

# Who Dat Comin' to Cities in Ghana?

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# Acknowledgments

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# Central Hypothesis

**Demographic and health outcomes in Ghana are strongly impacted by LCLUC**

***This builds on our work in Accra relating land cover/land use to demographic and health outcomes***



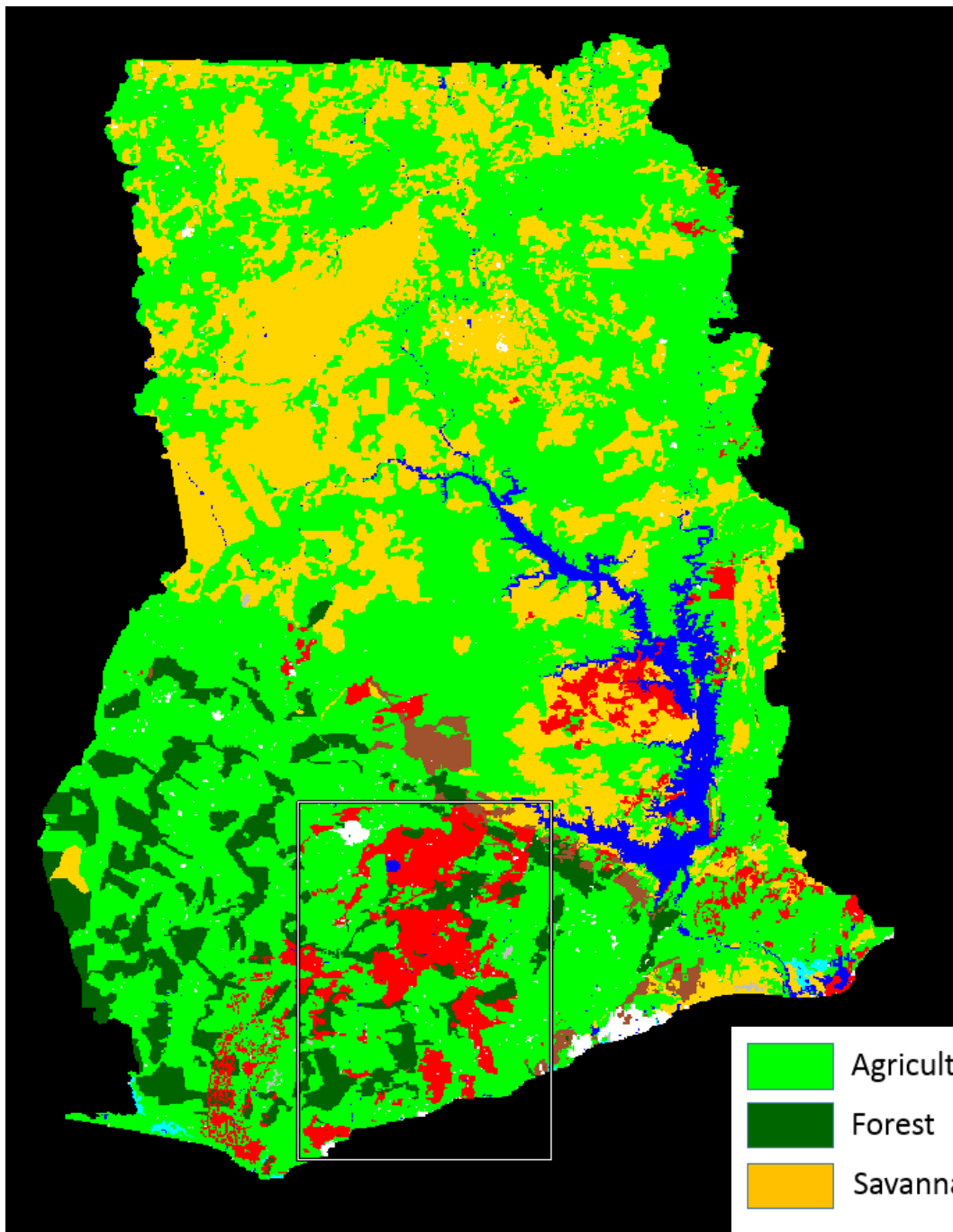
# Our current research is taking us beyond Accra:













# Specific Hypotheses

- ◆ **Districts with greater environmental stress will experience net-outmigration**
  - Environmental stress measured initially by the type of land cover/land use as derived from satellite imagery
- ◆ **Migration is largely from rural to urban areas**
  - Measured by migration data from the census
- ◆ **Within urban areas, migrants will be in the most environmentally stressed parts of the city**
  - Measured by a combination of land cover and housing quality variables

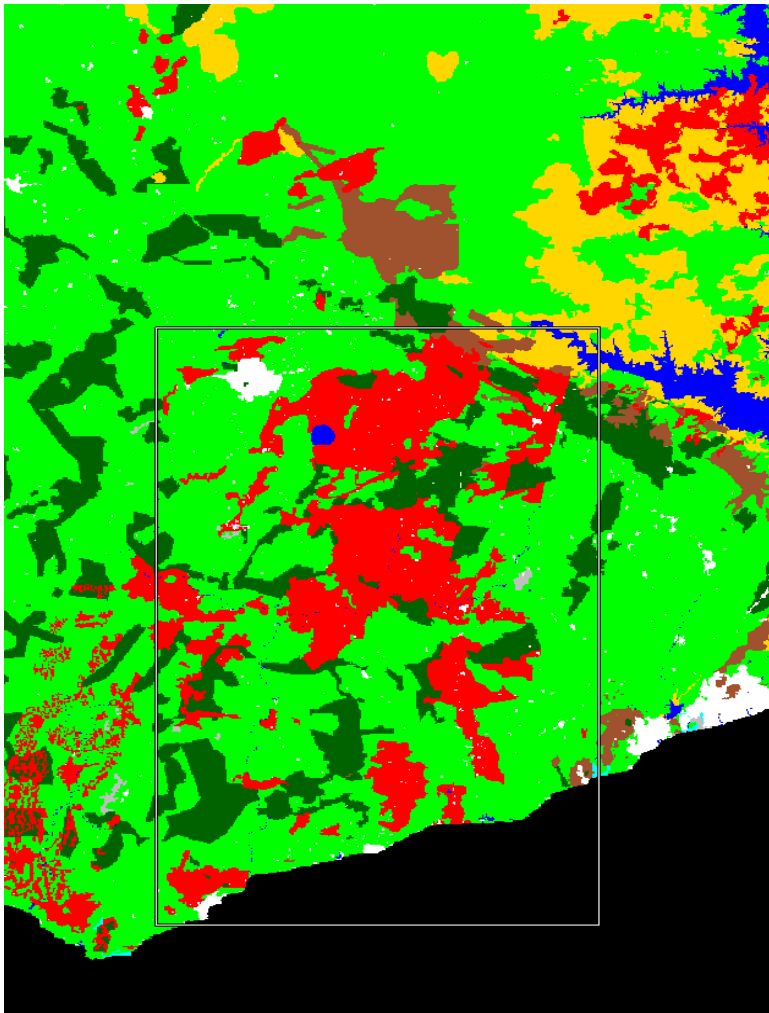


 Agriculture  
 Forest  
 Savanna

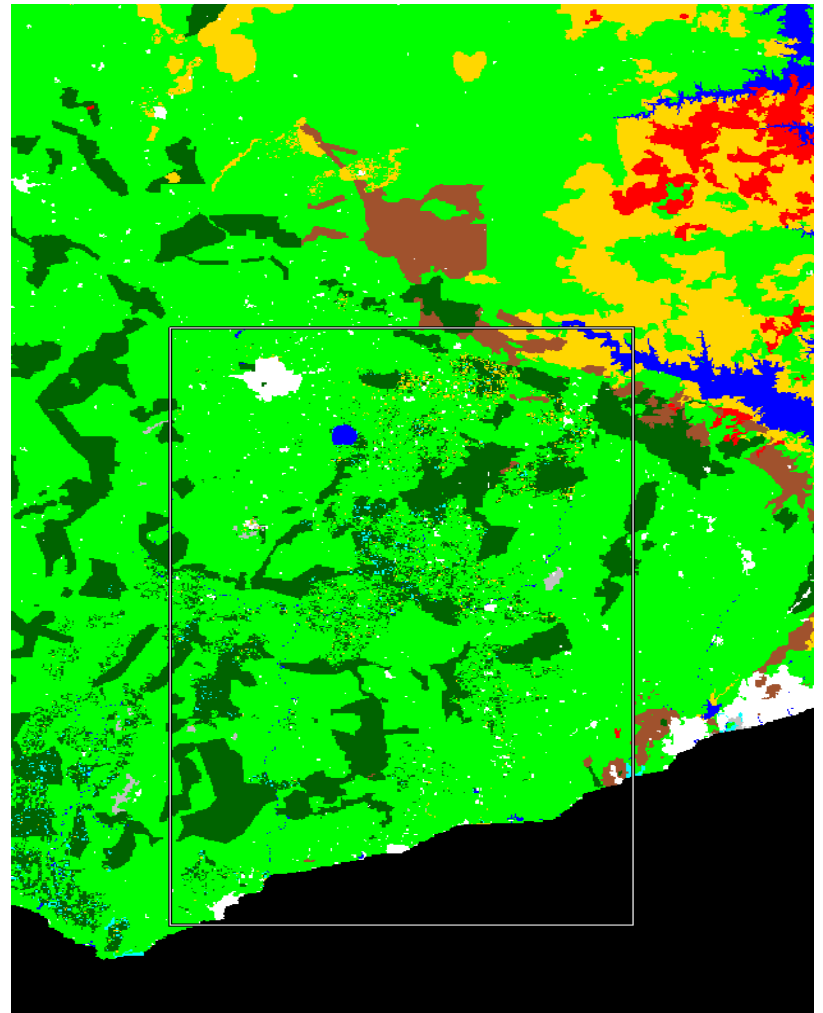
 Shrub  
 Urban  
 Bare

 Water  
 Wetland  
 Cloud/Fire Scar

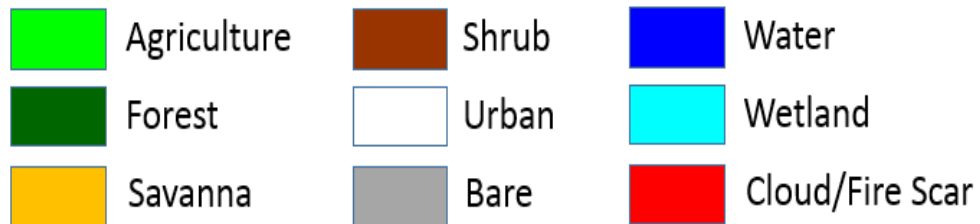


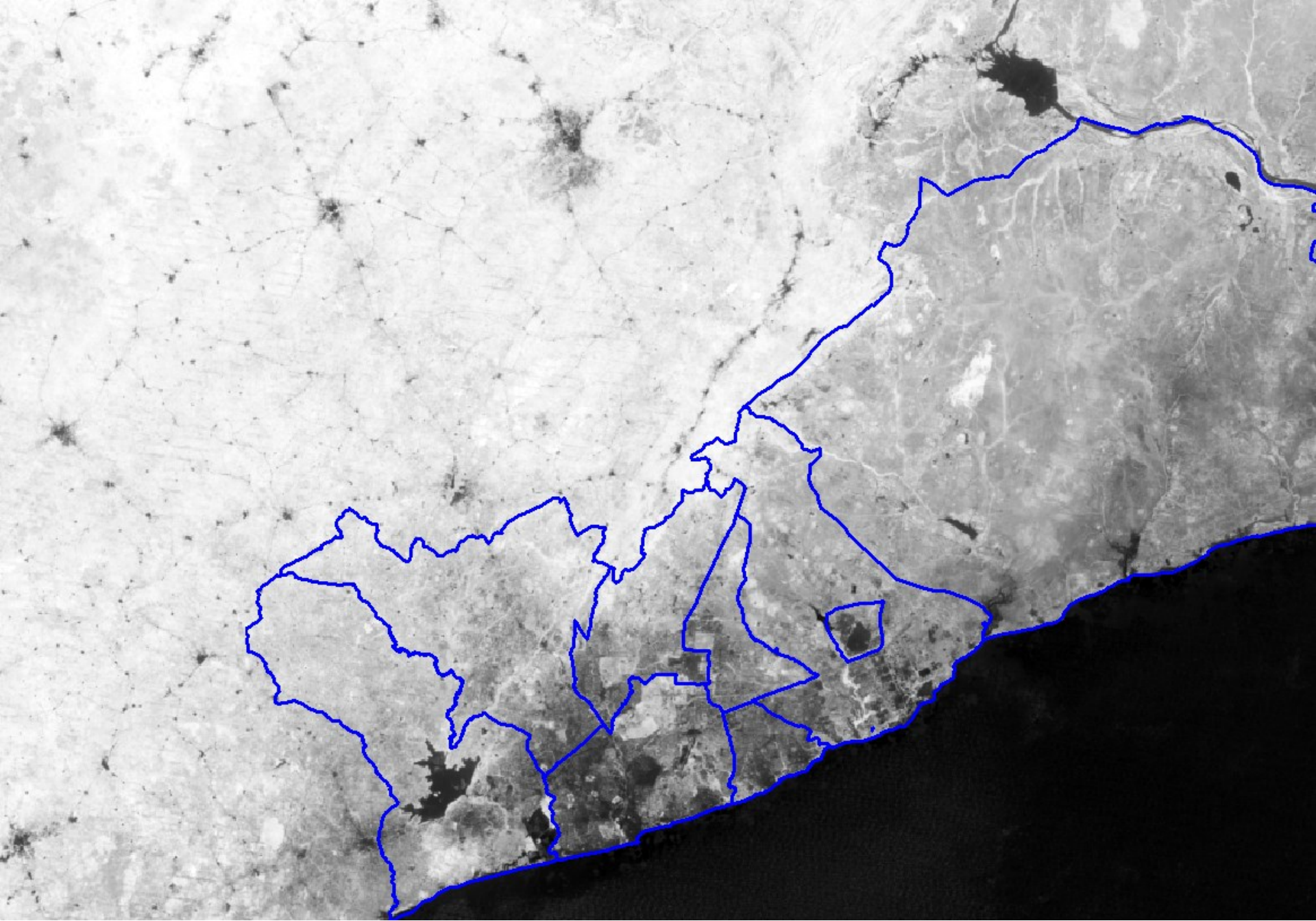


Original CERSGIS



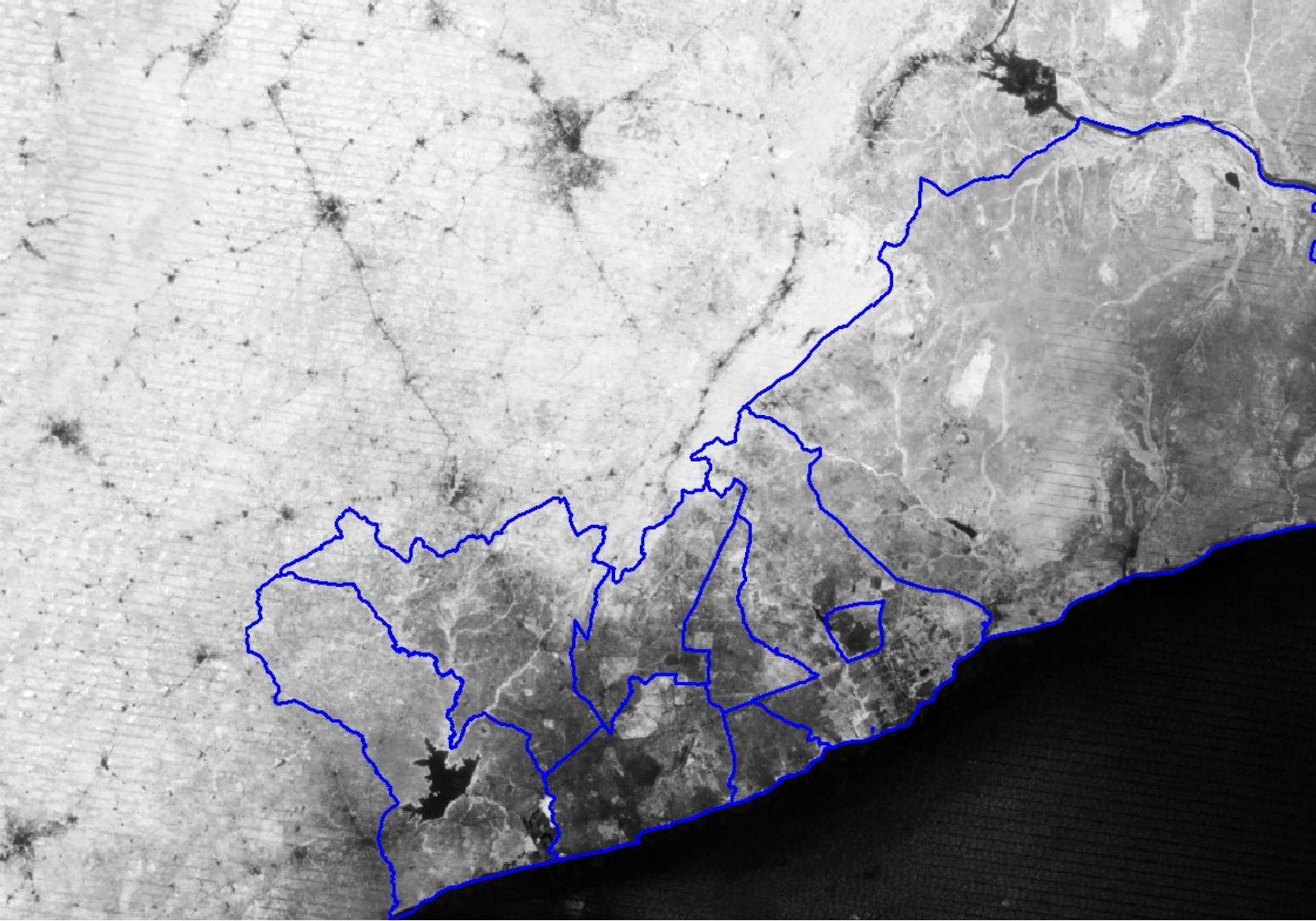
Filled CERSGIS





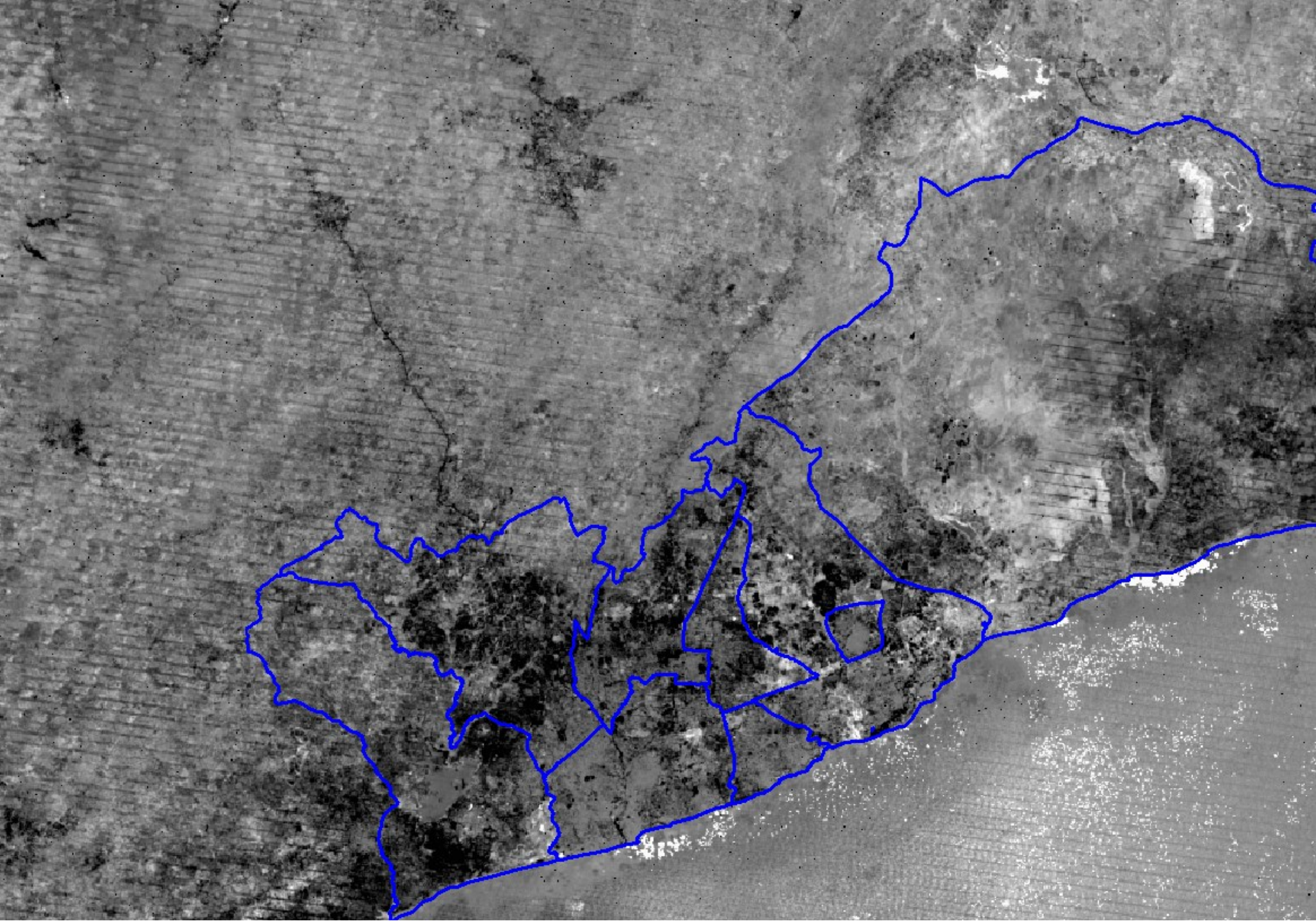
**c.2000 NDVI maximum (23 Landsat 7 images, 1999-2003)**





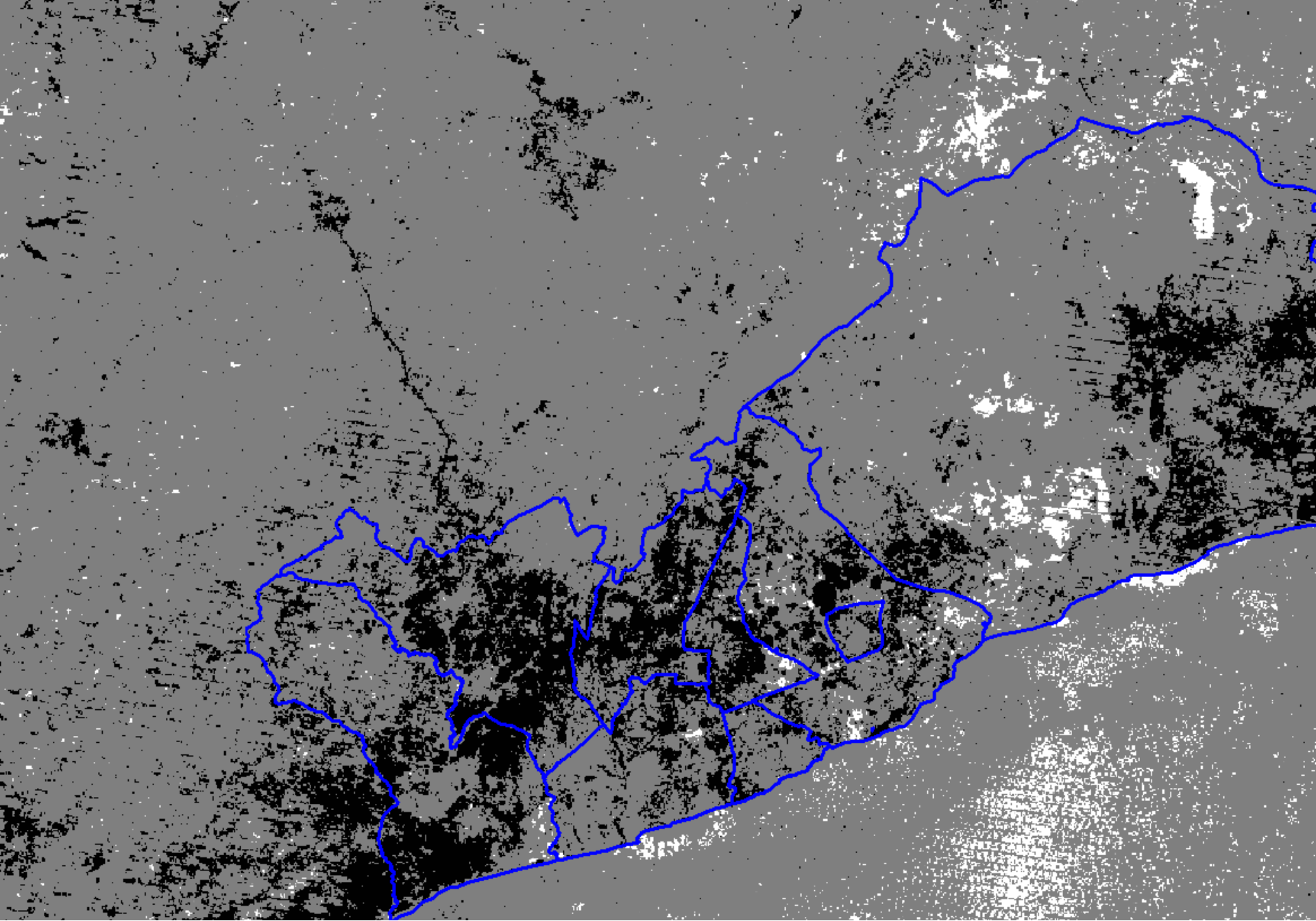
**c.2010 NDVI maximum (28 Landsat 7 images, 2009-2013 )**





**c.2010 minus c.2000 NDVI maximum difference image**

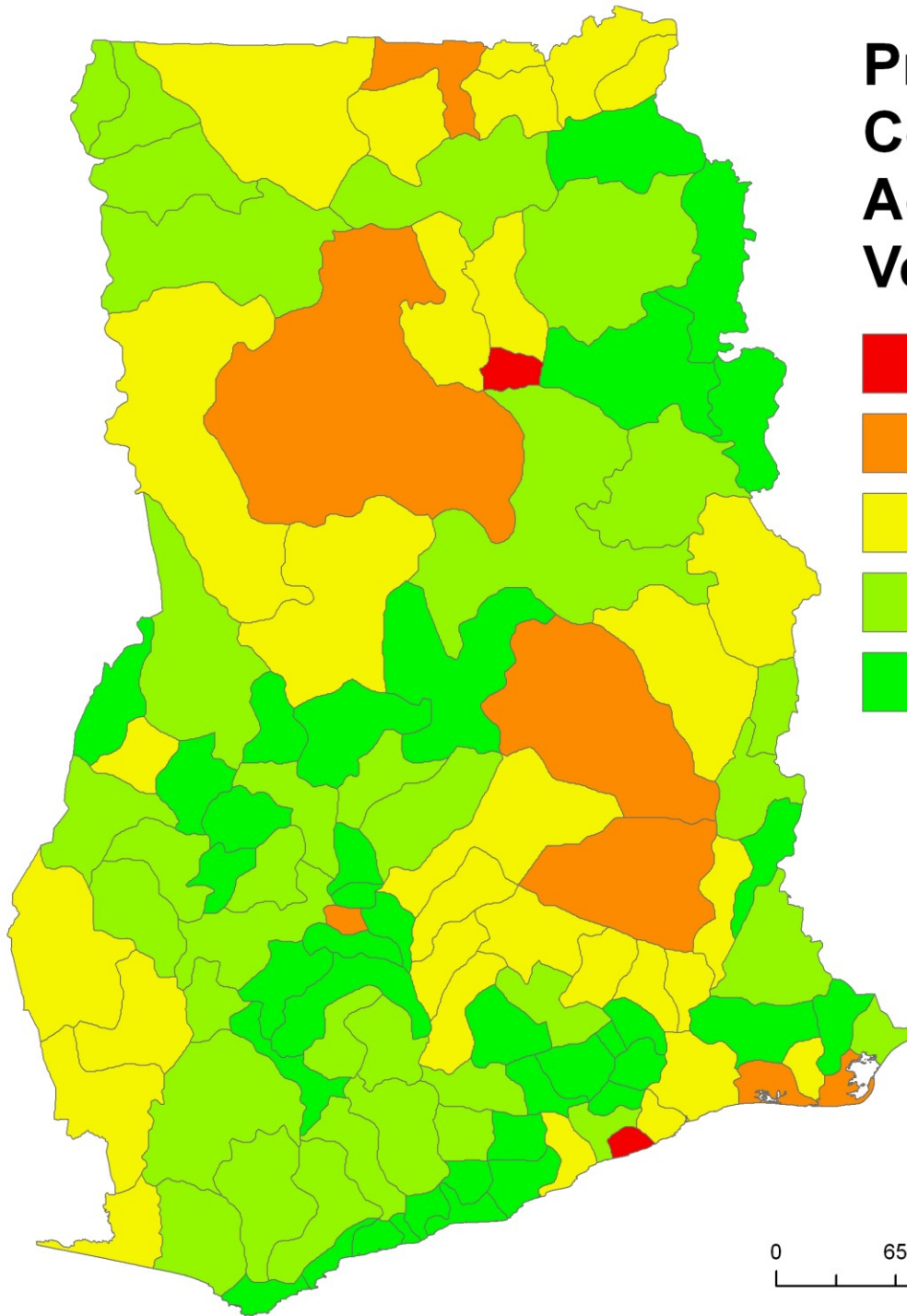
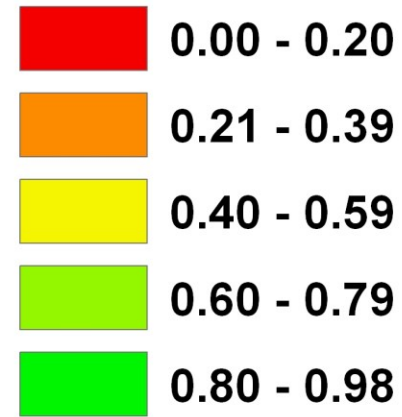




**c.2010 minus c.2000 NDVI maximum difference image, with threshold classification**



# Proportion of Land Area Covered by Mixed Agriculture and Vegetation

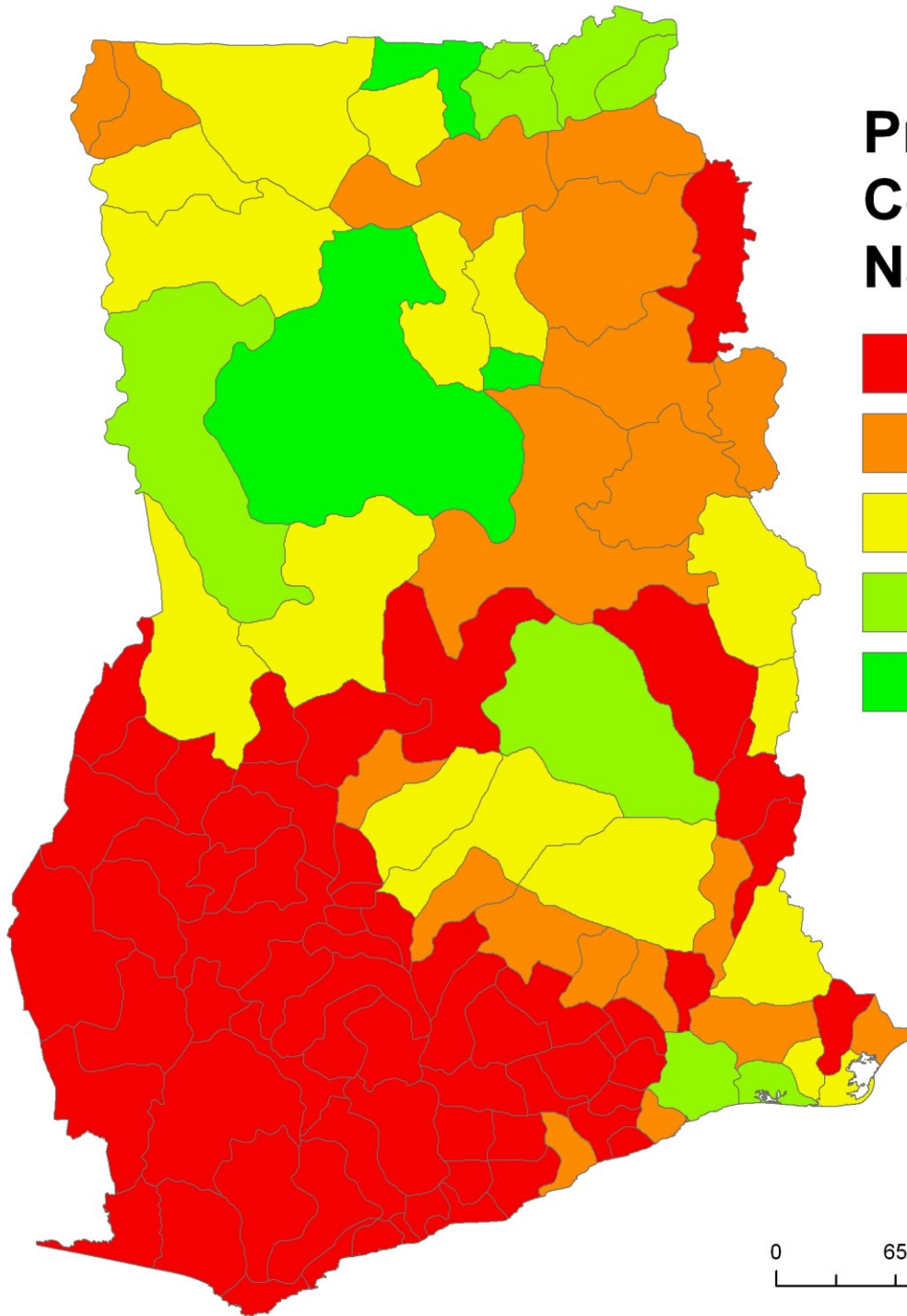
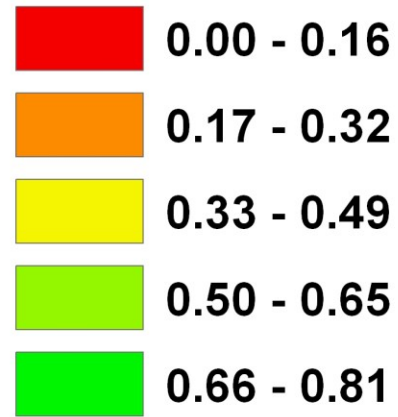


0 65 130 260 Kilometers





# Proportion of Land Area Covered by Natural Vegetaton

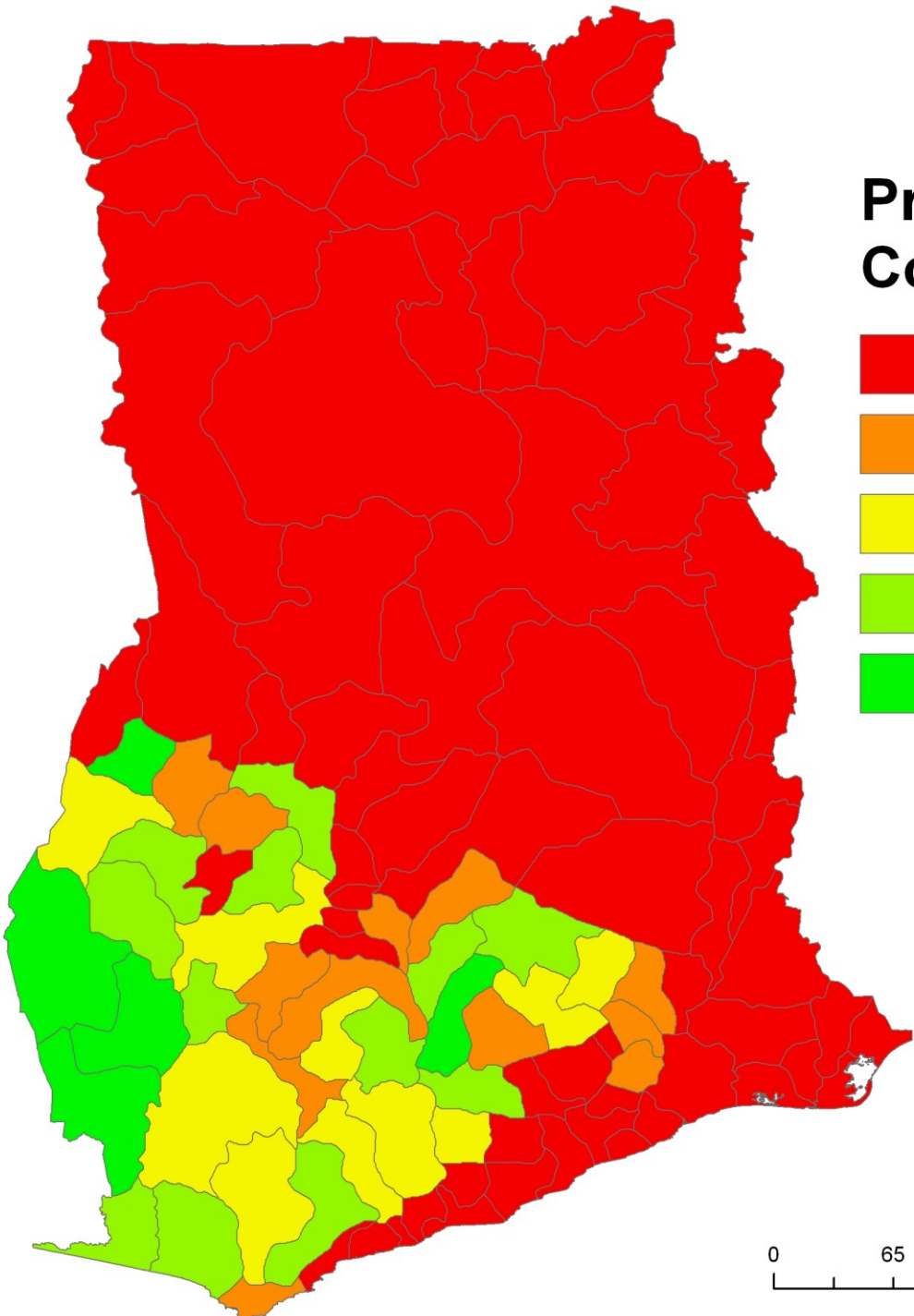
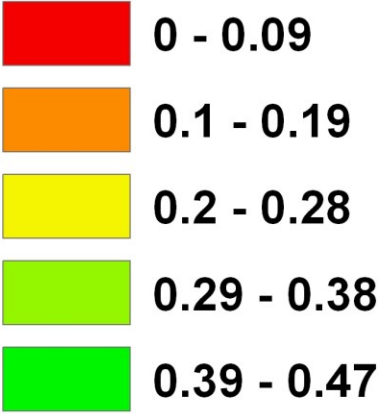


0 65 130 260 Kilometers





# Proportion of Land Area Covered by Forest

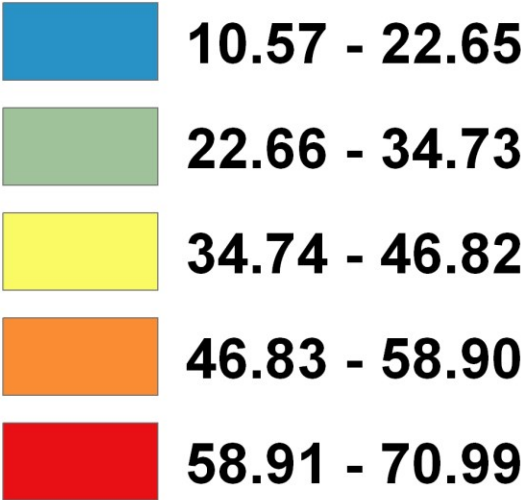
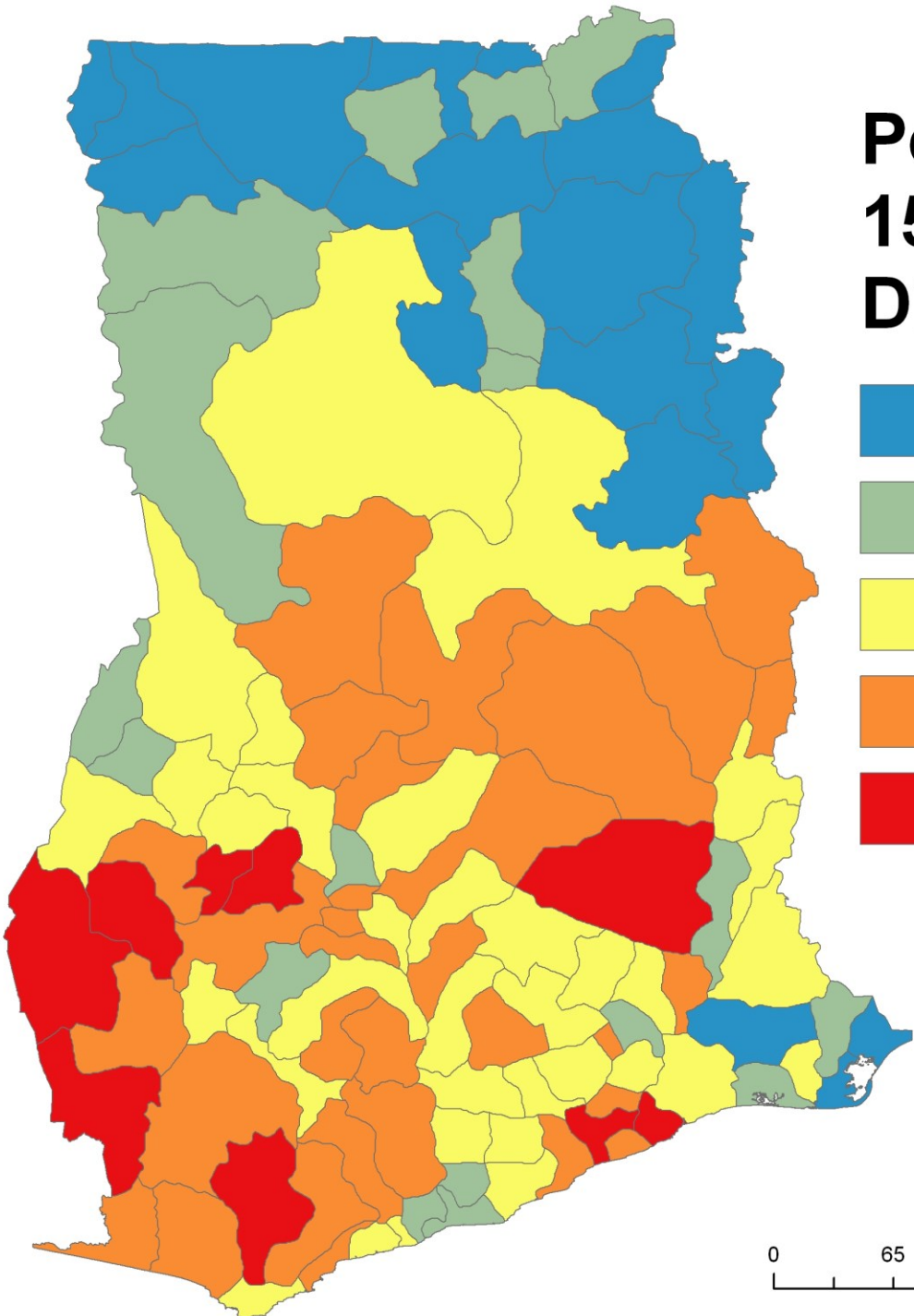


0 65 130 260 Kilometers





# Percent of Males 15-49 Born in a Different District

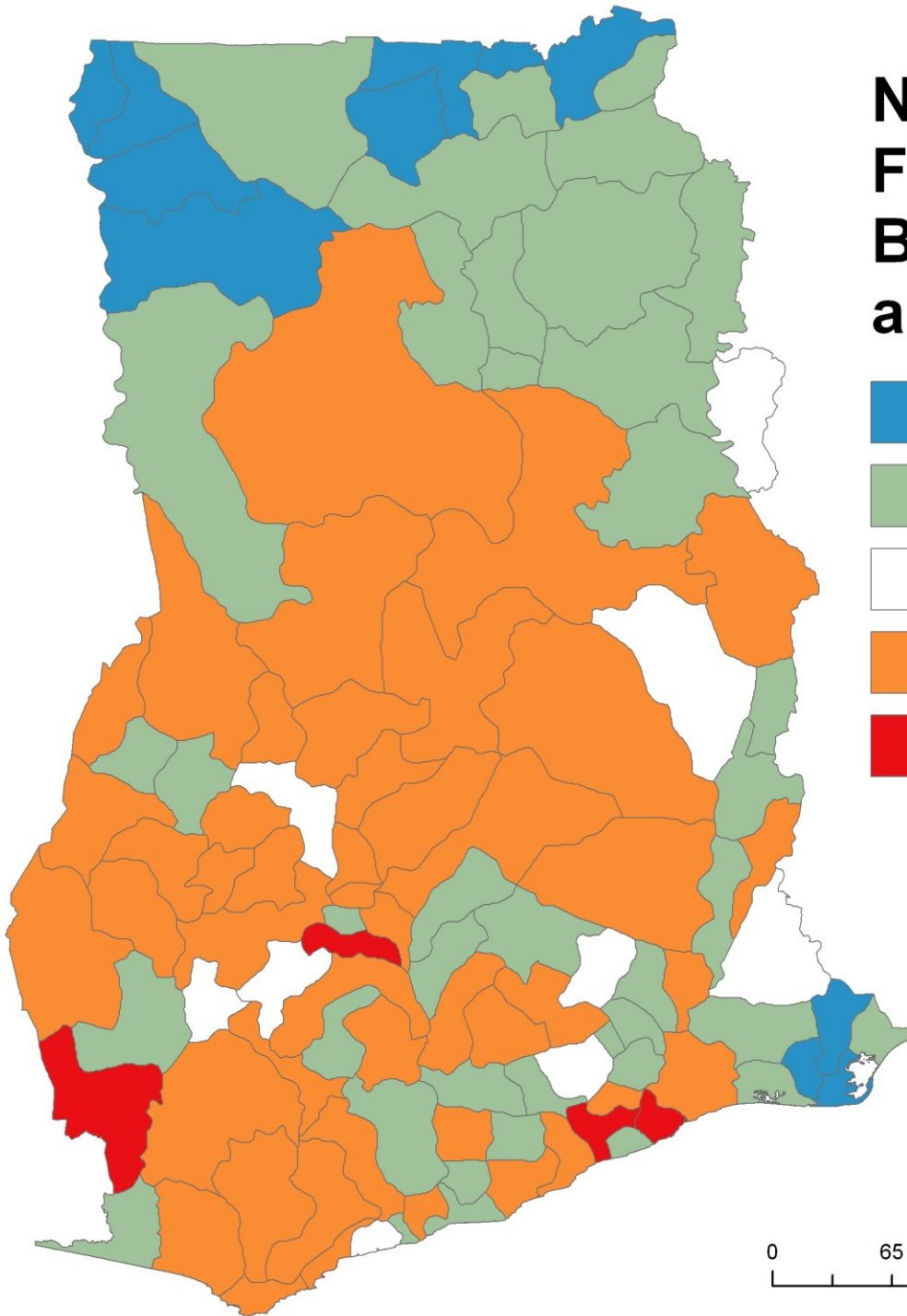
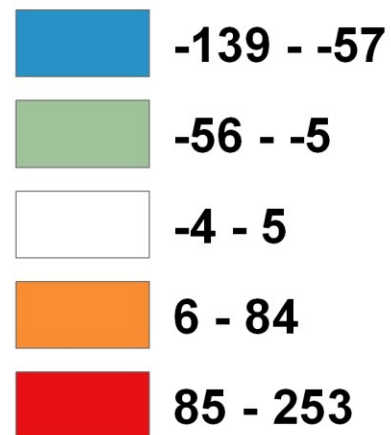


0 65 130 260 Kilometers





# Net Migration Rate For Males 15-49 Between 1995 and 2000



0 65 130 260 Kilometers



# Is Migration Related to Land Cover/Land Use?

Using **Net Migration** as the dependent variable and the land cover classes as predictor variables:

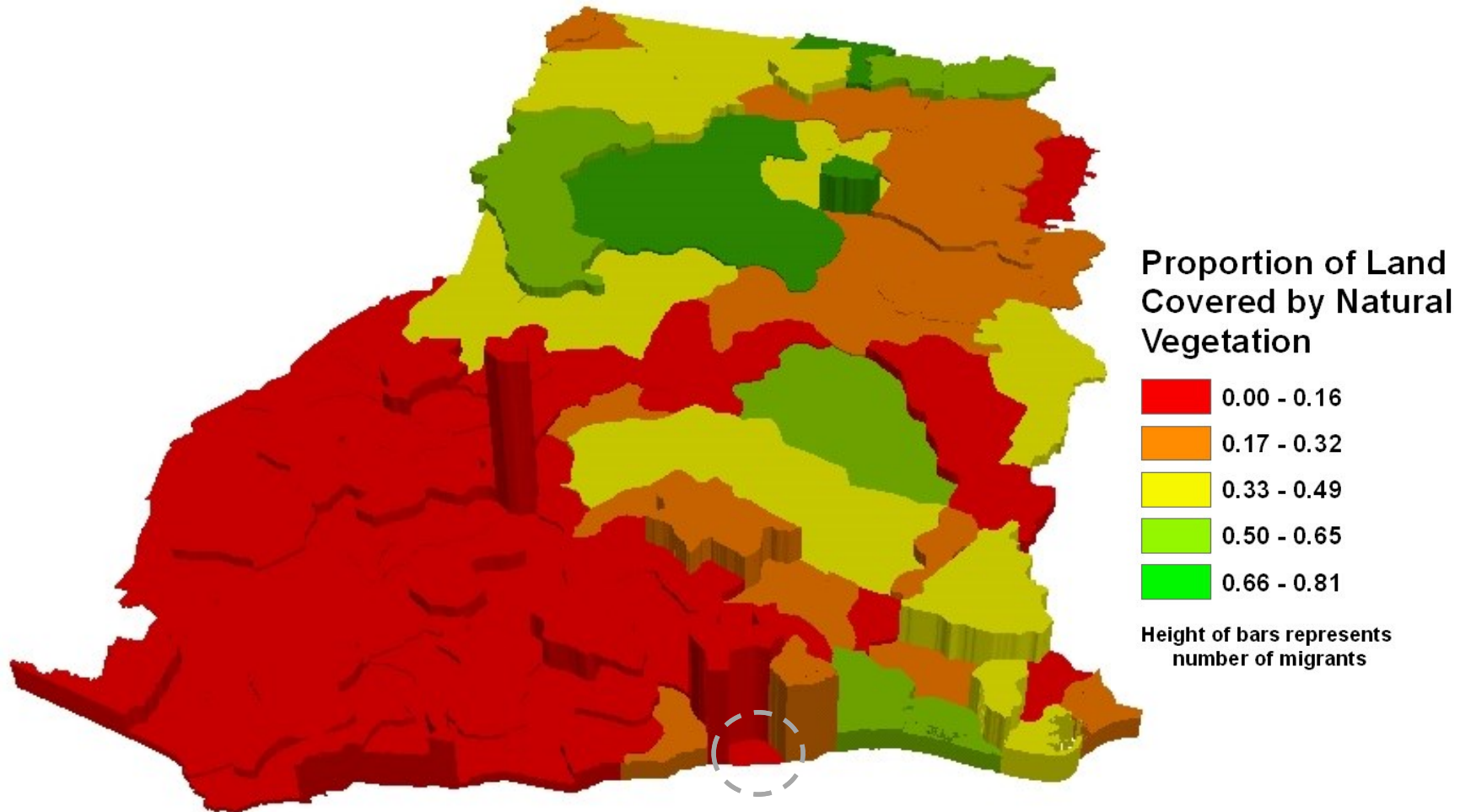
**$R^2 = .098$**  with Natural Veg as the only sig predictor (Beta =  $-.314$ ;  $p = .001$ )

Using **Born in Another Region** as the dependent variable and the land cover classes as the predictor variables:

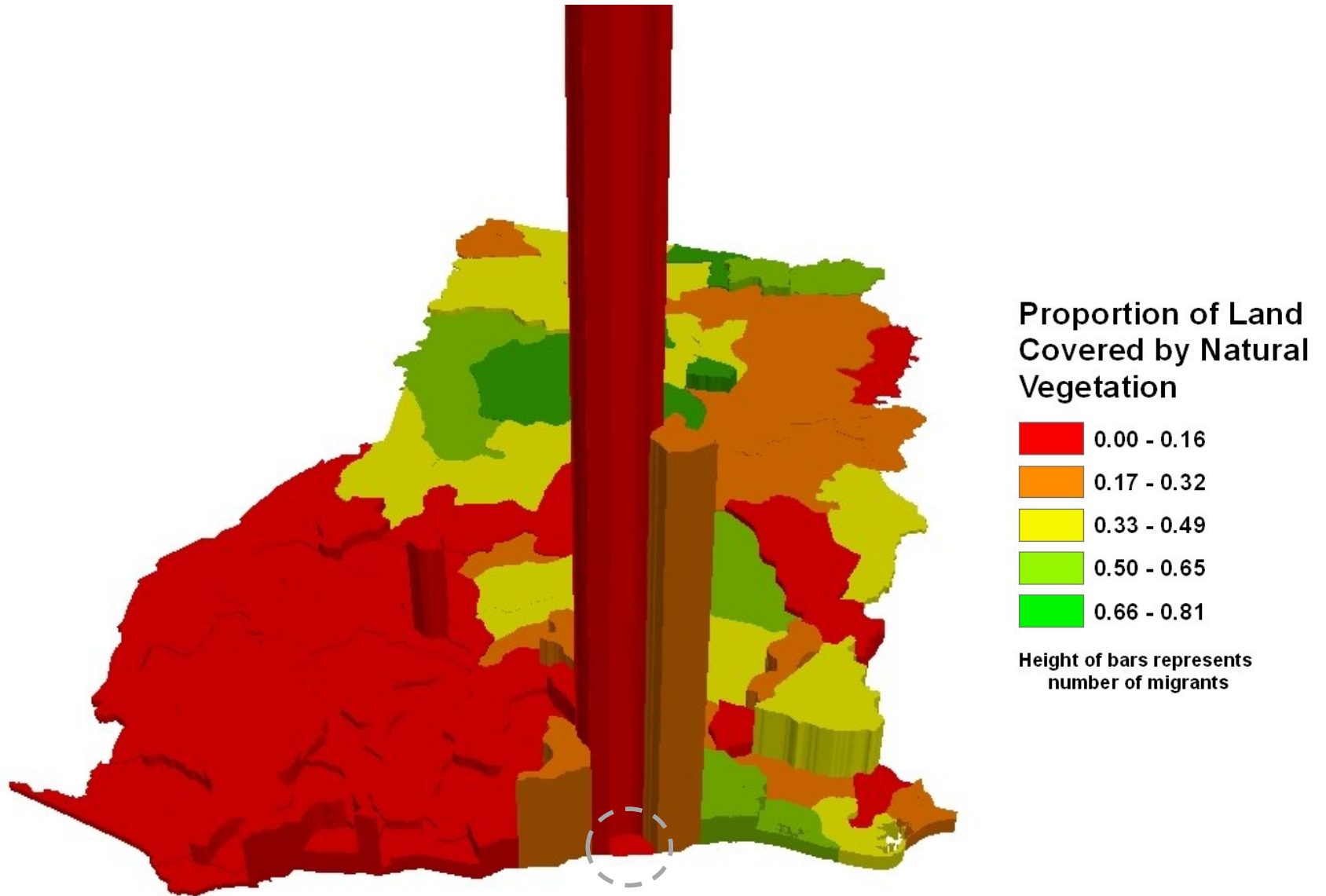
**$R^2 = .332$**  with Natural Veg (Beta =  $-.766$ ;  $p = .000$ ) and Agric/Veg (Beta =  $-.547$ ;  $p = .000$ ) as the significant predictors



# Districts From Which Migrants to Accra 1995-2000 Came

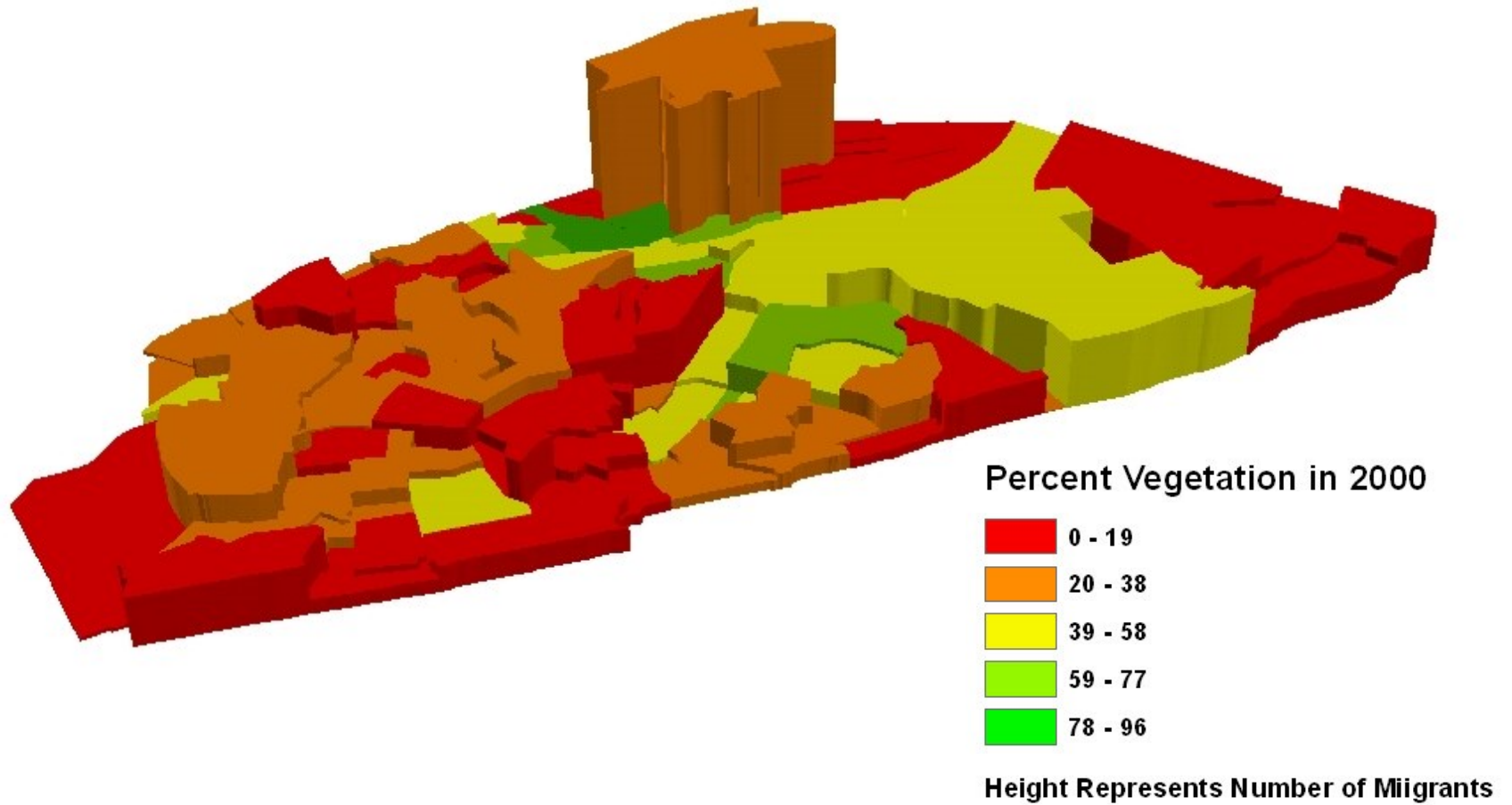


# Districts to Which Migrants from Accra 1995-2000 Went





# Where Do Migrants to Accra Live?





A photograph of a slum area. In the foreground, a narrow, polluted stream flows through a narrow alleyway. The stream is filled with murky water and surrounded by a large amount of trash and debris. On the right side, there are several makeshift buildings made of wood and metal, some with corrugated metal roofs. In the background, there are more buildings, including one that appears to be under construction with visible scaffolding. The overall scene is one of poverty and environmental neglect.

**And there's a lot more,  
but we're out of time**



GeoJournal Library 110

John R. Weeks  
Allan G. Hill  
Justin Stoler *Editors*

# Spatial Inequalities

Health, Poverty, and Place  
in Accra, Ghana

**More information  
about our research is  
online at:  
[http://geography.sdsu.edu  
/Research/Projects/IPC/  
research/research.html](http://geography.sdsu.edu/Research/Projects/IPC/research/research.html)**



# Thanks!

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