
Mapping It Out

using geography to identify and
analyze public health disparities

Steve Graves

Geography



Geography

- Geography is a discipline
 - Our subject is anything that can be mapped.
- Somewhat unique epistemology
- Somewhat unique methodological tool box
 - Spatial stats, spatial analysis
 - Geographic information systems
 - Complex, multivariate analysis common
 - Tests for spatial autocorrelation - overlooked
- Powerful communicative media – the map.

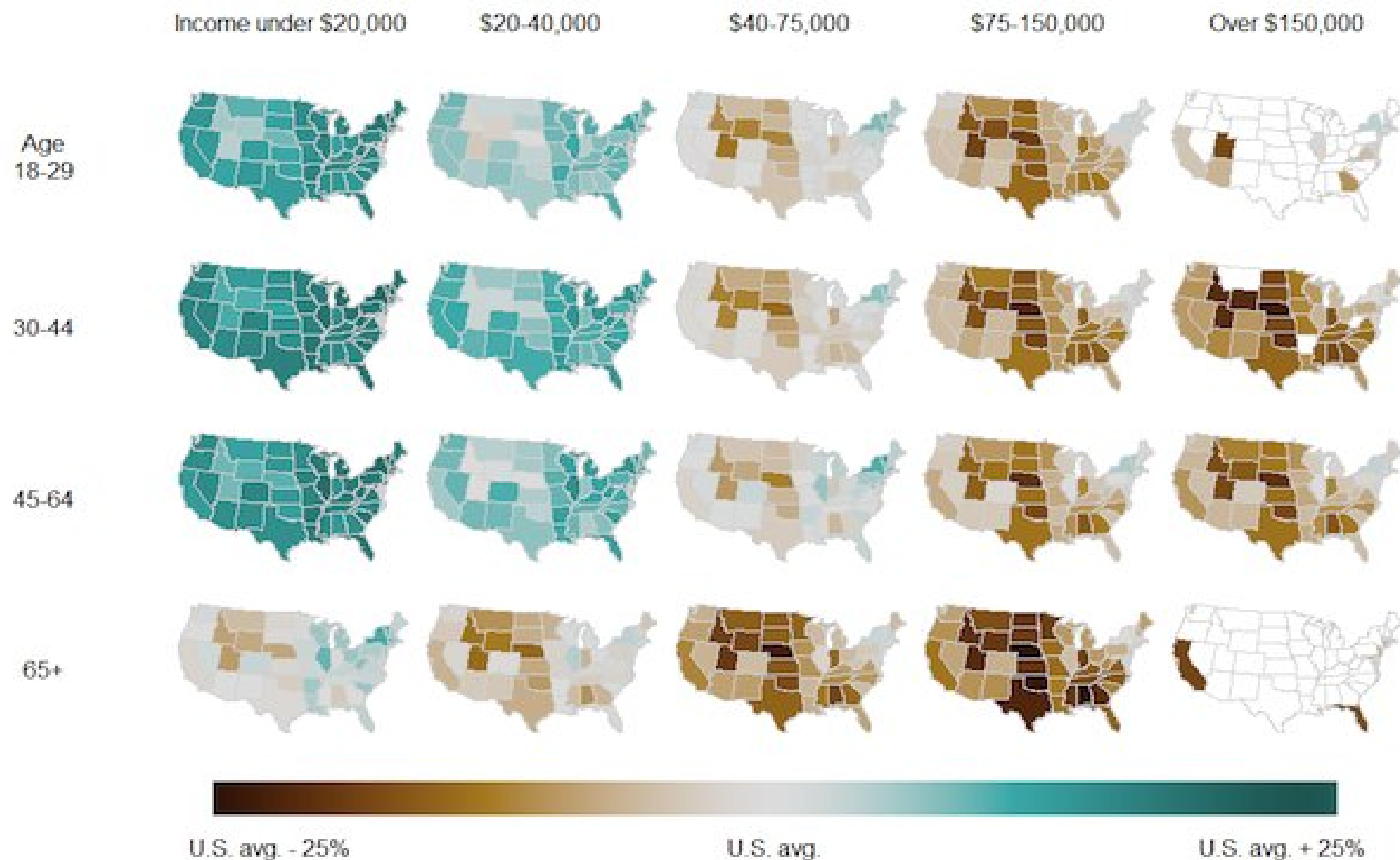
Geography



Health and Medical Geography

- Human Ecology of Disease
- Landscape Epidemiology
- Development and Human Health
- Biometeorology
- Pollution
- Disease Diffusion
- Health Care Delivery Systems
- Health Care Resource Distribution
- Health Service Planning

Should federal gov't spend more money on health care for the uninsured (2004 survey)?



U.S. avg. is 73%

The state is left blank where a category represents less than 1% of the voters of a state.

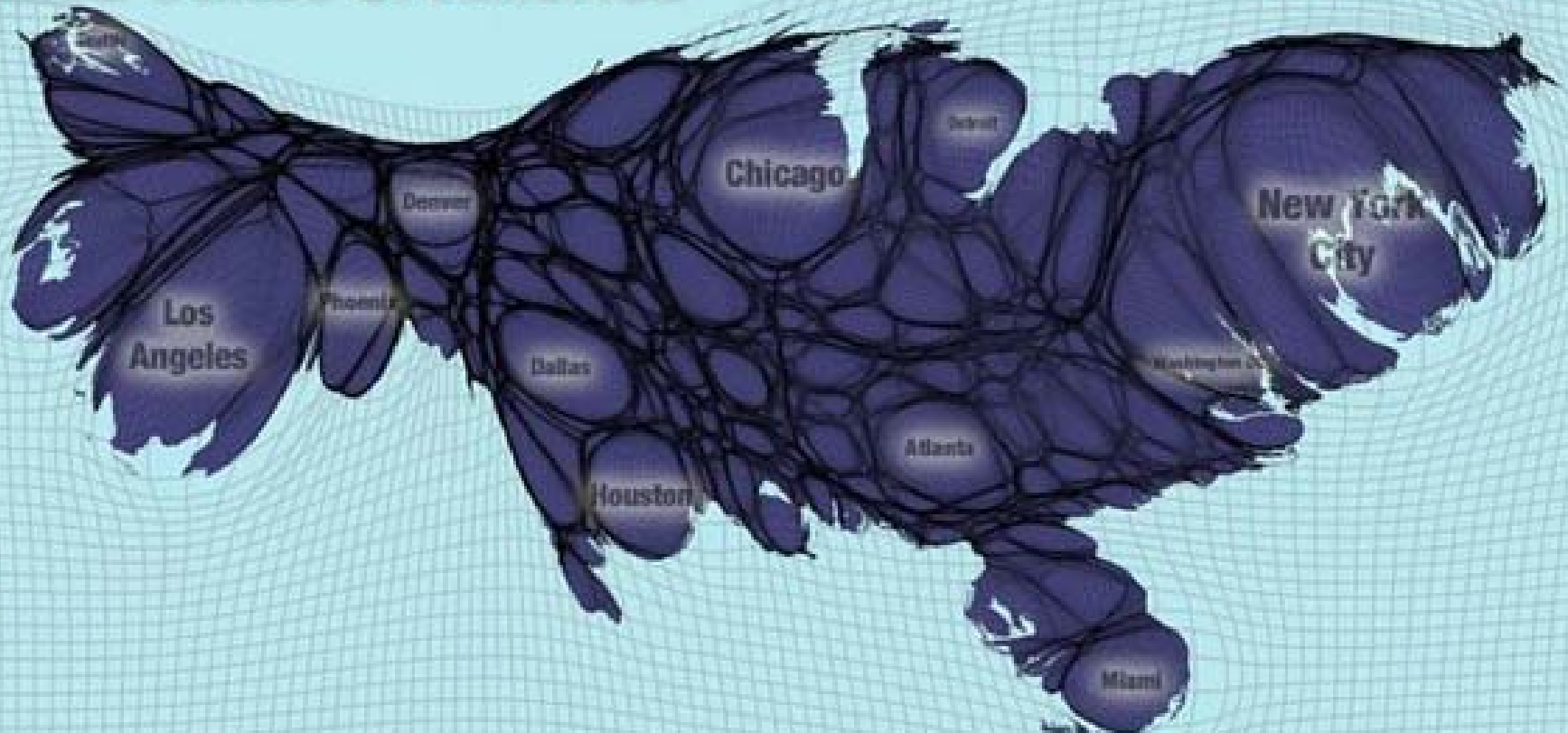
Cartogram of Population

Worldmapper Gridded Population Cartograms

United States of America



[Click here for a full view of the United States](#)





The Contiguous United States
Visualized by distance to the nearest McDonald's

Created by Stephen Von Worley
<http://www.weathersealed.com/tags/maps/>
Location data courtesy of AggData
<http://www.aggdata.com/>

John Snow's Cholera Map

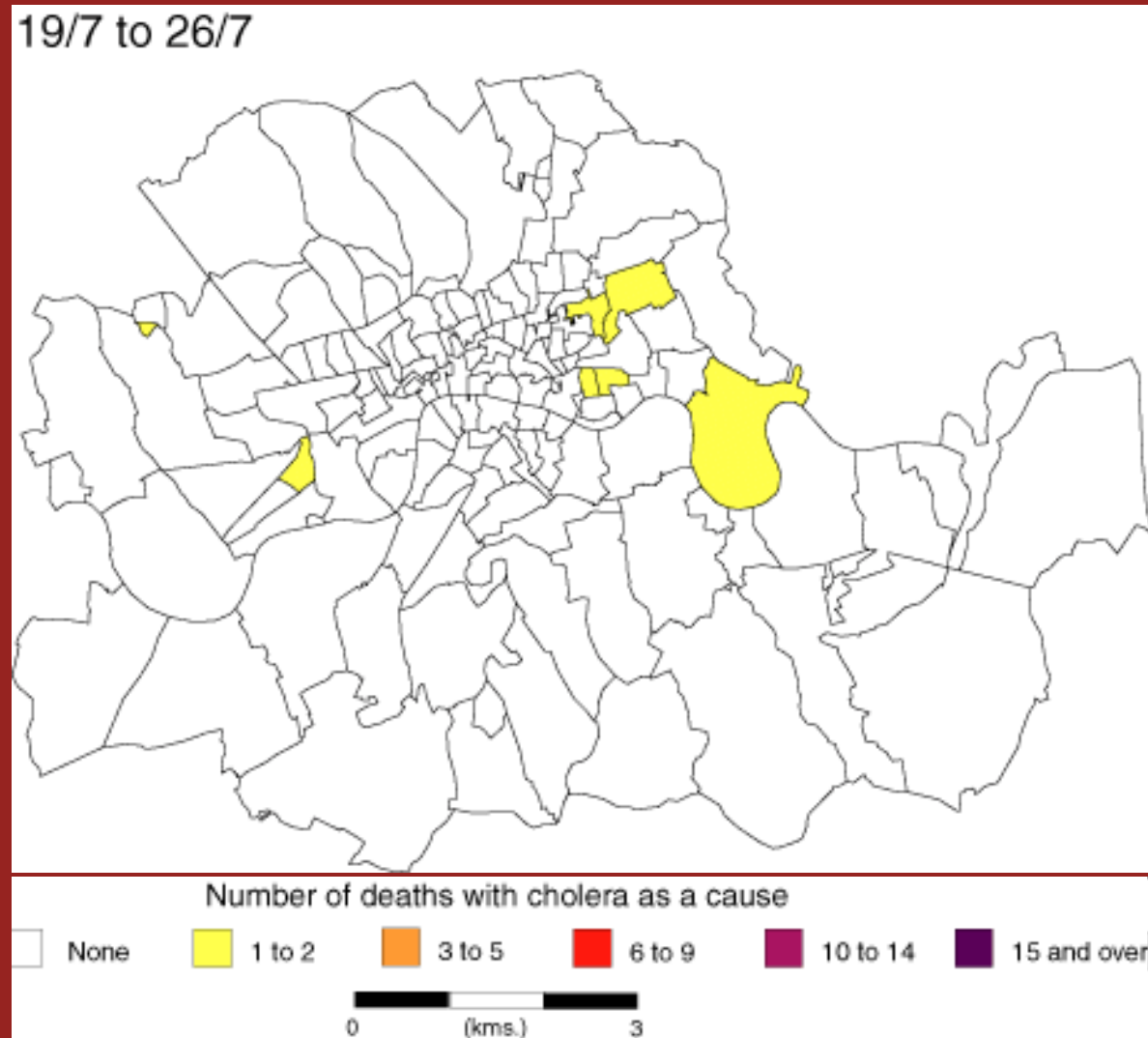


John Snow's Cholera Map

- Mapped outbreak and traced disease to a water pump.
- Bolstered germ theory



Animated File of Cholera Outbreak



Realtime Outbreak Map

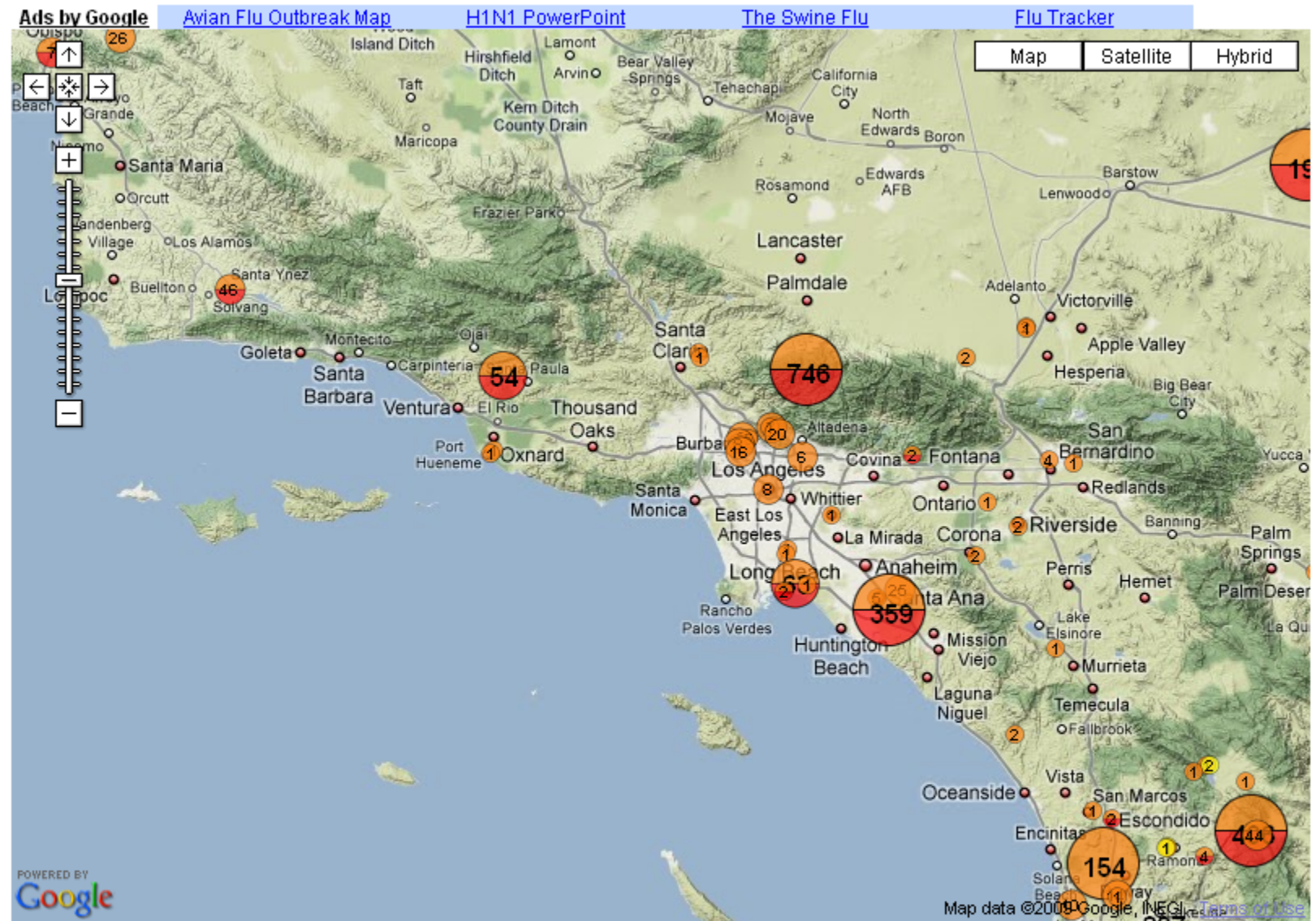
- <http://healthmap.org/en>



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H1N1 Real Time Mapping

- <http://flutracker.rhizalabs.com/>
 - See next slide



Source: flutracker.rhizalabs.com

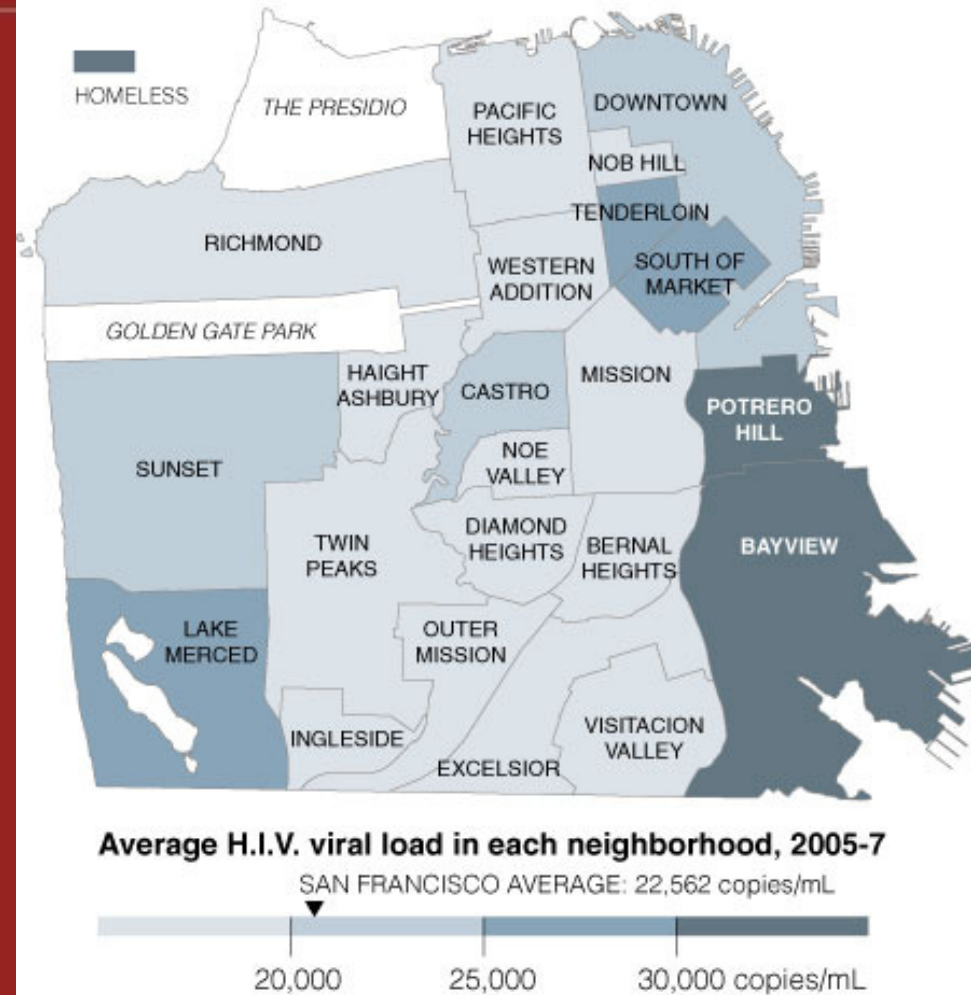


HIV mapping in San Francisco

- Rather than simply mapping cases, this map demonstrates variation in viral load of patients.
- It indicates disparity in treatment, since average viral load is a measure of “how sick” the patients are.

San Francisco's H.I.V. Hot Spots

San Francisco health officials have mapped each neighborhood's average viral load, the number of viral particles in an individual's bloodstream. H.I.V.-positive residents in Potrero Hill and Bayview have the highest average viral loads, often an indication that many in those neighborhoods remain untreated.

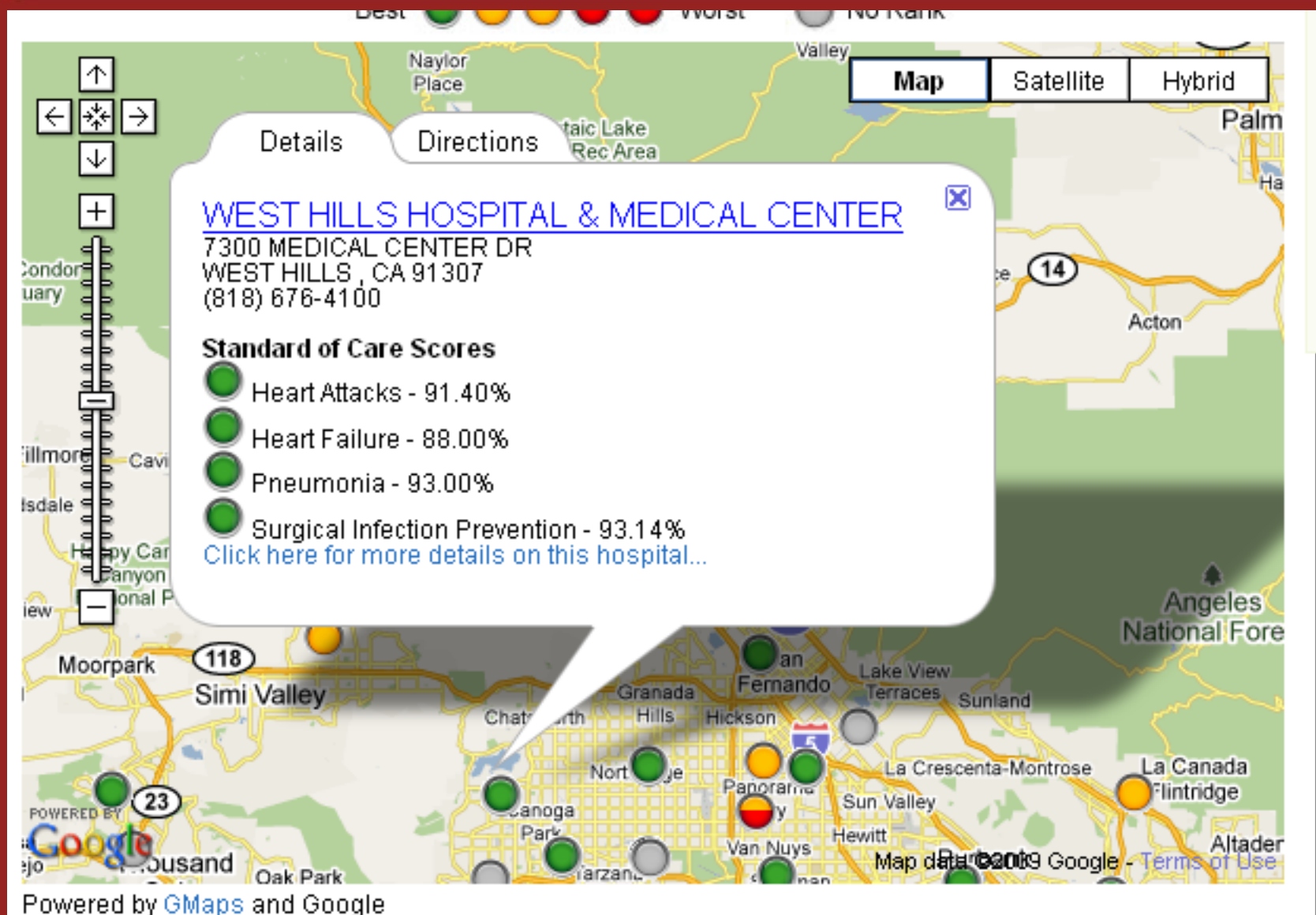


Sources: Moupali Das-Douglas;
San Francisco Department of Public Health;

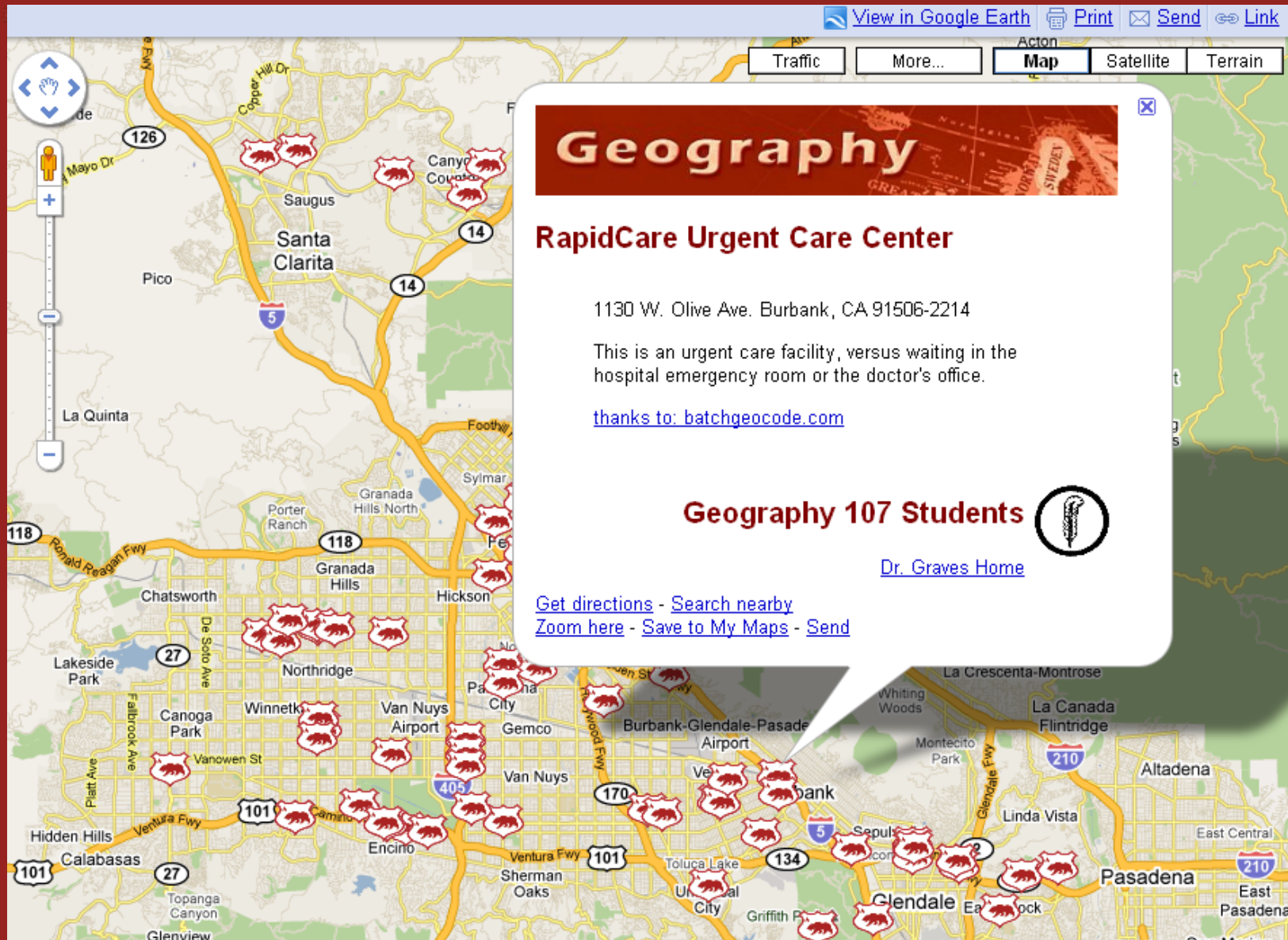
THE NEW YORK TIMES

Geography

Online Hospital Ranking Map



Geography 107 Project



View in Google Earth Print Send Link

Traffic More... Map Satellite Terrain

Geography

RapidCare Urgent Care Center

1130 W. Olive Ave. Burbank, CA 91506-2214

This is an urgent care facility, versus waiting in the hospital emergency room or the doctor's office.

[thanks to: batchgeocode.com](#)

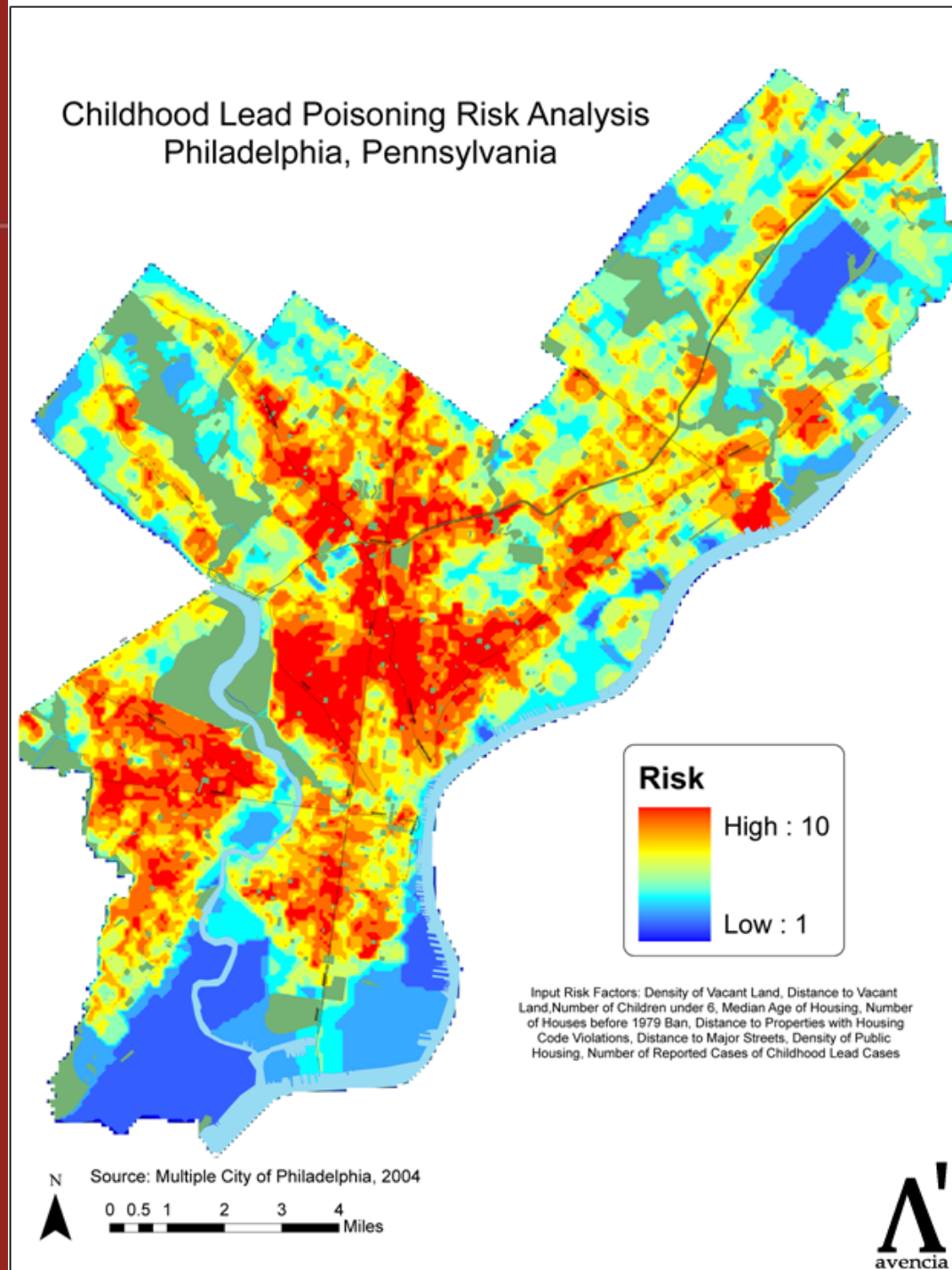
Geography 107 Students

[Dr. Graves Home](#)

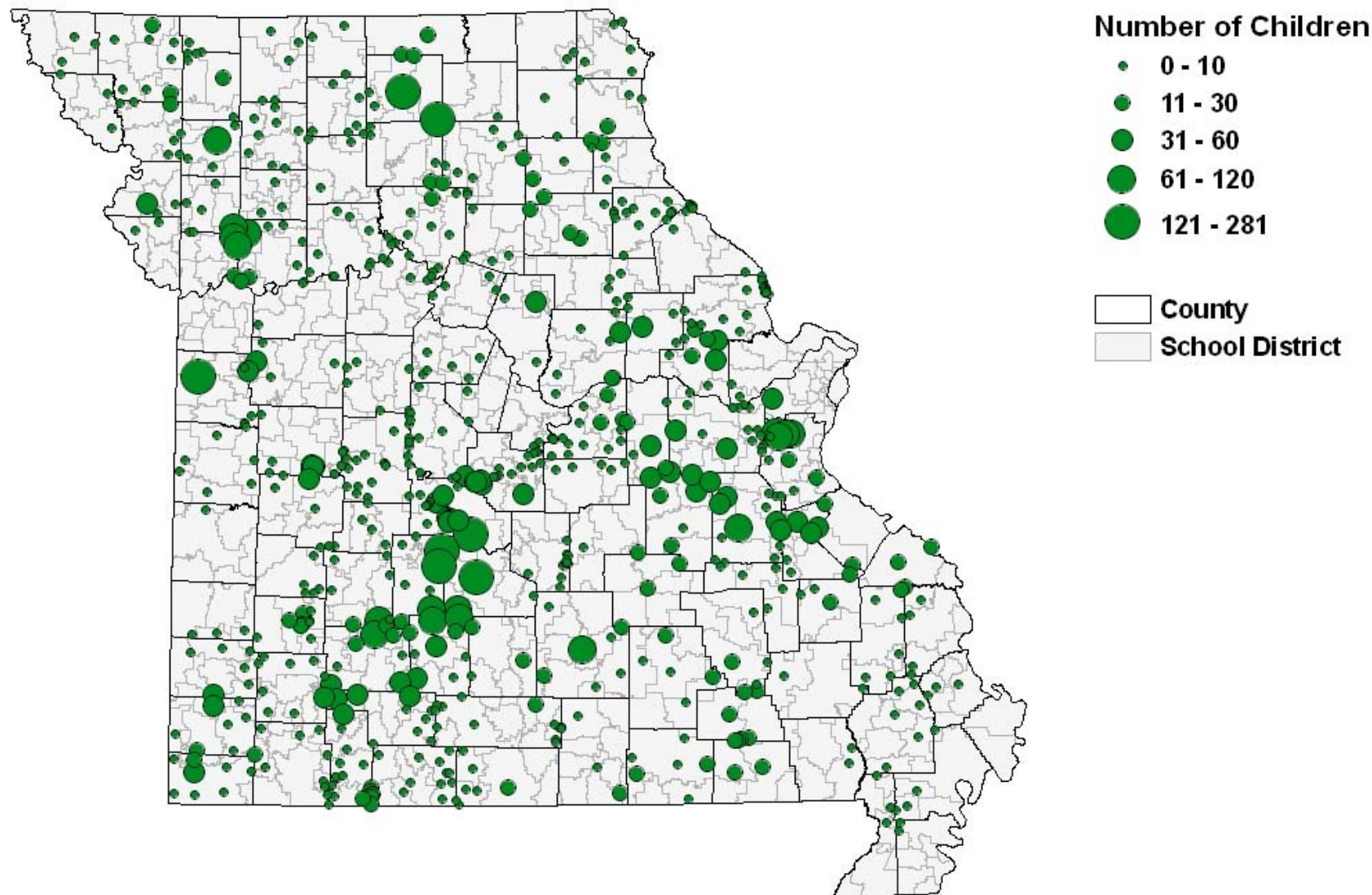
[Get directions](#) - [Search nearby](#)
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Lead Poisoning Risk Map - Philadelphia

- This analysis allows health officials to efficiently allocate resources for mitigation, prevention and education.



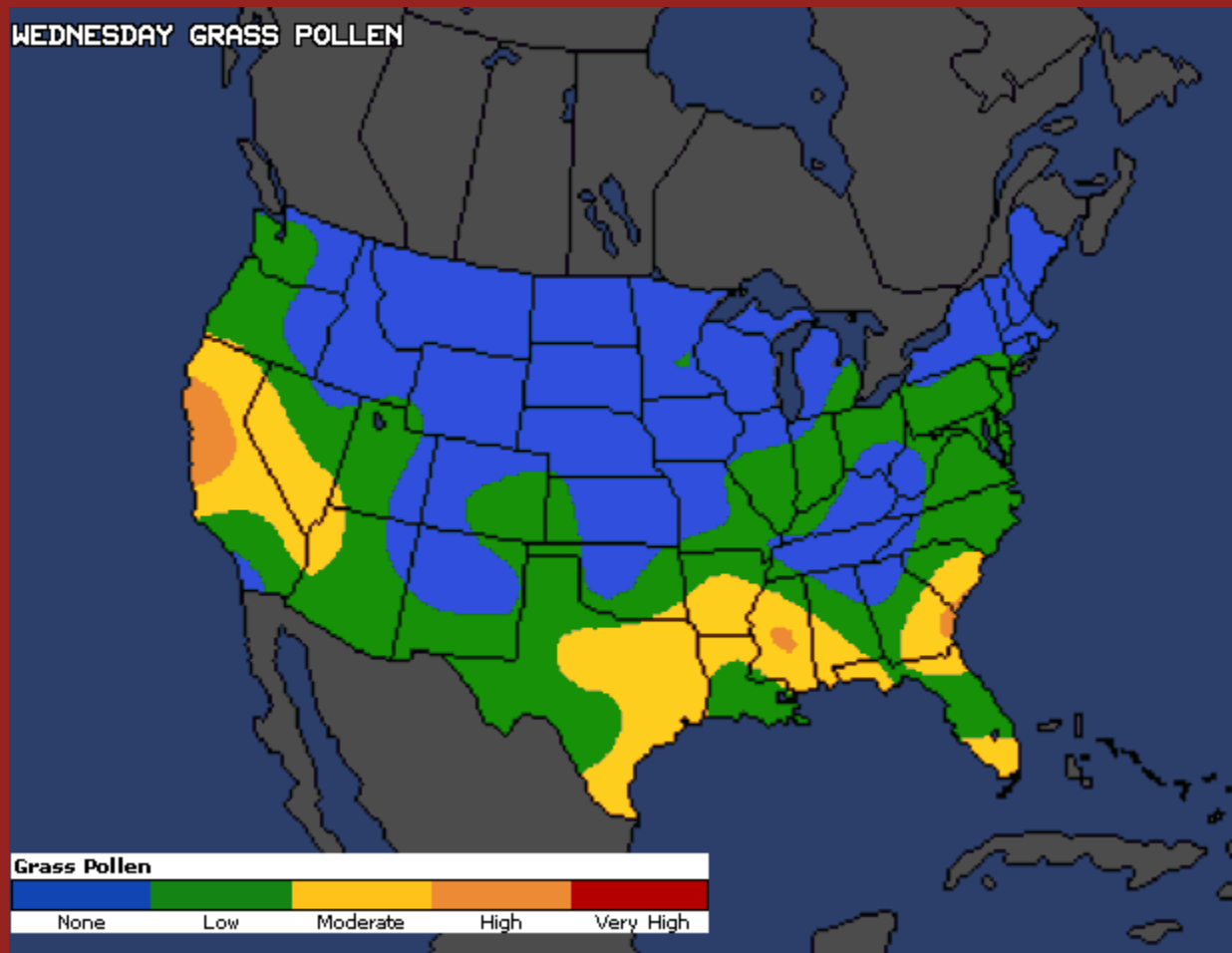
Numbers of Rural School Children in Missouri with Disabling Asthma by School Zip Code, May 2005



Source: Francisco, B. and Konig, P., 2005. School Nurse Survey of Disabling Asthma in Missouri,
Unpublished Data, University of Missouri, Columbia.

Produced by: University of Missouri Extension, Office of Social and Economic Data Analysis (OSED) 10/24/05.

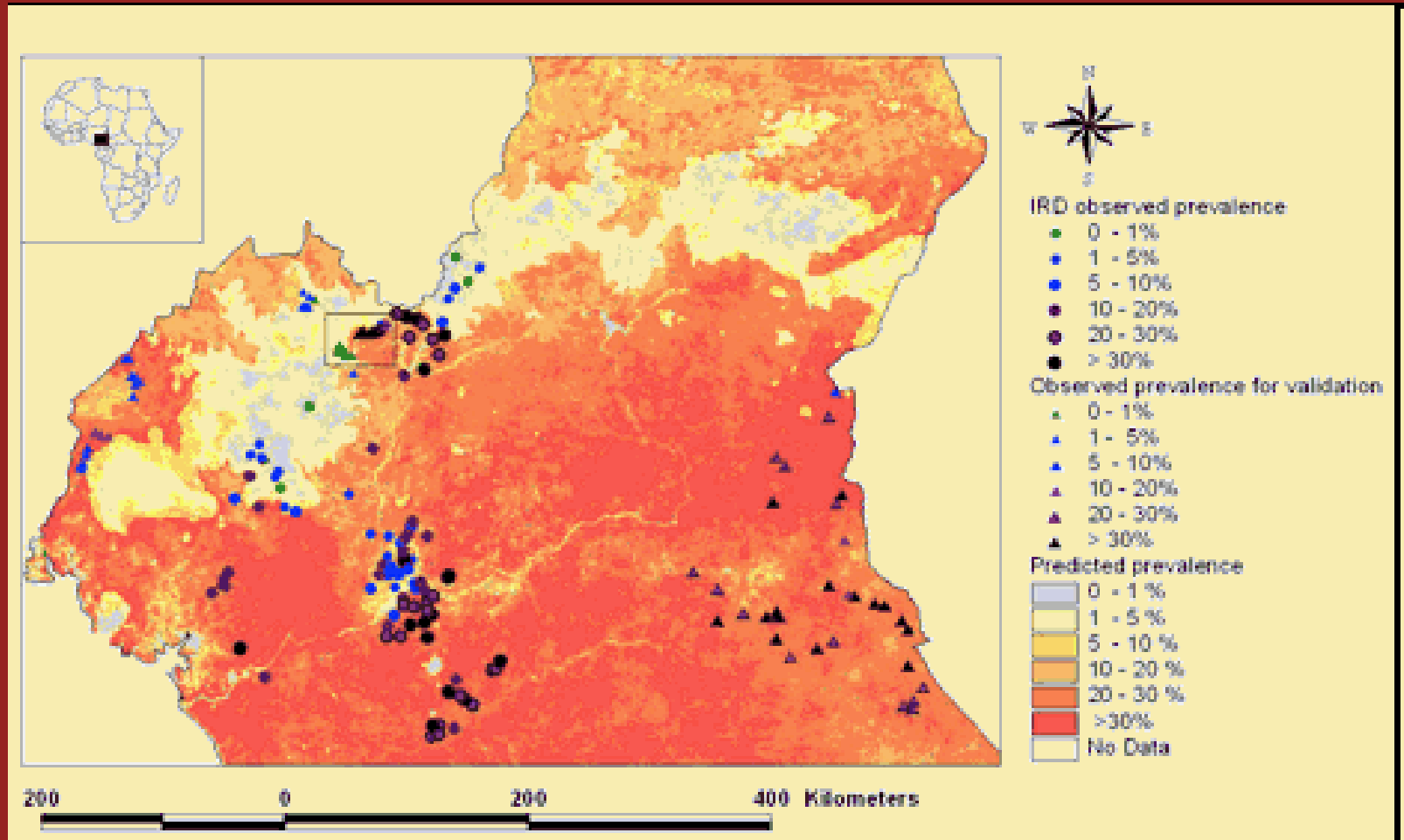
Pollen Map



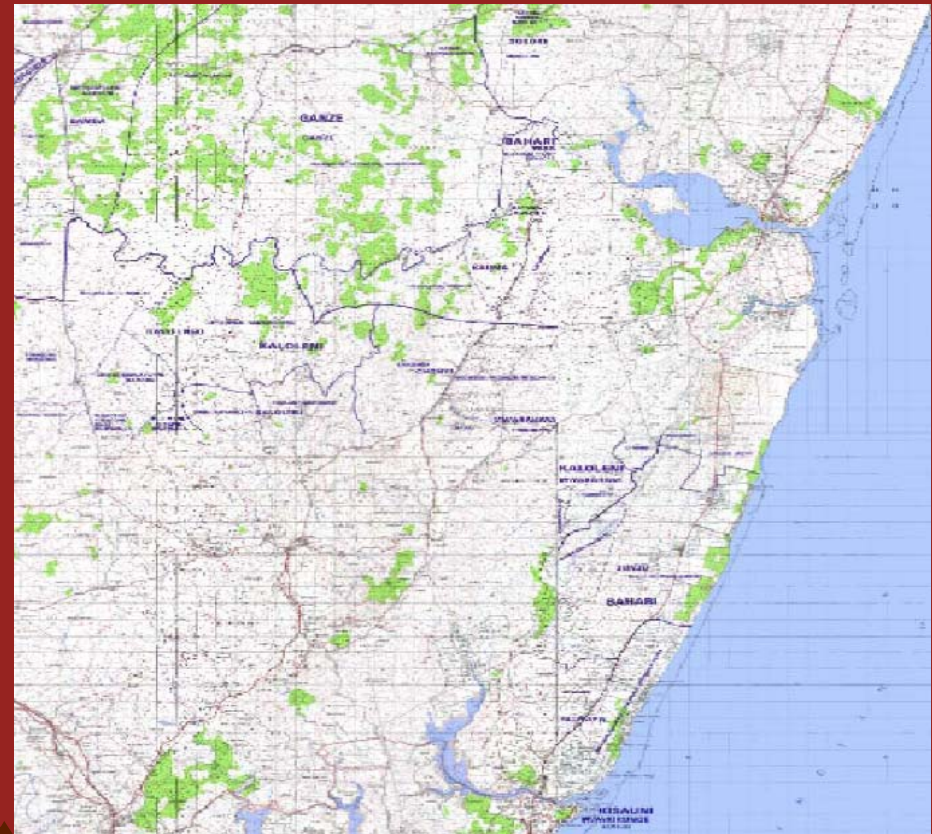
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Predictive Modeling of *Loa loa*

- African Eye worm

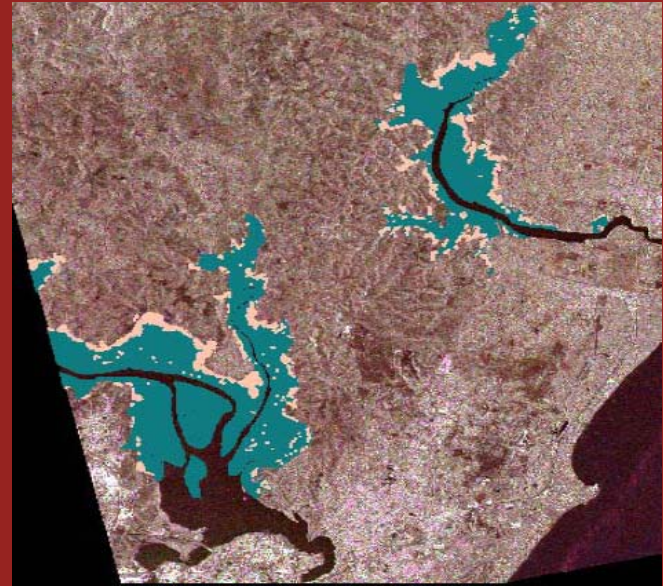


Multilayer Mapping: Mosquito Vectored Disease



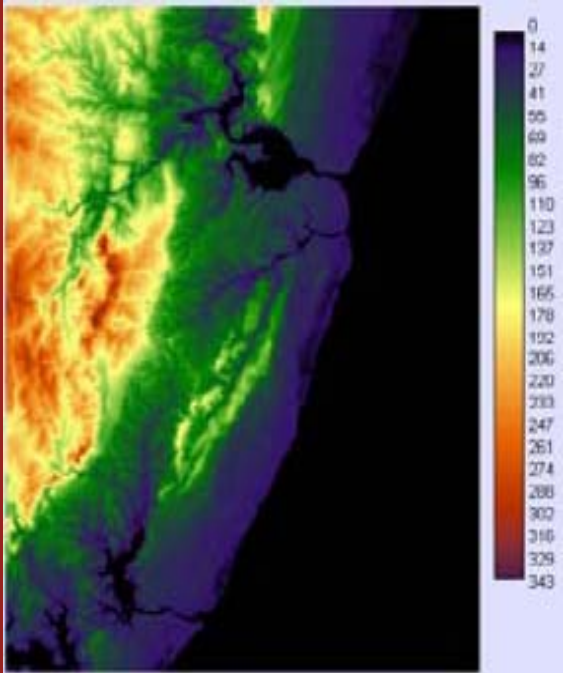
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Topography and Water

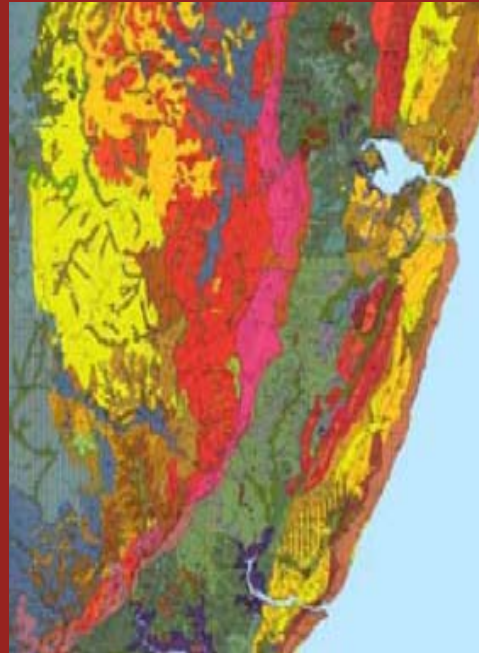


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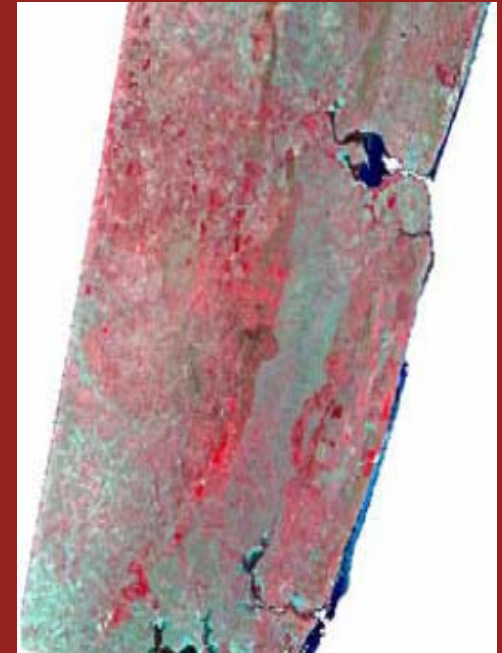
Digital Elevation Models, Soil and Vegetation



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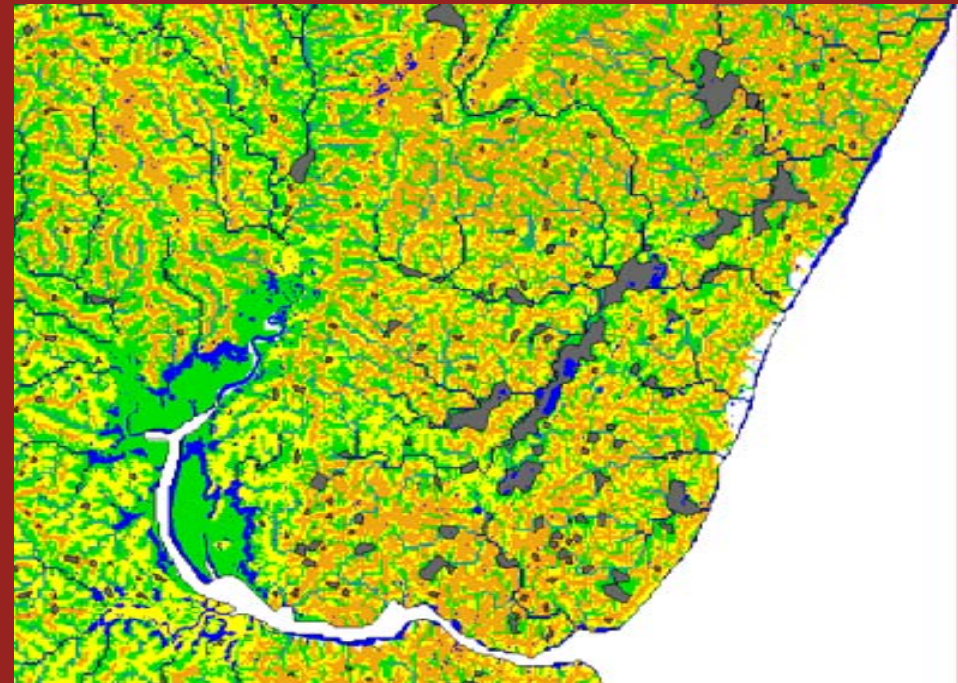
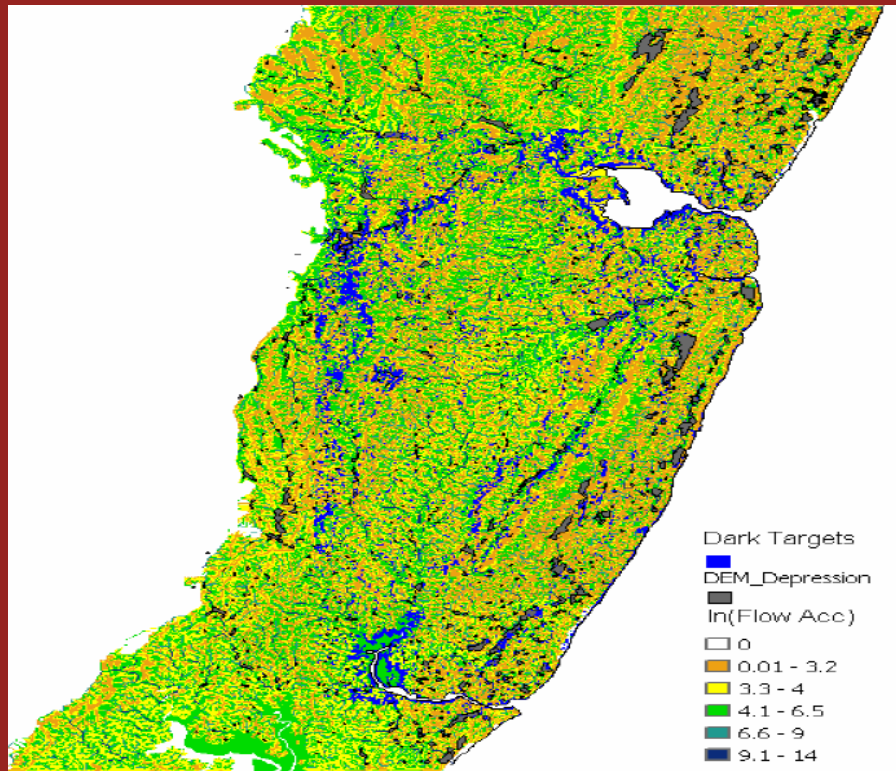


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Mosquito Habitat Map



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