-in.html

The **True Size** of Africa

A small contribution in the fight against rampant *Immappancy*, by **Kai Krause**

Graphic layout for visualization only (some countries are cut and rotated)
But the conclusions are very accurate: refer to table below for exact data

COUNTRY	AREA x 1000 km²
China	9.597
USA	9.629
India	3.287
Mexico	1.964
Peru	1.285
France	633
Spain	506
Papua New Guinea	462
Sweden	441
Japan	378
Germany	357
Norway	324
Italy	301
New Zealand	270
United Kingdom	243
Nepal	147
Bangladesh	144
Greece	132
TOTAL	**30.102**
AFRICA	**30.221**

In addition to the well known social issues of *illiteracy* and *innumeracy*, there also should be such a concept as "*immappancy*", meaning *insufficient geographical knowledge*.

A survey with random American schoolkids let them guess the population and land area of their country. Not entirely unexpected, but still rather unsettling, the majority chose "*1-2 billion*" and "*largest in the world*", respectively.

Even with Asian and European college students, geographical estimates were often off by factors of *2-3*. This is partly due to the highly distorted nature of the predominantly used mapping projections (such as *Mercator*).
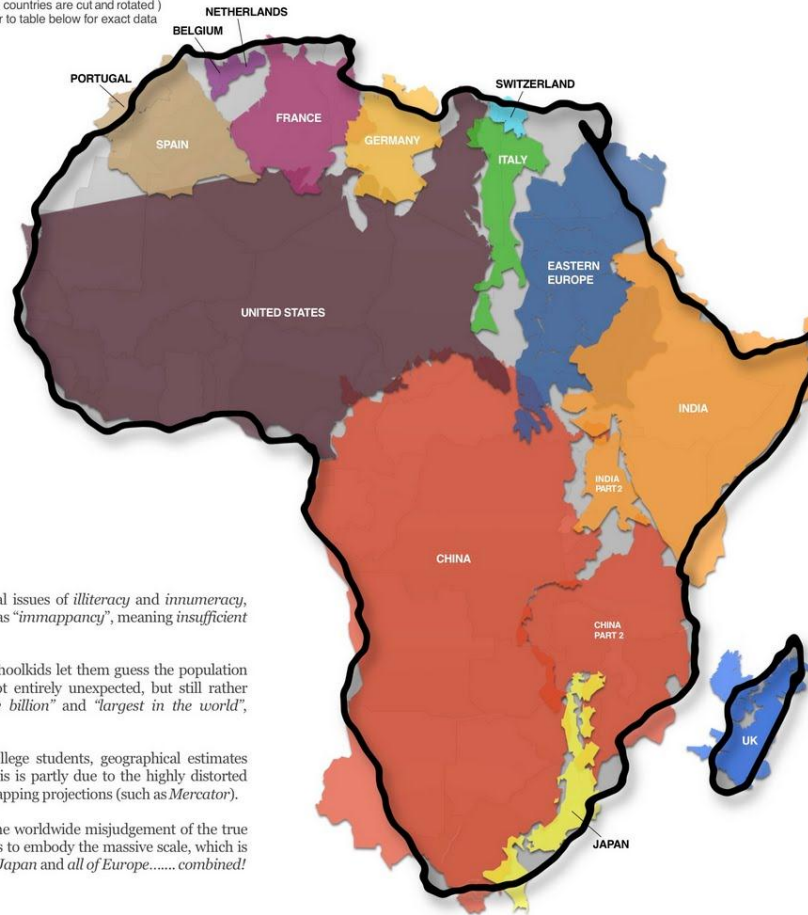
A particularly extreme example is the worldwide misjudgement of the true size of *Africa*. This single image tries to embody the massive scale, which is larger than the *USA, China, India, Japan* and all of *Europe*....... *combined!*

Top 100 Countries

Area in square kilometers, Percentage of World Total
Sources: Britannica, Wikipedia, Almanac 2010

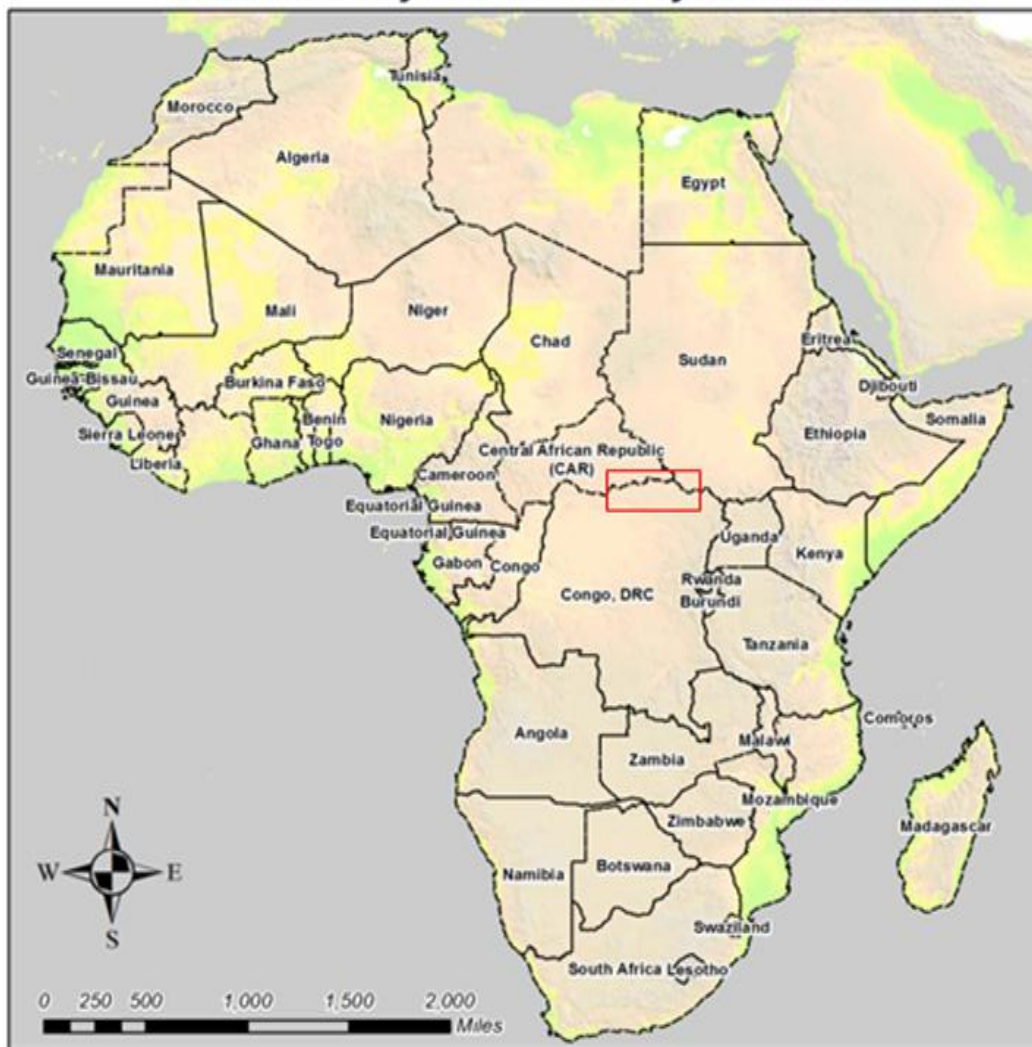|		AREA km²	%
1	Russia	17.098.242	11,50
2	Canada	9.984.670	6,70
3	China	9.596.961	6,40
4	United States	9.629.091	6,40
5	Brazil	8.514.877	5,70
6	Australia	7.692.024	5,20
7	India	3.287.263	2,30
8	Argentina	2.780.400	2,00
9	Kazakhstan	2.724.900	1,80
10	Sudan	2.505.813	1,70
11	Algeria	2.381.741	1,60
12	Congo	2.344.858	1,60
13	Greenland	2.166.086	1,50
14	Saudi Arabia	2.149.690	1,40
15	Mexico	1.964.375	1,30
16	Indonesia	1.860.360	1,30
17	Libya	1.759.540	1,20
18	Iran	1.628.750	1,10
19	Mongolia	1.564.100	1,10
20	Peru	1.285.216	0,86
21	Chad	1.284.000	0,86
22	Niger	1.267.000	0,85
23	Angola	1.246.700	0,85
24	Mali	1.240.192	0,83
25	South Africa	1.221.037	0,82
26	Colombia	1.141.748	0,76
27	Ethiopia	1.104.300	0,74
28	Bolivia	1.098.581	0,74
29	Mauritania	1.025.520	0,69
30	Egypt	1.002.000	0,67
31	Tanzania	945.087	0,63
32	Nigeria	923.768	0,62
33	Venezuela	912.050	0,61
34	Namibia	824.116	0,55
35	Mozambique	801.590	0,54
36	Pakistan	796.095	0,53
37	Turkey	783.562	0,53
38	Chile	756.102	0,51
39	Zambia	752.612	0,51
40	Myanmar	676.578	0,45
41	Afghanistan	652.090	0,44
42	Somalia	637.657	0,43
43	France	632.834	0,43
44	C. African Rep	622.984	0,42
45	Ukraine	603.500	0,41
46	Madagascar	587.041	0,39
47	Botswana	582.000	0,39
48	Kenya	580.367	0,39
49	Yemen	527.968	0,35
50	Thailand	513.120	0,34
51	Spain	505.992	0,34
52	Turkmenistan	488.100	0,33
53	Cameroon	475.442	0,32
54	Papua New Guinea	462.840	0,31
55	Uzbekistan	447.400	0,30
56	Morocco	446.550	0,30
57	Sweden	441.370	0,30
58	Iraq	438.317	0,29
59	Paraguay	406.752	0,27
60	Zimbabwe	390.757	0,26
61	Japan	377.930	0,25
62	Germany	357.114	0,24
63	Rep o.l. Congo	342.000	0,23
64	Finland	338.419	0,23
65	Vietnam	331.212	0,22
66	Malaysia	330.803	0,22
67	Norway	323.802	0,22
68	Côte d'Ivoire	322.463	0,22
69	Poland	312.685	0,21
70	Oman	309.500	0,21
71	Italy	301.336	0,20
72	Philippines	300.000	0,20
73	Burkina Faso	274.222	0,18
74	New Zealand	270.467	0,18
75	Gabon	267.668	0,18
76	Western Sahara	266.000	0,18
77	Ecuador	256.369	0,20
78	Guinea	245.857	0,17
79	United Kingdom	242.900	0,16
80	Uganda	241.038	0,16
81	Ghana	238.539	0,16
82	Romania	238.391	0,16
83	Laos	236.800	0,16
84	Guyana	214.969	0,14
85	Belarus	207.600	0,14
86	Kyrgyzstan	199.951	0,13
87	Senegal	196.722	0,13
88	Syria	185.180	0,12
89	Cambodia	181.035	0,12
90	Uruguay	176.215	0,12
91	Suriname	163.820	0,11
92	Tunisia	163.610	0,11
93	Nepal	147.181	0,10
94	Bangladesh	143.998	0,10
95	Tajikistan	143.100	0,10
96	Greece	131.957	0,09
97	Nicaragua	130.373	0,09
98	North Korea	120.538	0,08
99	Malawi	118.484	0,08
100	Eritrea	117.600	0,08
	TOP 100 TOTAL	132.532.524	89,34

United States

Europe

India

Japan

China

Figure 2. Another view showing the relative size of the African continent compared to other land masses. http://african-dawn.blogspot.com/2010/10/africa-according-to-worldand-in.html

Area of Analysis LRA Activity 2009-2010

Original Map Design by Dr. (LtCol) Michael L. Thomas
Data from World Resource Institute and Cloudmade

Figure 3. The red box above depicts the scope of the following analysis. We will refer to this area as the Tri-Border region. The red box is the area of interest (AOI) that will be discussed throughout the rest of the study. The red box is the particular AOI that will be the focus of the discussions on the LRA activities and is in fact the current area of operations (AO) for the LRA. As depicted it is approximately 500 miles by 250 miles or 125,000 sq miles but could fluctuate as attacks occur. For comparative purposes the total area of California is 158,706 sq miles.[2] So the AOI is approximately the size of the state of California. It is essentially ungoverned territory.

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[2] From http://www.city-data.com/states/California-Location-size-and-extent.html accessed on 21Aug2011.
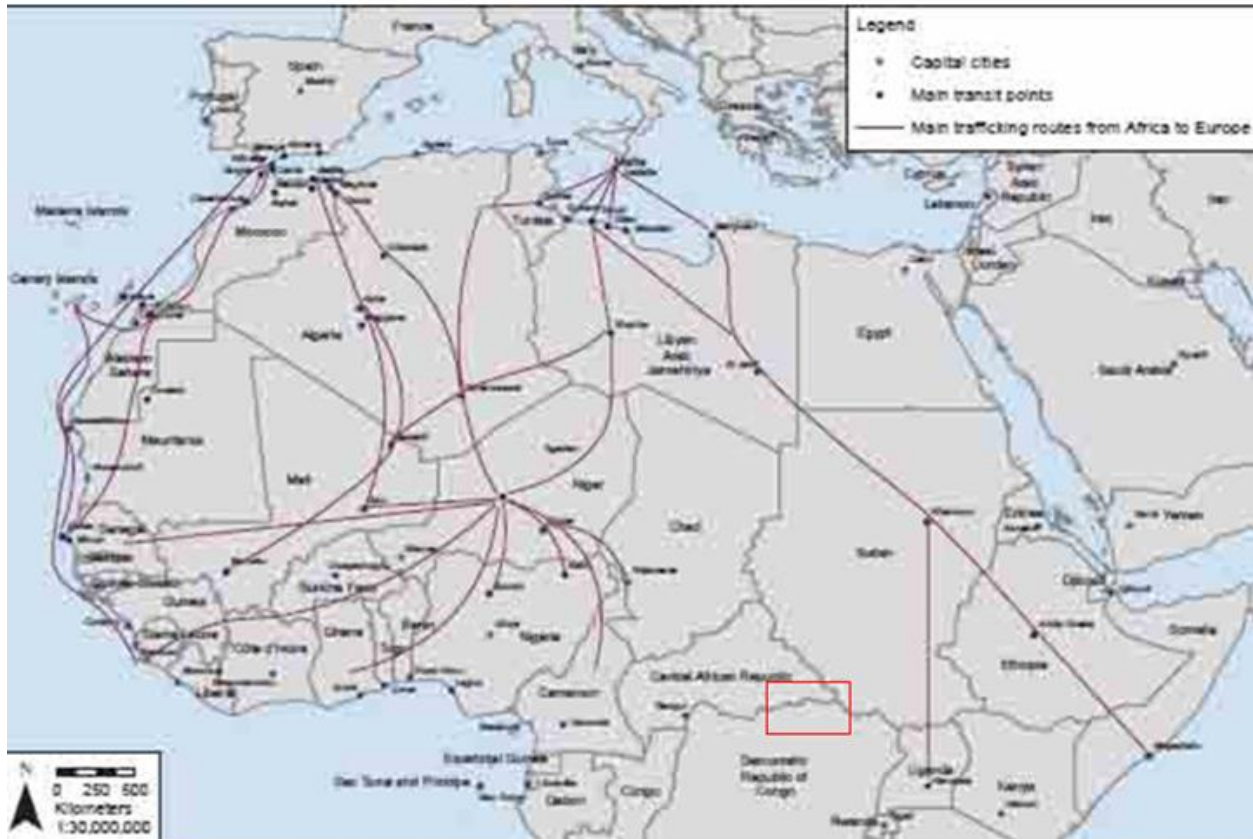
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Figure 4. Smuggling and trade routes in central and northern Africa. Notice that the AOI is completely off the standard tracks for any trade or smuggling. Why is this important? If it's hard to get goods thru or to an area, it's hard to get help, aid and assistance in. From http://www.unodc.org/unodc/en/human-trafficking/2008/impact-programme.html This fact contributes directly to the longevity of the LRA. It is an extreme example of an area that is both sparsely populated and difficult to reach due to poor infrastructure. Again, be mindful that the AOI is almost as large as California. The red box represented above depicts the scope of the following analysis. While many trade routes pass through AQIM and al-Shabaab areas of operation (these illicit trade routes are inherently used by local traders, regional smugglers, and al-Qaida members alike), the LRA is geographically isolated from the major trade and smuggling routes.[3]

While it is a remote area, it is not completely unknown. The tri-border region between

DRC, Sudan, and CAR share one predominant ethnic identity and language – Azande. A shared

culture and frequent intermarriage result in continuous cross-border movement throughout the

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[3] Image taken from the Old World Trade Routes (OWTRAD) project.

region and so it is a perfect example of an "ungoverned space.[4]" The religion among the Azande is historically animist blended with modern-day Christianity, but on whole they are deeply superstitious – and this plays into the psyops[5] practiced by the LRA. Natural resources, such as diamond and gold mining, account for 40% of CAR's GDP[6], however, natural resources do not appear to be linked to LRA activity. Subsistence agriculture remains the backbone[7] economic activity of the region.

LRA attacks have devastated the region as well as a lack of humanitarian aid and security of the economy. Many "local communities" are ceaselessly on the move in the best of times and are reluctant to settle permanently in one location. Mbororo nomadic herders have also been moving into the region due to the lack of security[8] in other areas, causing competition for land between herders and farmers.

The word Azande means "the people who possess much land", and refers to their history as conquering warriors. They speak Zande[9], which they call Pazande in their language. It is an Adamawa-Ubangi derived language. They have been traditional small-scale farmers and settled land owners, raising only chickens until the 1980s; but now they also include goats and pigs. Their traditional beliefs in magic and witchcraft, known as 'mangu', are strong. Several near-

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[4] "This triangle [DRC, CAR and South Sudan] is basically ungoverned territory," said Thierry Vircoulon of the Brussels-based International Crisis Group. "The rebels can stay there for a very long time." From http://iwpr.net/report-news/war-lra-rebels-loses-momentum accessed on 21Aug2011.

[5] He is estimated to have taken 104,000 or more boys and girls since the LRA started fighting in 1986. He often killed their family and neighbors when abducting these children, forcing them to fight for him. from *"Innocents Lost: When Child Soldiers Go to War"* 2005 p. 105-144, by Jimmie Briggs.

[6] From the CIA Factbook, accessed on 22Aug2011 from https://www.cia.gov/library/publications/the-world-factbook/geos/ct.html

[7] From http://en.wikipedia.org/wiki/Economy_of_the_Central_African_Republic accessed on 21Aug011.

[8] Systematic attacks on settlements in CAR have forced more than 60,000 people from the Mbororo tribe to flee to neighboring Cameroon. UNHCR is trying to help these nomads (herdsmen) start over. In the triborder region the result has been a tension between the Azante (farmers) over land and water resources contributing to the tension in the area. http://www.unhcr.org/cgi-bin/texis/vtx/page?page=49e45c156

[9] The Azande land is tropical rain forest that enjoys high annual rainfall. This makes it a an area with a very high agricultural potential. The Azande are subsistence farmers and grow food crops such as maize, cassava, and mangoes etc. http://www.gurtong.net/Peoples/PeoplesProfiles/Azande/tabid/179/Default.aspx. This contributes to making a target of convenience for LRA. Their tribal region extends all through the tri-border area.

daily rituals exist that focus on protection from or canceling out the powers of witchcraft. Although non-government organizations (NGOs) do frequent these areas, the remoteness of the location, lack of security, and LRA attacks make it difficult and dangerous to establish a presence for humanitarian aid or even quick response from military forces.

Figure 5. Range of the ethnic language group of the Azande – the primary group in the tri-border region and the main targets of the LRA – currently. From http://llmap.org/languages/zne/static_map.html accessed on 21Aug2011.

The Lord's Resistance Army is led by Joseph Kony, an ethnic Acholi (Uganda) from northern Uganda. The group's ideology and objectives are vague – they have pledged to rule Uganda by the Bible's Ten Commandments. The group uses terror to induce fear and control over civilians and amasses supplies and personnel (child soldiers and sexslaves) by attacking villages. In 2005, military pressure forced the LRA out of Uganda[10] and while now in "exile" they now operate primarily in the NE Democratic Republic of the Congo (DRC), south Sudan

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[10] The LRA originated in Uganda, but since the signing of the cease fire agreement between the Ugandan government and the LRA in 2006, it has been active in the neighboring countries of the tri-border region. From http://www.internal-displacement.org/publications/global-overview-2010-africa.pdf accessed on 22Aug2011.

and the Central African Republic (CAR). These regional governments lack the ability to maintain security in LRA-afflicted areas which combined with the remoteness of the area, allows the LRA to continue to demonstrate the ability to survive in this inaccessible region. In mid-March and early May 2011, the LRA transitioned to CAR, as demonstrated by their attacks centered on the villages of Mboki, Agoumar, Guerekindo, Bouete, Kitessa, and Miskine[11] combined with 10 attacks in Haut Mbomou Province that left 36 dead, 10,000 displaced, and 411 people fleeing to DRC. The LRA is as such a major factor of regional instability in the area between northeastern DRC, northern Uganda, south Sudan and CAR. Since December 2008, when the Ugandan Army launched "Operation Lightning Thunder" aimed at hunting down Joseph Kony, the LRA leader and destroying the LRA military capabilities, the presence of the organization has become even more regionalized with continuous foraging movements of smaller cells between each of the three countries in the tri-border region. Summarized in a report from Relief Web, [12] just since December 2010, in CAR alone, the LRA has killed more than 80 people and abducted another 334, more often than not with continuous abuses against civilians (mostly women and children), who are forcibly recruited[13] to provide troops (the children) and "bush wives" (the women). Today, the majority of LRA ground force is comprised of child soldiers, with some estimating the number around 80% of the total strength of the force.

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[11] As documented in the report "*LRA Regional Update: DRC, CAR and southern Sudan: April - May 2011*" http://reliefweb.int/node/423464 accessed 19Aug2011.

[12] From http://reliefweb.int/node/394853 accessed on 22Aug2011.

[13] Sexual violence, including rape, continued to be a particular problem, notably in eastern DRC. The forced recruitment of children, including internally displaced children, was reported in countries including Chad, DRC and Somalia. From http://www.internal-displacement.org/publications/global-overview-2010-africa.pdf accessed on 22Aug2011.
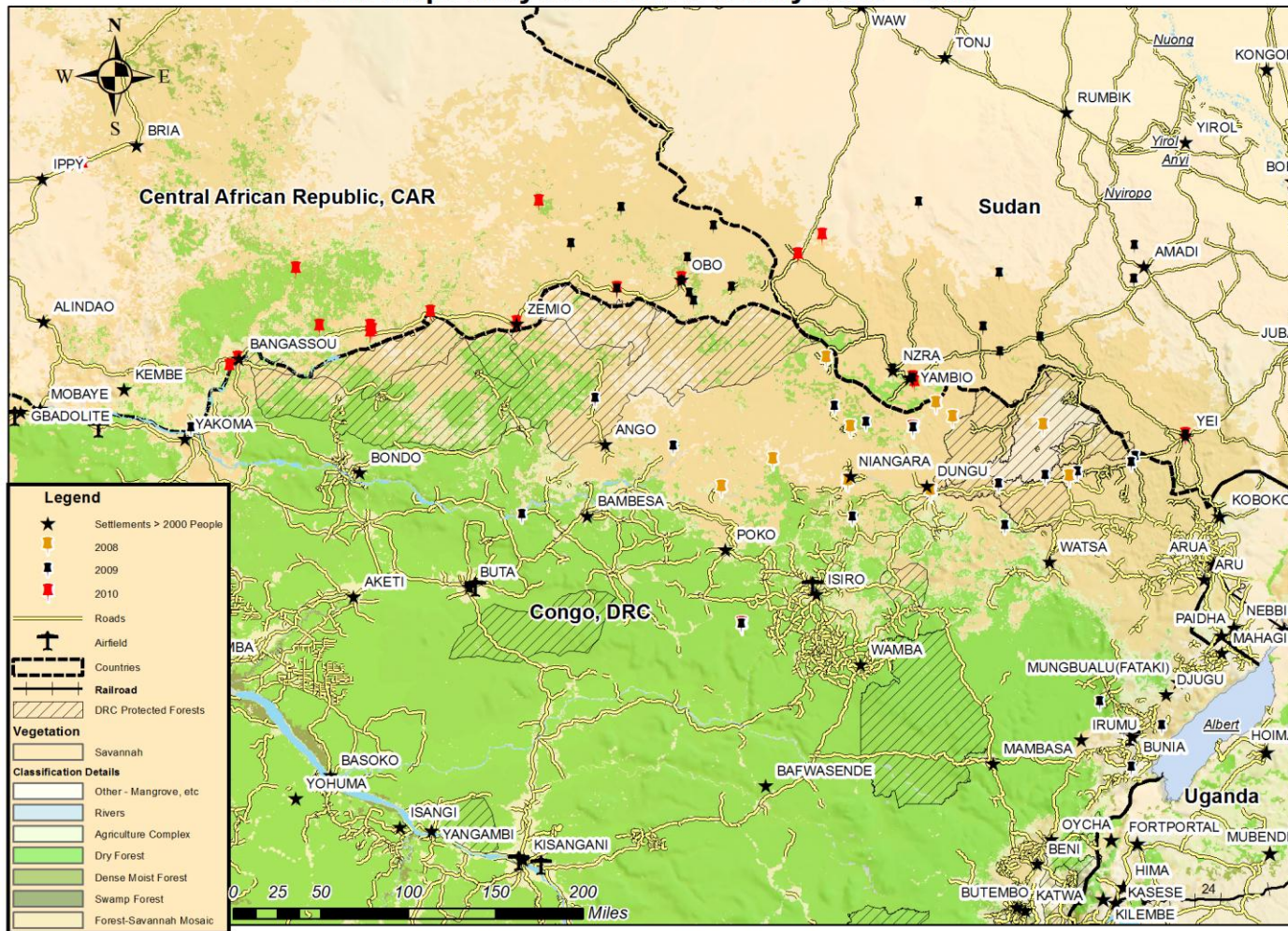
Currently, around 348,000 LRA induced IDPs live in the three countries of the tri-border region.[14]

Uganda's description of the Lightening Thunder operation in 2008, as being a success ignores the secondary and tertiary effects it has had on destabilizing the entire region since then. The Ugandan government characterizes the LRA as a "causeless and homeless group" whose most pressing concern is day to day survival[15]. The Ugandan government's position it that is has killed or captured more than 350 LRA fighters and states there are only about 200 remaining. As a metric of the operation's (Lightening Thunder) success and of the LRA's "health," there are some problems with these numbers. First – they are hard to verify and secondly the government has been accused of manipulating the numbers for political purposes. By the LRA's fluid nature, it's very difficult to determine who is a fighter and who is not (child soldiers or slaves?). The LRA is almost constantly kidnapping villagers, killing many and training others to become fighters while keeping still others – women and girls in particular – as laborers and sex slaves. Currently the LRA is scattered in small groups across a huge area (the tri-border region), so it is even more difficult to know their actual numbers. ***One question it raises – with thousands abducted, what has become of the majority if the count is now actually down in the few hundreds as the Ugandan government maintains? Also, is it possible using GIS methods to detect patterns in the attacks that will provide estimates of the numbers of groups and the high probability areas of where the next attacks might occur? Can "attractors" as well as "repellers" be identified?***

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[14] From http://www.internal-displacement.org/8025708F004CE90B/(httpPages)/22FB1D4E2B196DAA802570BB005E787C?OpenDocument accessed on 22Aug2011. The UN estimate for CAR is 192,000, DRC more than 1.7 million countrywide and hundreds of thousands in south Sudan as well.

[15] Accessed on 21 Aug2011 from http://www.crisisgroup.org/~/media/Files/africa/horn-of-africa/uganda/157%20LRA%20-%20A%20Regional%20Strategy%20beyond%20Killing%20Kony.pdf.

Point Map Analysis of LRA Activity 2008 - 2010

Figure 6. While LRA attacks also take place in the Bas Uele district, the Haut Uele district appears more suitable for LRA activity. This is due to three factors: the network of secondary roads facilitates movement through the region; the lack of primary roads reduces access to the region by both security forces and humanitarian aid; and heavily forested nature preserves like Garamba National Park offer a place to hide. The event data for the attacks comes from the Center for Conflict Studies DB ACLED.

The primary source of attack/event data comes from the Armed Conflict Location and Event (ACLED) Dataset maintained by the Center for Conflict Studies in Norway. From their website[16],

> *"ACLED (Armed Conflict Location and Events Dataset) is designed for disaggregated conflict analysis and crisis mapping. This dataset codes the location of all reported conflict events in 50 countries in the developing world. Data are currently being coded from 1997 to early 2010 and the project continues to backdate conflict information for African states to the year of independence. These data contain information on the date and location of conflict events, the type of event, the rebel and other groups involved, and changes in territorial control. Specifics on battles, killings, riots, and recruitment activities by rebels, governments, militias, armed groups, protesters and civilians are collected. Events are derived from a variety of sources, mainly concentrating on reports from war zones, humanitarian agencies, and research publications. These data can be used in any GIS, any mapping program, or statistical package."*

In Figure 7, the results of the Kernel Density Estimate (KDE) are shown. Two areas and two different contrasting patterns emerge on examination of this map. There seem to be two distinct clusters associated with two separate Conservation areas, one being the Garamba National Park[17] located on the south Sudan-NE DRC border and one located contiguous to a second area that stretches along the northern DRC-southern CAR border. What also might facilitate the movement of the LRA is the presence of a road or a trail, that allows for quick access to and egress from an event area. While the roads are not good enough to allow for quick response by either Sudanese, CAR, DRC or UPDF (Ugandan Peoples Defense Forces) forces and their associated heavy equipment, they are good enough to allow a small mobile tactical force armed only with light weapons like the LRA freedom and ease of movement in and out of their hiding areas inside the protected and heavily forested areas. The populated places expressed in Figure 7, come from Columbia University and are reported as,

> *"**Gridded Population of the World (GPWv3)** is the third edition of a large-scale data product that demonstrates the spatial distribution of human populations across the globe. The purpose of the GPWv3 project is to provide a spatially disaggregated population layer that is compatible with datasets from social, economic, and earth science fields. The output is unique*

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[16] Accessed on 20Aug2011 from http://www.acleddata.com. Data downloaded from http://www.acleddata.com/index.php/data for all three countries in the tri-border region and merged as appropriate.
[17] http://freeuganda.webs.com/lrainfo.htm

in that the distribution of human population is converted from national or subnational spatial units (usually administrative units) of varying resolutions, to a series of geo-referenced quadrilateral grids at a resolution of 2.5 arc minutes.[18]"

So while this analysis is interesting is it of itself useful? Given the sheer size of the area, the lack of infrastructure and the lack of resources to combat the LRA combined with 3 countries whose attitudes towards each other can sometimes be contentious[19], the answer would seem to be no, but there is a pattern of movement that may be of some use. While the analysis should ideally be supportive of a group engaged in the hunt for the LRA, an analysis by itself satisfies little. When examining the various incidents over time, activity seemed to be focused in the NE DRC in 2009, and move westward along the CAR DRC border in 2010. The data published by OCHA for the first half of 2011, indicate attacks back eastward in the NE DRC region. We will discuss the implications of this in more detail later.

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[18] GPWv3 incorporates a number of improvements to the two prior iterations of GPW. Input administrative data have been improved for nearly all of the 232 countries included in the dataset. (The number of administrative units has increased three-fold since GPWv2 and twenty-fold since GPWv1.) Additionally, the input data years have been updated for over two-thirds of the countries. The population data estimates, previously only available for 1990 and 1995, are also now provided for the period 1990–2015, by quinquennial years. The population estimates for 2005, 2010, and 2015 were produced in collaboration with the United Nations Food and Agriculture Program (FAO) as The map collection has been vastly expanded to include population density, and sub-national administrative boundary maps at country, continental, and global levels.

[19] A Google search on something as simple as "Uganda vs. DRC" yielded over 995k results. The water wars between Uganda and Sudan are well documented as well in http://www.csmonitor.com/World/Africa/2010/0604/Egypt-Sudan-lock-horns-with-lower-Africa-over-control-of-Nile-River.

KDE Analysis for LRA Activity in the Tri-Border Region 2009-2010

Original Map Design by Dr. (LtCol) Michael L. Thomas
Data from Center for Conflict Studies, World Resources Institute
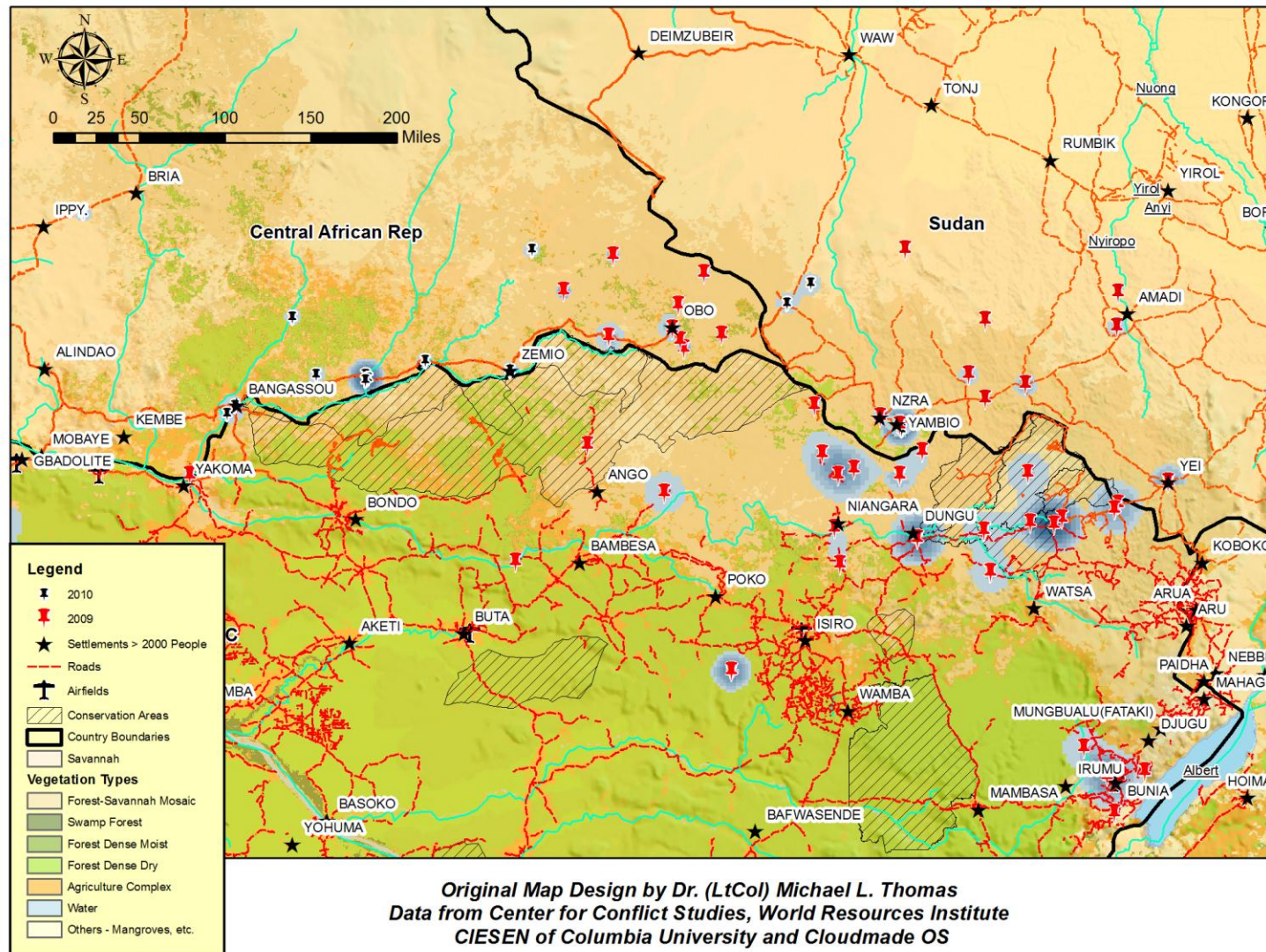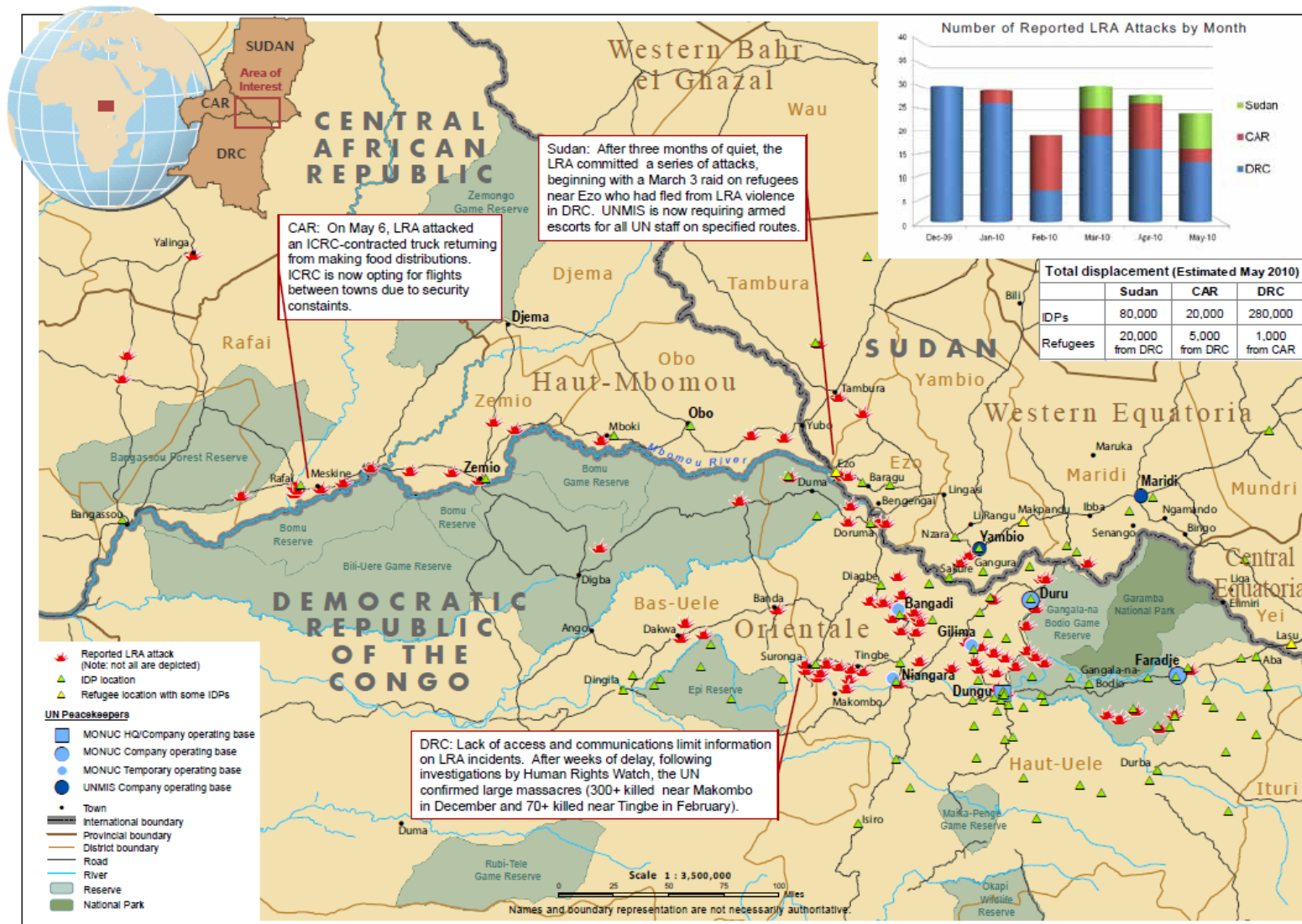CIESEN of Columbia University and Cloudmade OS

Figure 7. KDE analysis of the tri-border region. The bulk of the attacks seem co-located near what roads there are and protected conservation areas. Combined these two features provide quick access to populated areas from the heavily forested areas, such as Garamba National Park[20], on the border with south Sudan. It provides ample areas for cover and concealment after an attack against a local population has taken place. This is confirmed by a visual inspection of a similar map produced by the Enough project, an NGO whose homepage is www.enoughproject.org .

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[20] http://baraza.wildlifedirect.org/2009/01/06/official-statement-on-garamba-attack-by-lra

Lord's Resistance Army: Reported Attacks, Displacement and Peacekeepers

Source: U.S. Department of State, Humanitarian Information Unit

Figure 8. Map of LRA attacks compiled by Enoughproject.org and displayed here. The patterns identified in the KDE seem to be confirmed here as well. The LRA strikes from the conservation areas towards populated places using roads for quick assaults and then retreats back into the same areas. From http://www.enoughproject.org/files/publications/thisisourlandnow.pdf accessed on 21Aug2011.

Analysis With Respect to Original Questions

I first bounded the problem by asking the following questions - my answers will now be added.

- How does Lord's Resistance Army (LRA) activity relate to IDP activity? LRA activity is in many cases directly responsible for IDP activity. While not able to locate specific data on the exact locations of the IDP camps, I was able to locate a published map which I included in Figure 8. The LRA creates increases in IDP counts because of the fear they instill in traditional farming communities primarily among the Azande.

    o Where is LRA activity occurring? This was identified successfully in Figure 6.

    o What data are useful / needed for this analysis? This is detailed in the discussion sections following this section.

    o Is the LRA cycle tied to recruiting/conscription? The LRA is known to have used abductions of children in the past to fill its ranks for ground forces. They must be assumed to continue to do so.

- Where is Internally Displaced Population (IDP) activity likely to occur? This is discussed in the discussion section following as well.

    o Where are IDP settlements likely to be located? These are at least mapped and presented in Figure 8. Data giving exact locations could not be located and presented with the earlier original maps.

    o How do these locations overlay with natural resources and other strategic assets (e.g. social factors) on the continent? Strategic data for the AOI is lacking,

although there are geologic maps that could be examined with respect to this if warranted. From research in the open sources, the LRA does not use conscripted labor for mining activities, so this dimension was not examined. The LRA is known to raid traditional farmers for resources as documented earlier.

Assessments and Recommendations.

The LRA is a unique threat that occupies a large area spanning three borders in Central Africa. The LRA is able to take advantage of political and geographic terrain that hinders both regional and international cooperation. Furthermore, the LRA remains a significant challenge to humanitarian aid due their high mobility and capability to carry out sudden attacks in an unsecure region.

1.   The dramatic increase in IDPs throughout Orientale Province (DRC) is directly attributed to the persistent state of insecurity caused by LRA presence. Humanitarian access to affected populations remains difficult due to poor security conditions and minimal paved road infrastructure.

2.   There are areas that the LRA has not previously targeted in the tri-border region. These locations do have similar factors as other areas previously attacked by the LRA, namely remoteness, network of small roads and trails, and small populations. Based on these factors and population data, these areas do have *potential* to be targeted by the LRA. Looking at the data presented in Figure 7, there was a high concentration of activity in the NE DRC in 2009 although this activity seems to have moved to the west in southern CAR in 2010. Access to triple level canopy for concealment in the northern DRC along the southern CAR border combined with a road that runs parallel to the border allows for some degree of freedom of movement combined with a population of "opportunity" to be victimized. While hit and run

raids from the cover of the conservation area in this part of the DRC into CAR seems to indicate a westerly movement of the activity throughout 2010, data (not available in the Conflict Center) but published by the UN Office for the Coordination of Humanitarian Affairs (OCHA) seem to indicate movement back to the east in the regions previously attacked in 2009 (See Figure 9). There is adequate cover in the Garamba National Forest and it is an area they are familiar with.

3.   Based on vegetation pattern data from the World Resource Institute, it seems that the most highly correlated factor associated with LRA presence in an area is dense forest (see Figure 11). However, the other factors that appear to primarily attract LRA activity are related to population - they need a supply of "labor". These populated places provide logistical support in the form of food, supplies, and labor from the traditional farmers. Things that are repellant factors are lacking in this assessment, because the LRA is a reactionary group that moves quickly in response to the changing environment, such as transient populations and military operations.

4.   One recommendation would be for improved intelligence sharing among all regional partners to provide consistent information and to improve cross-border coordination, which would further aid security and humanitarian assistance. The problem with this is the fact that many of the regional partners have issues with each other (i.e. Uganda's 1990's invasion of DRC and water disputes between Uganda and Sudan over water rights on the Nile River) and may not be able to cooperate to the degree necessary.
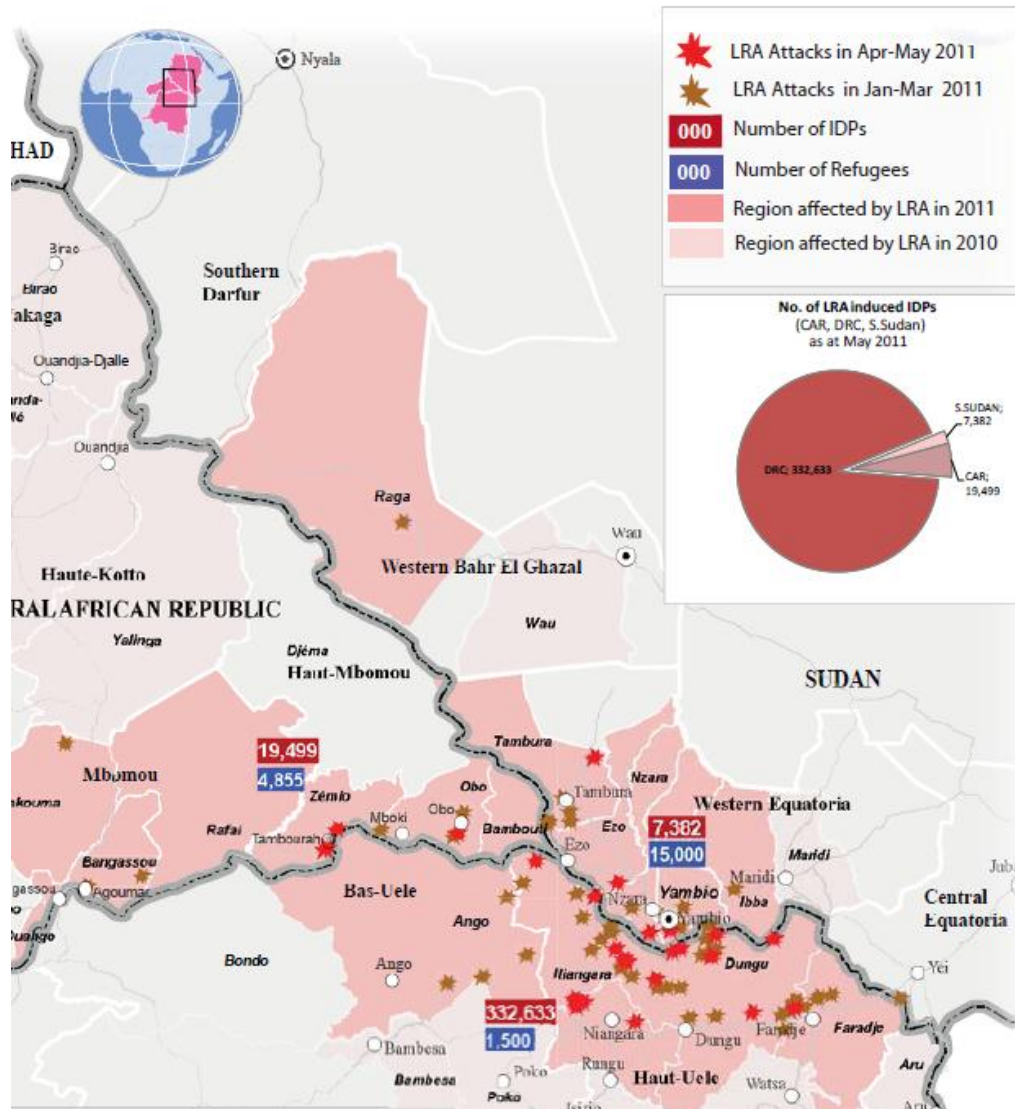
Figure 9. Map detailing LRA activity in the first half of 2011. Altho data was not available for inclusion, a printed map by the OCHA is. Accessed from UN Office for the Coordination of Humanitarian Affairs (OCHA), *LRA Regional Update: DRC, CAR and south Sudan - January - March 2011*, **7 April 2011, available at: http://www.unhcr.org/refworld/docid/4da28f5f2.html accessed 25 August 2011. Recall that this is an area where multiple attacks occurred in 2009 prior to the attacks further west in 2010. This would indicate an eastward movement back towards territory familiar to the LRA from earlier operations.**

5.   Another recommendation would be better mapping of IDP camps and the movement

of populations within the camps which could result in improved future analysis that supports

and better directs future security and humanitarian efforts in the region.

6.   The construction of a major road in the region would significantly open up remote areas and give easier access to security and humanitarian aid in susceptible areas. What hinders response time by both humanitarian NGOs and security response forces from the 3 nations is also a supporting factor for the LRA.

7.   Improved telecommunications in the region could shorten security and aid response time. [21] An HF network is being established by Catholic missionaries incrementally in DRC as funding is available (see Figure 10). Analysis of this type of data would allow for partners to provide equipment to fill in areas with no coverage. Security force monitoring would allow for a quick response to get moving if an appeal for help went out. Coordination of efforts using all available resources could drastically diminish the LRA's ability to function.

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[21] This was identified as a strategy by Catholic missionaries in their plan Invisible Children Protection Plan. The increased HF radio network would be used an early warning mechanism. Reports will be uploaded to http://lracrisistracker.com to be implemented in Sept 2011. From http://c2052482.r82.cf0.rackcdn.com/images/383/original/Protection_Plan.pdf accessed on 26Aug2011.
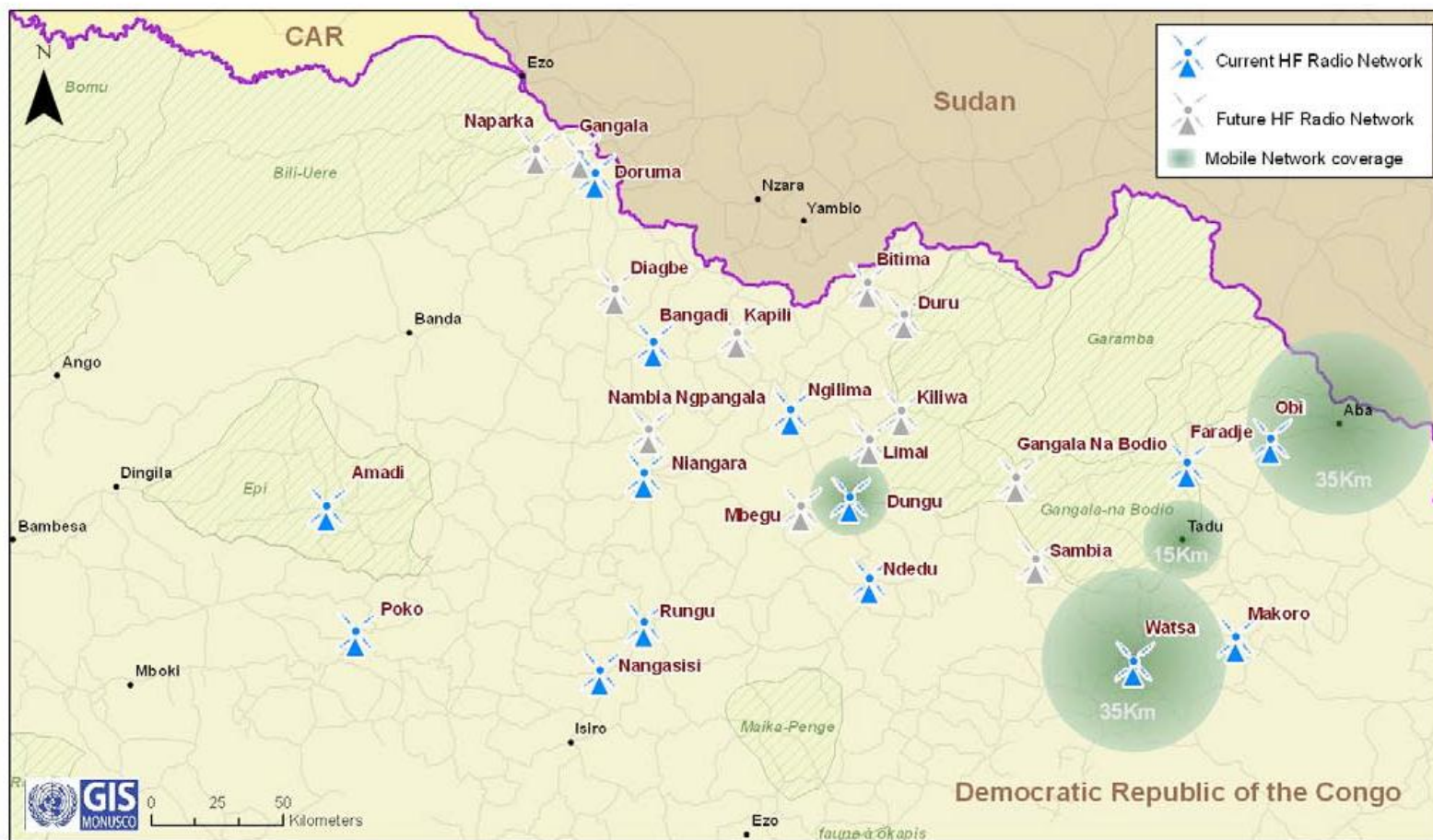
**Figure 10. HF radio network being implemented by the Catholic church in NE DRC. From
https://salsa.democracyinaction.org/o/2241/images/FINAL_From%20Promise%20to%20Peace_Resolve%20Publication.pdf. Accessed on
26Aug2011. Locations of the stations is not available online – an example of data being held at the local level or by NGOs with no central repository.
Availability of data and coordination of efforts would greatly enhance counter LRA efforts.**

The LRA's current presence (based on the number of recent attacks) is most concentrated in the Haut Uele[22] of DRC is due to three main factors: a secondary road network; lack of infrastructure; and heavily forested terrain (see figure 11). In 2010, the LRA operating area extended much further out to areas in the west with more populated places that could provide logistical support, including food, supplies, and labor. IDP camps in the region are surrounded by LRA activity (see Figure 8), and the growing number of IDPs in the region from 2008 to 2010 reflects the increased level of violent conflict due to the LRA presence. There seem to be previously untouched areas in the west of the AOI that share similar factors to the areas of highest violence, including population and terrain. These similarities might indicate the possibility for future LRA attacks to occur there. They possess the same primary factors that seem to facilitate current LRA activity center around populated places, including the Azande tribal areas and IDP locations. There do not seem to be any indications of factors that repel LRA activity, likely because the LRA is a reactive group that constantly moves around to avoid interdiction and to locate new resources.

There is a significant lack of diverse and continuous data available for this AOI. What data is available, especially from NGOs, tends to be fragmented, compartmentalized, difficult to acquire and in multiple formats with varying degrees of accuracy and timeliness.

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[22] The entire region of Bas Uele has been targeted by the LRA for the last 15 months. Enough.org documented 51 separate attacks and 105 deaths caused by the LRA in Bas Uele through April 2010. This brings the total number of people killed by the LRA in Congo since December 2008 to nearly 2,500. Accessed from http://www.enoughproject.org/files/publications/thisisourlandnow.pdf on22Aug201.
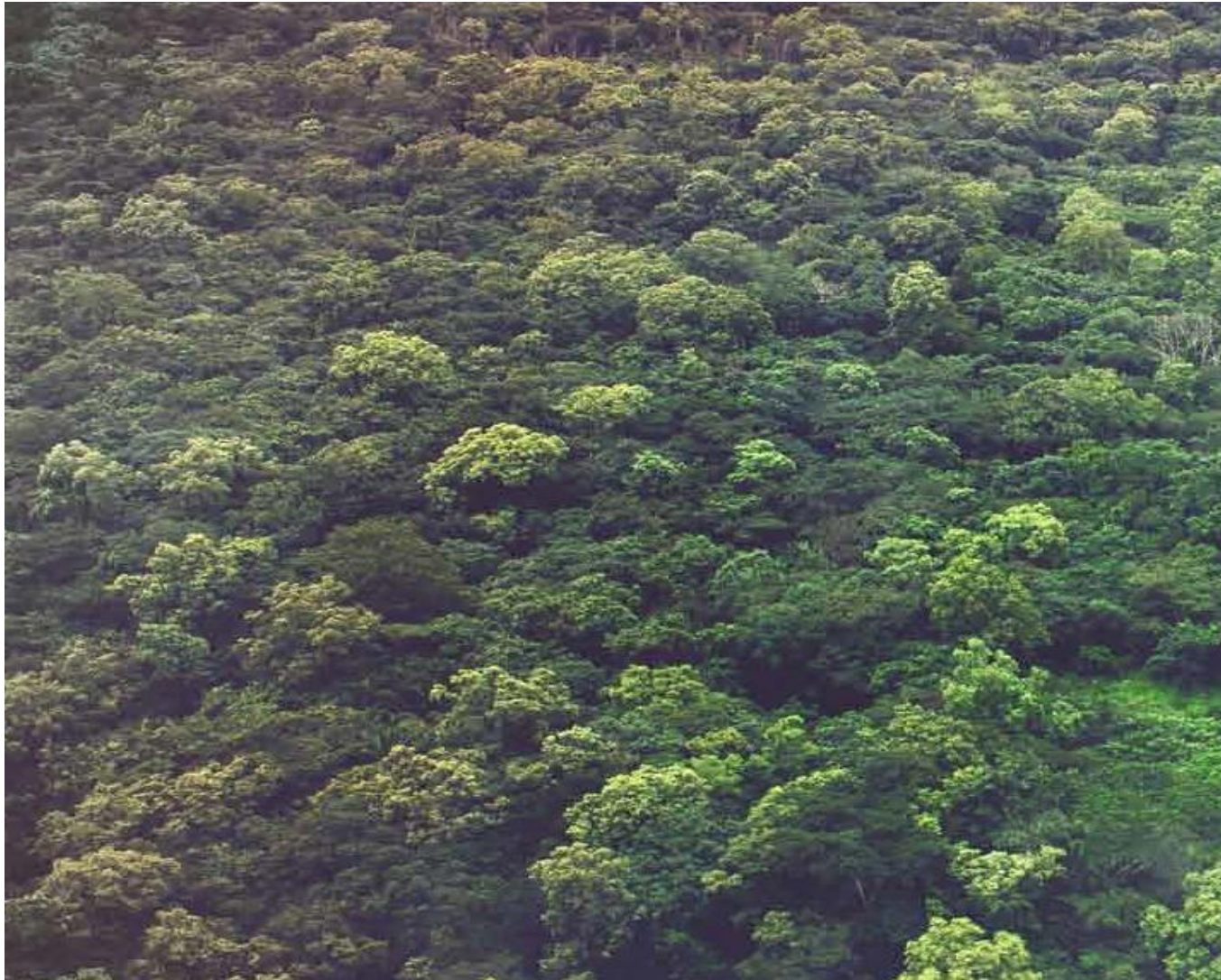
Figure 11. Typical vegetation – triple canopy jungle in NE DRC. From http://c2052482.r82.cf0.rackcdn.com/images/383/original/Protection_Plan.pdf accessed on 26Aug2011. The thickness of the canopy provides cover and concealment for movement on the ground without any risk of being detected from overhead. Perhaps some type of remote sensing – foliage penetrating radar (FOPEN) combined with LIDAR could be used to detect ground movement of personnel, but even so, getting security forces to the area and thru the canopy from the air would still prove problematic.

Problems and shortfalls that work to the advantage of the LRA.

1.   There is a persistent lack of data across the whole AOI including, but not limited to, populated places, infrastructure, communications towers, detailed terrain features, available healthcare, illness, weather trends, schools, criminal activity, and economic statistics.

2.   There is a lack of both inter and intra-agency cooperation -even hubs of the UN OCHA and the UNHCR do not necessarily have data from each local office within their respective AOIs, and what data exists at the local level is not kept in a centralized location. Another example is the dual UN missions of MONUSCO in the DRC and UNMIS in Sudan - although they are under the same umbrella organization, there is no combined chain of command nor is there a mandate to share data and resources outside their respective mission areas.[23]

3.   There is a lack of data at the strategic level. More detailed data exists at the village, district, or provincial level, but only when you know exactly what you are looking for, i.e., the name of the IDP camp or the NGO holding the data *(see Figure 10 – Catholic Run and Operated HF Net).*

4.   Approaching this topic year by year has proven difficult due to rapid movement of the LRA. Statistics frequently changed dramatically from one month to the next as displayed in Figure 12.

5.   Available data was often not "timely" enough. I relied heavily on information from NGOs with boots on the ground, but comprehensive reports that address a strategic overview

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[23] In May 2010, the UN issued Security Council resolution 1925 which ordered MONUSCO o support "ongoing military operations to completion," and included provisions for protecting Congolese civilians, while resolution 1812 from 2008, orders UNMIS to effectively do the same in Sudan – both issued independently to the 2 missions and without coordination. From *"Promise to Peace, A Blueprint for President Obama's LRA Strategy."* https://salsa.democracyinaction.org/o/2241/images/FINAL_From%20Promise%20to%20Peace_Resolve%20Publication.pdf, accessed on 26Aug2011.

are often not available until a year later. For example, the UNHCR's upcoming Statistical Yearbook for 2010 will not be available until December 2011. Another example - the ACLED DB was several months out of date and the update cycle could not be ascertained. While data obviously exists as expressed in the OCHA Regional Update, it could not be acquired in a format that could be included in the analysis. There is a plan in place to attempt to ameliorate this with social media and a website sponsored by the "Invisible Children" organization. They have a planned website at http://lracrisistracker.com that advertises what will be a near real time tracking capability as events occur. Event data is also posted on Twitter at https://twitter.com/#!/CrisisTracker with details of events that could be used for further GIS analysis. Provided the security forces, the missionaries in the region and other NGOs coordinate their event reporting, the data access and the response, change in the right direction is more possible than in prior years.

LRA Incidences in CAR, DRC & S. Sudan
Jan - May 2011

No. of LRA attacks   No. Killed   Total Abducted   No. Wounded

DRC: 117, 62, 186, 33
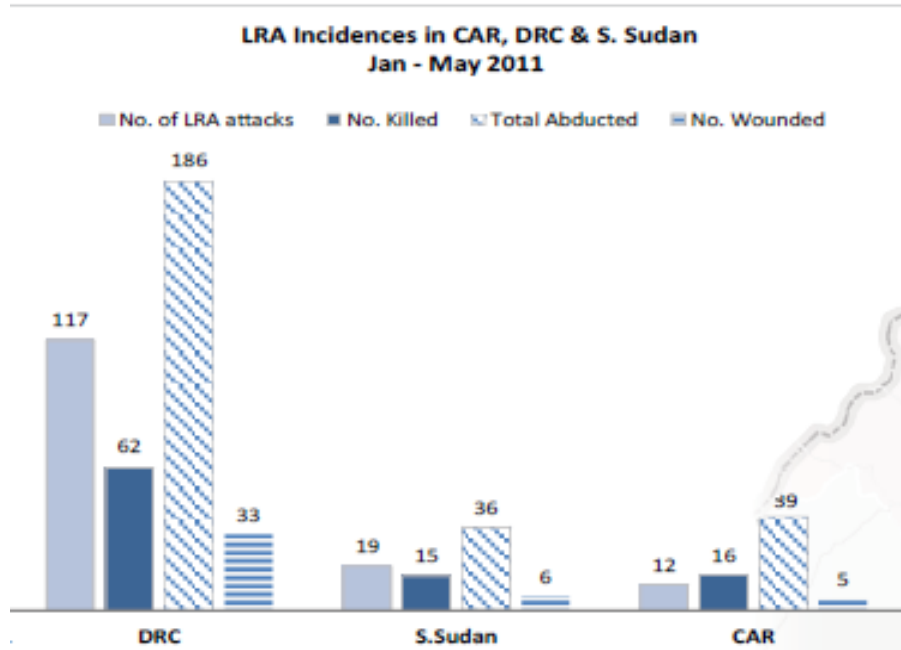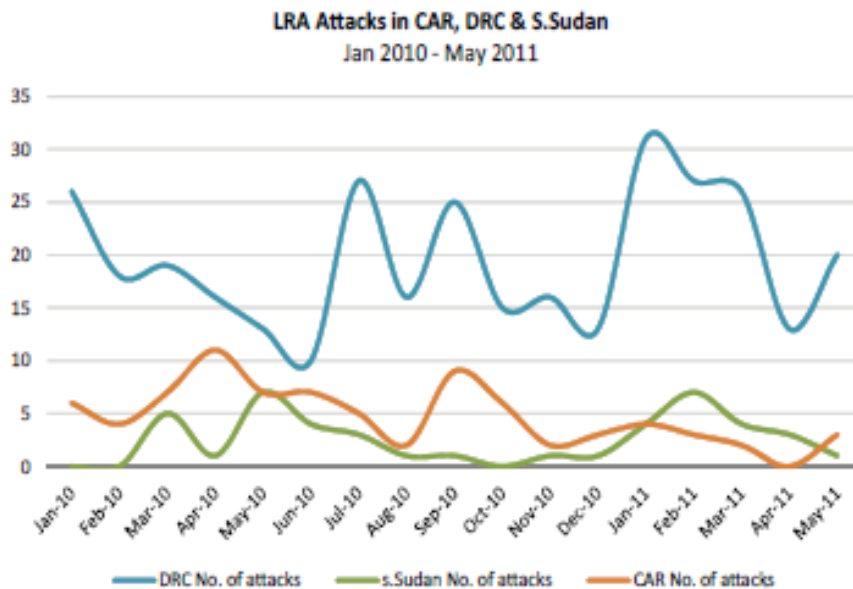
S.Sudan: 19, 15, 36, 6

CAR: 12, 16, 39, 5

Figure 12. Histogram depicting level of activity in the various countries (above) vs the month to month variation by country (below). Accessed from UN Office for the Coordination of Humanitarian Affairs (OCHA), *LRA Regional Update: DRC, CAR and south Sudan - January - March 2011***, 7 April 2011, available at: http://www.unhcr.org/refworld/docid/4da28f5f2.html accessed on 25 August 2011. The area represented by the data is back in the east where attacks occurred in 2009. This would indicate an eastward movement back towards territory familiar to the LRA from earlier operations.**

LRA Attacks in CAR, DRC & S.Sudan
Jan 2010 - May 2011

DRC No. of attacks   s.Sudan No. of attacks   CAR No. of attacks

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There are other real issues pending for a successful eradication of the threat – the main one currently being political. There are conflicting priorities between partners in the region – one surprising one being between Uganda and the US. Congress and the administration have taken strides to garner together a regional strategy. The *"Lord's Resistance Army Disarmament and Northern Uganda Recovery Act,"* was signed into law in May 2010, and requires the US government develop a regional strategy to eliminate the LRA threat[24]. At odds with this is the announcement by the Ugandan government to remove 700 of its forces from the fight and declaring that the LRA is no longer a threat to the state of Uganda[25]. This may be premature given the evidence of an easterly movement of activity back towards Uganda and be a result of US influence on Uganda to supply more troops to the AU Mission in Somalia (AMISOM). While the data available for analysis does not lend itself to make an exact prediction of the LRAs next movement although it is possible to speculate possible Courses of Action (COAs) that might be executed by the LRA. If the LRA is moving back from the west, the question becomes one of 3 Courses of Action (COAs) for them (see Figure 13):

1. Maintain a presence in the Garamba National Forest and take the time to re-equip and rearm

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[24] "The LRA is likely at its weakest since its emergence 24 years ago. Regional governments, the international community, and the United States have an opportunity to eliminate the LRA once and for all, by making additional small investments that could contribute to a number of other US foreign policy and security interests. Eliminating the LRA threat will serve to help stabilize a region rife with conflict, support the transition and reconstruction of Southern Sudan, and free-up more Ugandan People's Defense Force (UPDF) forces for deployment in Somalia to fight al-Shabaab, a major US national security concern". http://www.stimson.org/spotlight/eliminating-the-lords-resistance-army-once-and-for-all/ accessed on 21Aug2011.
[25] "[The LRA] is not a threat to Uganda – not at all," Felix Kulayigye, spokesman for the Uganda armed forces, told IWPR on 17Aug2011." Taken from http://iwpr.net/report-news/war-lra-rebels-loses-momentum on 22Aug2011.

2. Move into Southern Sudan and exploit the political situation there or

3. Move back into Uganda and re-initiate the process of attempted insurrection there.

Original Map Design by Dr. (LtCol) Michael L. Thomas
Data from Center for Conflict Studies, World Resources Institute
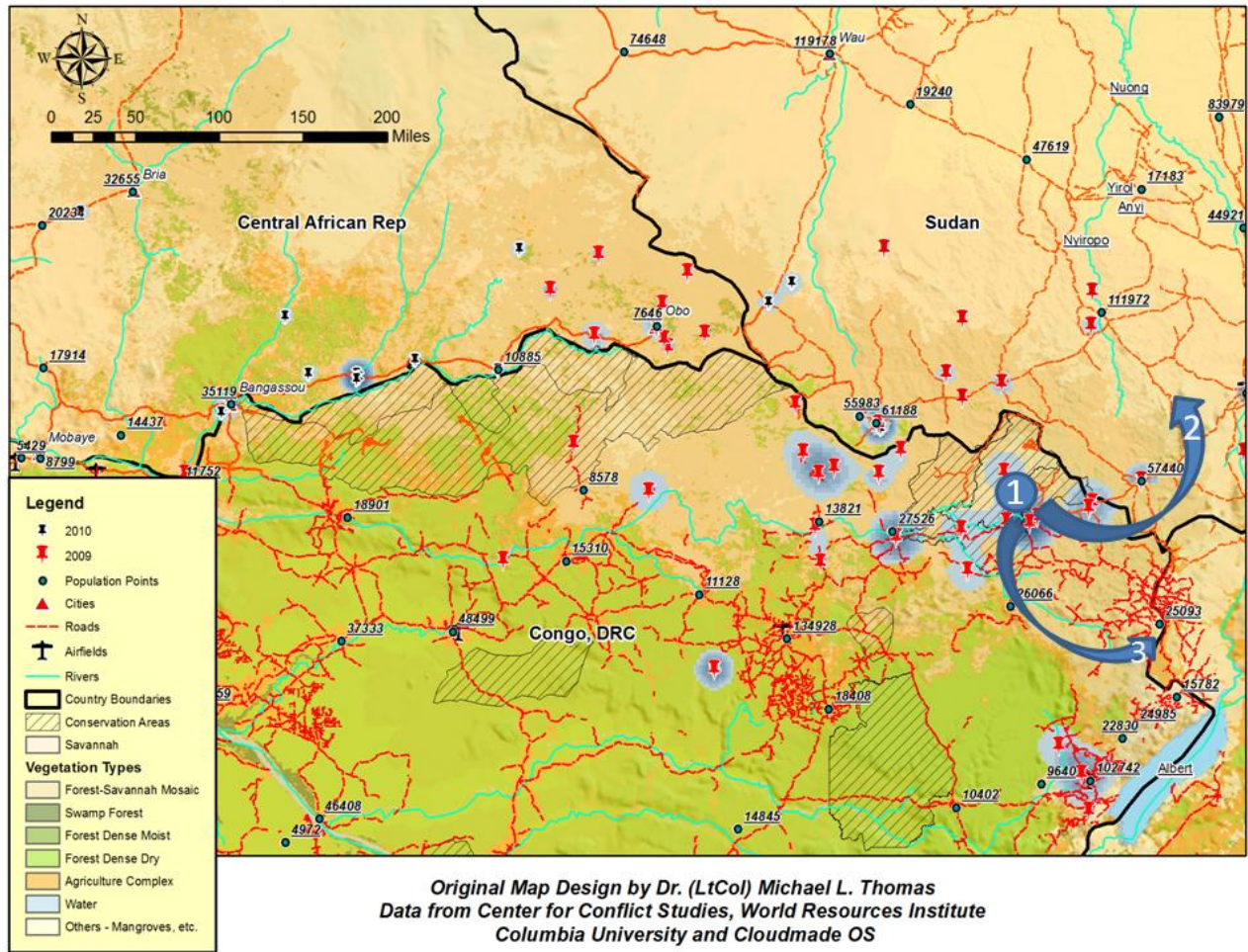Columbia University and Cloudmade OS

Figure 13. Possible Courses of Action (COAs) for the LRA now that it seems to have moved back into the area of the Garamba National Forest. These might mean staying put, going into South Sudan or going back into northern Uganda. Options 1 and 2 seem more likely, but it is a speculative guess at best. They've never stayed stationary for long (1), Uganda (3) may likely leave them alone since the DRC requested the Ugandan troops assigned to engage them have been requested to leave and Uganda has publicly stated they no longer consider them a threat. Sudan (2) is a new and very divided country with little capacity to provide for its own internal security. South Sudan may be the next AOI – COA 2.

With the US currently involved in Iraq, Afghanistan, Libya, and the Horn of Africa (HOA) and the Ugandans providing peacekeepers to the AU efforts in HOA, it may simply be a question of priorities and resource constraints. While it may be "law" that we develop a strategy to finish the LRA, the actual fact seems to be that a strategy alone while meeting the letter of the law, will in fact do little by itself.

Key Statistics[26]

Key statistics on the influence of LRA violence on the populations of DRC, Sudan, CAR, and Uganda are summarized below in order to put in context the scale of the activities of the LRA, as well as to put in context the most current facts and details on the crisis.

Deaths

- DR Congo: Over 1900 killed between September 2008 and December 2010[27]
- South Sudan: 216 killed between December 2008 and November 2009[28]
- Central African Republic: 175 killed between February 2008 and November 2010[29]
- Uganda: about 100,000 killed between 1986 and 2007[30]

Abductions

- DR Congo: 2615 people abducted, including 886 children, as of December 2010[31]
- South Sudan: 149 abducted between December 2008 and November 2009[32]
- Central African Republic: 352 abducted, including many children, as of November 2010[33]
- Uganda: 66,000 people/youth between the ages of 14 and 30 from the mid-1990s to 2006[34]

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[26] Table reproduced from an NGO website The Resolve. Accessed from http://www.theresolve.org/key-statistics on 20Aug2011.

[27] December 14, 2010, Oxfam, *"Ghosts of Christmas Past: Protecting Civilians from the LRA."* From http://www.oxfam.org.uk/resources/policy/conflict_disasters/ghosts-christmas-past-protecting-civilians-lra.html accessed on 26Aug2011.

[28] December 2009, HIU State Department, *"Conflict Without Borders: Lord's Resistance Army Reported Attacks (Dec. 2008-Nov. 2009), Displacement, and Peacekeepers."* From http://reliefweb.int/node/20984 accessed on 26Aug2011.

[29] June 2010, Ledio Cakaj, *"On the Heels of Joseph Kony: The Untold Tragedy Unfolding in the Central African Republic."* + November 25 2010, OCHA CAR "Records of LRA attacks in CAR in 2010." From http://br.dir.groups.yahoo.com/group/gapconflitos/message/8359 accessed on 26Aug2011.

[30] October 16, 2007, Institute for War and Peace Reporting (IWPR), *"Can Traditional Rituals Bring Justice to Northern Uganda."* From http://iwpr.net/report-news/can-traditional-rituals-bring-justice-northern-uganda accessed on 26Aug2011.

[31] December 2010, Action Humanitaire en Province Orientale, *"Rapport mensuel et bilan annuel partiel 2010."* From http://reliefweb.int/node/382757/pdf accessed on 26Aug2011.

[32] December 2009, HIU State Department, *"Conflict Without Borders: Lord's Resistance Army Reported Attacks (Dec. 2008-Nov. 2009), Displacement, and Peacekeepers."* from http://reliefweb.int/node/20984 accessed on 26Aug2011.

[33] August 11 2010, Human Rights Watch, *"CAR/DR Congo: LRA Conducts Massive Abduction Campaign: New Regional Strategy Needed to Protect Civilians and Rescue Children."* + November 25 2010, OCHA CAR *"Records of LRA attacks in CAR in 2010."* from http://www.africanewswire.net/story.php?title=cardr-congo-lra-conducts-massive-abduction-campaign-new-regional-strategy-needed-to-protect-civilians-and-rescue-children accessed on 26Aug2011.

- 30,000 children (under 18) abducted from 1988 to 2004[35]

Internally Displaced People

- DR Congo: 280,000 estimated number of IDPs in LRA-affected areas of DRC as of May 2010[36]
- South Sudan: 87,800 displaced, mostly in Central and Western Equatoria as of May 2010[37]
- Central African Republic: 26,000 displaced by LRA attacks as of November 2010[38]
- Uganda: approximately 1,700,000 internally displaced from 1986 to 2007[39]

Refugees

- DR Congo: 1,000 refugees from the Central African Republic as of May 2010[40]
- South Sudan: 20,000 Congolese refugees as of May 2010[41]
- Central African Republic: 6,000 Congolese refugees as of November 2010[42]

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[34] 2007 SWAY Report *"The State of Youth and Youth Protection in Northern Uganda."* accessed on 21Aug2011 from http://chrisblattman.com/documents/policy/sway/SWAY.Phase1.FinalReport.pdf.

[35] February 2004, UNOCHA *"Child Soldiers at Centre of Mounting Humanitarian Crisis."* From http://www.un.org/events/tenstories/story.asp?storyID=100 accessed on 21Aug2011.

[36] April 19, 2010, OCHA, *"Humanitarian Situation in the Orientale Province of the DRC Snapshot report."* From http://reliefweb.int/node/390037&sa=U&ei=lhVSTsLjJ8zF8QOo-qXKBw&ved=0CA0QFjAA&usg=AFQjCNHXOhFguhP2PbMtjKuZe3EB0wjU-Q accessed on 20Aug2011.

[37] May 14, 2010, UNHCR, *"UNHCR field offices reporting rise in LRA attacks, displacement in CAR."* From http://www.unhcr.org/4bed39619.html accessed on 20Aug2011.

[38] November 19, 2010. UNSC. *"Report of the Secretary-General on the situation in the Central African Republic and on the activities of the United Nations Integrated Peacebuilding Office in that country."* from http://reliefweb.int/node/406540 accessed on 21Aug2011.

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Update as of 12Jun2012 From http://soufangroup.com/briefs/details/?Article_Id=316

As of mid-June 2012, some 90 million viewers have seen the "Kony2012" webfomercial that first went viral in March 2012. Since then, the Lord's Resistance Army (LRA) has become the most infamous rebel group in Africa. Under the leadership of Joseph Kony, the LRA has terrorized northern Uganda for almost two decades, kidnapping twenty thousand children and displacing two million people into refugee camps.

The LRA has long played the complex geopolitics of the African Great Lakes region to its advantage. Uganda's president, Yoweri Museveni, tolerated the LRA for decades as a means of suppressing dissent in the economically disadvantaged and politically marginalized north. It took almost twenty years for the UPDF to finally drive the LRA over Uganda's border. Since then, the LRA's activities in the remote hinterland jungles of the African Great Lakes have been of minimal interest to Uganda, or to the governments of the DRC, the CAR, and Sudan. This is not unexpected given the number of complicated and interconnected geopolitical concerns and lingering security threats facing the region. Consider, for example, the following list:

- Kinshasa has long considered the Ugandan army a more present threat than the LRA.
- Bangui, CAR's capital, has been beset by insurgencies.
- The capital of Sudan, Khartoum, is a former ally of the LRA.
- Juba has only recently gained sovereignty over southern Sudan.
- The UPDF spent years stripping eastern Congo of its mineral riches, which, according to the DRC government and the International Court of Justice at the Hague, caused some US$ 6 to 10 billion dollars worth of damage.
- U.S. support has been overwhelmingly directed towards Uganda; even though a handful of American military advisors have been stationed in the DRC and CAR, the U.S. has provided virtually no assistance to those militaries' pursuit of the LRA.
- The Obama administration says that it will closely monitor the deployment for signs of progress. But U.S. assistance already seems to be making a difference: Human Rights Watch reports that incidents of UPDF brutality in the field have dramatically decreased, and that local populations are responding with better intelligence tips and support. The recent capture of top LRA strategist Caesar Acellam suggests that it is only a matter of time before Kony is killed or caught.
- The United States is investing heavily in the Ugandan army, and perhaps for good reason. The UPDF is clearly coming of age: the Ugandan-led peacekeeping mission in Somalia has been more successful than any previous attempt to stabilize Mogadishu, including the American-led United Nations peacekeeping mission that produced "Black Hawk down." The question is whether the UPDF has the political leadership that it deserves.

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3. http://downloads.cloudmade.com/africa/eastern_africa/uganda/uganda.shapefiles.zip

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