

basemaps

cartography and
spatial data visualization

2026.08.27

first activity - how's things?

Pressing Pause, “Doing” Feminist Mapping

Meghan Kelly

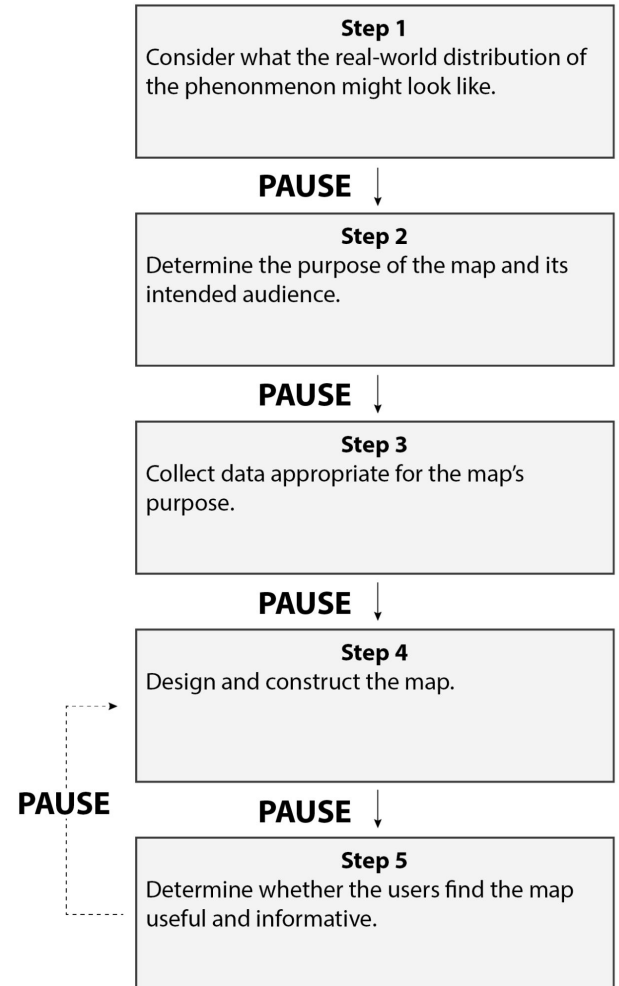
Durham University
meghan.kelly@durham.ac.uk

Amber Bosse

MapBosse Co.
amber@mapbosse.com

Abstract

Maps have long been understood to be embedded within structures of power that differentially privilege and oppress. In traditional workflows, however, considerations of power are often difficult to represent in the map and fail to include considerations of power tied to the mapmaker. As such, we invite mapmakers of all backgrounds and skill sets to “press pause” on traditional workflows to incorporate feminist considerations and representations of power and position. We begin by reviewing reflexivity and exploring the ways it enables deep engagement with systems of privilege and oppression. We then situate **reflexivity as the foundation of a feminist toolkit for “doing” feminist mapping**, a toolkit that calls mapmakers to explore the multiple planes of the matrix of domination (interpersonal, hegemonic, disciplinary, structural) in the five design justice areas (values, practices, narratives, sites, and pedagogies). In particular, we explore the opportunities afforded by reflexivity taken up in written, audio, and visual practices and highlight the work of scholars and practitioners working through these modalities. It is our hope that a commitment to more holistic considerations of power in mapping lead to the establishment of a more equitable and just world.

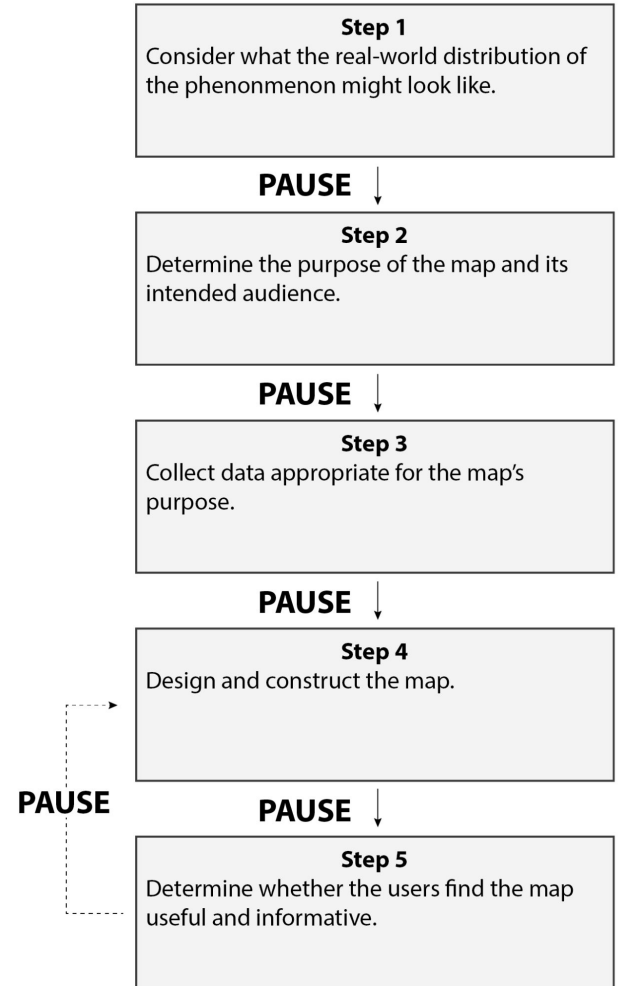


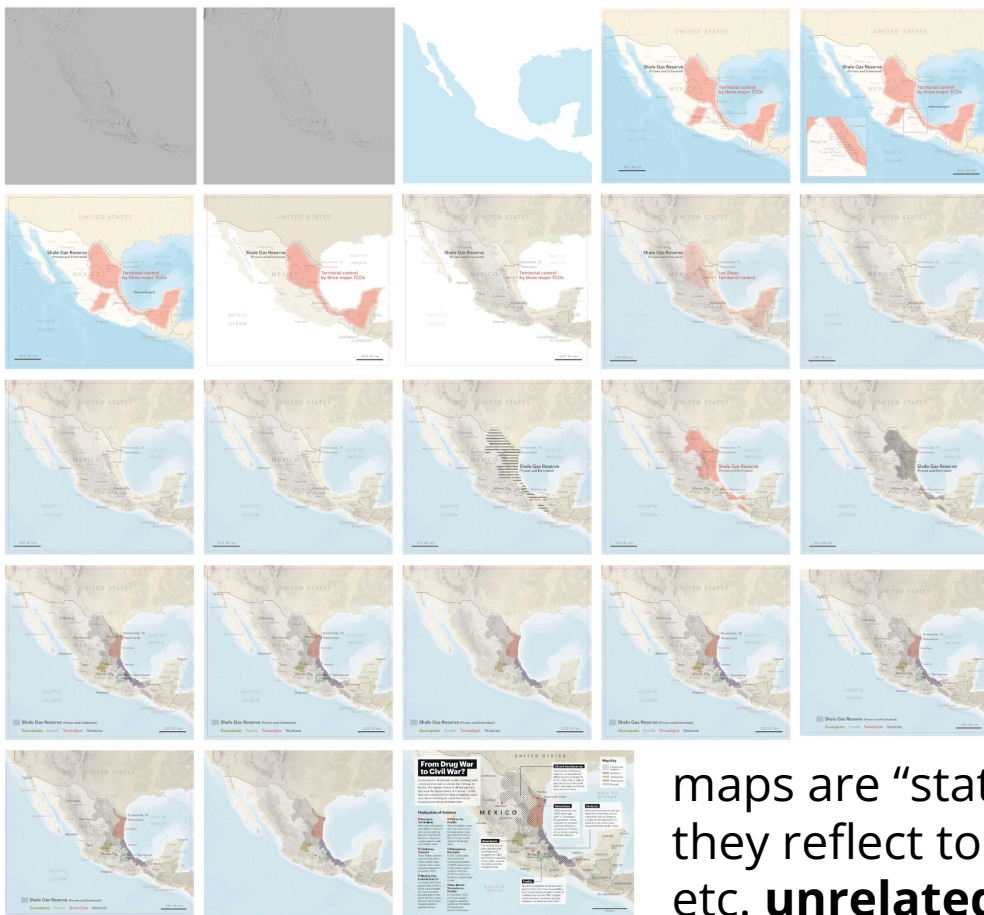
Building on Annette Miae Kim's (2015) attention to position and power in the mapping of Ho Chi Minh City's public sidewalks, this paper calls mapmakers to place not only the map, but also themselves and their processes, within power structures through engagements with reflexivity.

To do so, we offer a feminist mapping toolkit centered around *pressing pause* on traditional mapping workflows to make space for feminist informed reflexivity. Following Sara Ahmed (2017), we present the beginnings of a feminist toolkit to subvert conventional mapping practice by *slowing down* and making time and space for reflexivity in our workflows, our collaborations, and our mappings. We

Written Practice

Reflexivity appears most frequently in written form. While not routine in mapping contexts, we don't have to look far to find examples that *work towards* reflexivity. Metadata, for example, provides documentation to contextualize datasets, including geospatial data (FDGC n.d.), and while mapmakers are familiar with metadata curation, we look to data biographies in data journalism (Krause 2017), datasheets for datasets (Gebru et al. 2020), #README instructions (Boston Public Library 2021), and structured context for public-facing data (CIVIC 2020) as models that extend metadata to better understand the social contexts that surround data. Krause (2017), for example, approaches data as a human journalistic source, which includes a healthy dose of skepticism and inquiry. Gebru et al. (2019) "propose that every dataset be accompanied with a datasheet that documents its motivation, composition, collection process, recommended uses, and so on." Calls to "show your work" in data journalism have opened datasets as well as analysis processes to enhance accountability through transparency and reproducibility (D'Ignazio and Klein 2020). Feminist reflexivity, however, extends these initiatives by attaching questions of power, privilege, and position to data documentation.





versioning displays drafts that trace multiple iterations of a map as it develops, which destabilizes the idea that

maps are "static" objects. they never are! they reflect tons of movement, choices, etc. **unrelatedly!** font design on this

slide = example of making the best out of weird-shaped graphics

From Drug War to Civil War?

An abundance of mineral wealth combined with a weak central state is a recipe for civil war. In Mexico, the regions richest in oil and gas have also seen the highest levels of violence. Cartels that once competed over drug-smuggling routes are now also battling for control of natural resources and energy infrastructure.

Flashpoints of Violence

1 Reynosa, Tamaulipas

More than 500 people were killed in the past year during fighting between Gulf Cartel factions in Reynosa, a major pipeline hub and refinery town.

2 Cárdenas, Tabasco

Thirty Pemex workers were injured after a stolen tanker truck crashed into a pipeline and exploded in December 2015.

3 Mexico City, Federal District

In January 2017, four people died and hundreds were arrested during nationwide protests against the government's energy reforms, which have caused a spike in gasoline prices.

4 Palmarito, Puebla

Mexican soldiers were seen on surveillance footage executing a gasoline thief after a May 2017 gun battle that left 10 people dead.

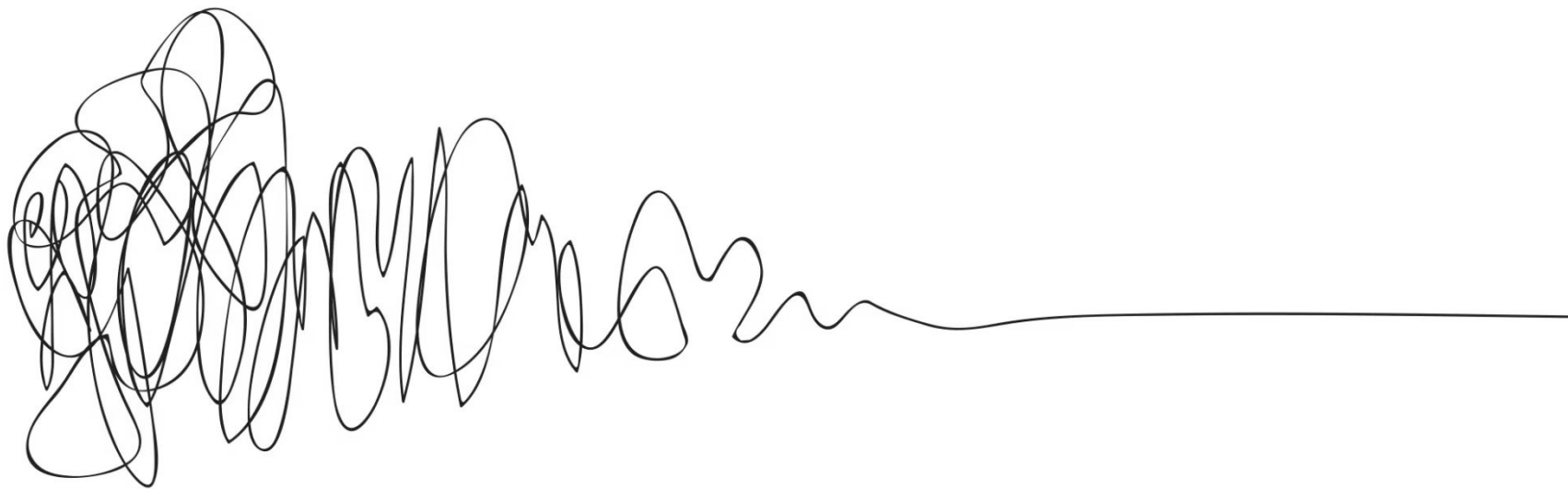
5 Matamoros, Coahuila

In 2017, authorities discovered the incinerated remains of 3,000 people at a cartel extermination camp in Coahuila, where Los Zetas are known to operate coal mines.

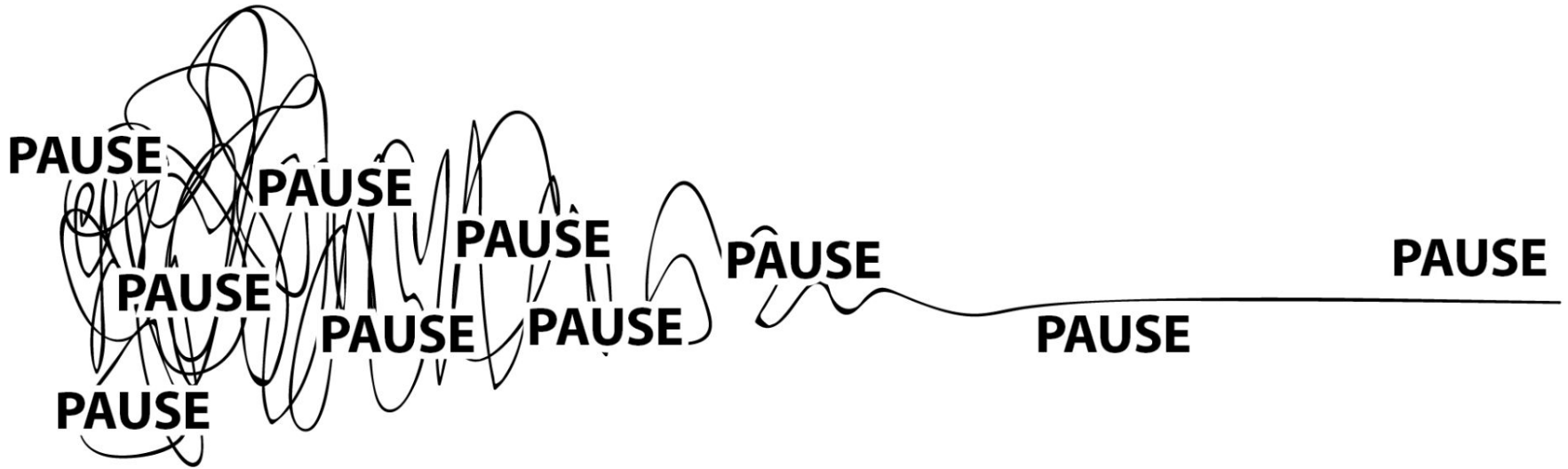
6 San Martín Texmelucan, Puebla

In December 2010, Los Zetas caused a gigantic pipeline explosion that killed 29 people and burned 115 homes.





<https://thedesignsquiggle.com>



Kelly and Bosse (2019) adapt <https://thedesquiggles.com>

speaking of design:

**let's do a quick map reading
of a map that i made for 260**

**you could also call this a “crit” or
map critique (you’ll do these later)**

POWER PLANTS AND PLANT POWER

The map at the top draws on the EPA's eGrid dataset to show CO₂ emissions (in tons) and fuel type of power plants across the United States. Meanwhile, the map on the bottom shows carbon sequestration in the nation's forests.

What patterns do you notice?

Fuel type

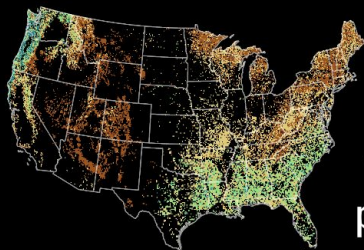
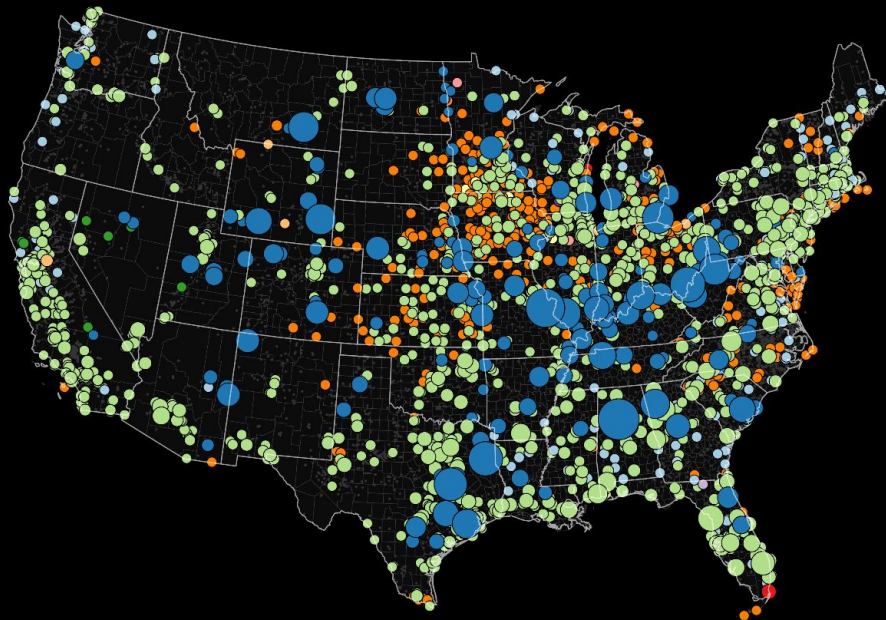
- BIOMASS
- COAL
- GAS
- GEOTHERMAL
- HYDRO
- NUCLEAR
- OFSL
- OIL
- OTHF
- SOLAR
- WIND

Annual CO₂ emissions (tons)

- 1
- 6,036,390
- 12,072,800
- 18,109,200

Carbon sequestration

- 6 metric tons CO₂/year
- 0 metric tons CO₂/year



How do carbon emissions
from power plants
stack up against
plant power?

Map by Ian Spangler (2026), created for GEOG 260: Foundations of Geospatial Analysis. Data from Esri's Living Atlas and EPA's eGrid Data.

POWER PLANTS AND PLANT POWER

The map at the top draws on the EPA's eGrid dataset to show CO2 emissions (in tons) and fuel type of power plants across the United States. Meanwhile, the map on the bottom shows carbon sequestration in the nation's forests.

What patterns do you notice?

Fuel type

- BIOMASS
- COAL
- GAS
- GEOTHERMAL
- HYDRO
- NUCLEAR
- OFSL
- OIL
- OTHF
- SOLAR
- WIND

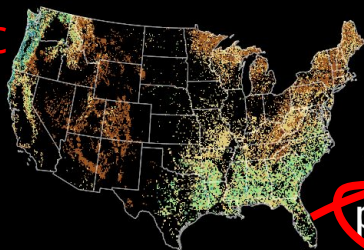
Annual CO2 emissions (tons)

- 1
- 6,036,390
- 12,072,800
- 18,109,200

Carbon sequestration

- 6 metric tons CO2/year
- 0 metric tons CO2/year

tough to format inline fonts
in arc
pro



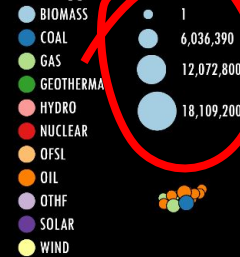
How do carbon emissions
from power plants
stack up against
plant power?

POWER PLANTS AND PLANT POWER

The map at the top draws on the EPA's eGrid dataset to show CO₂ emissions (in tons) and fuel type of power plants across the United States. Meanwhile, the map on the bottom shows carbon sequestration in the nation's forests.

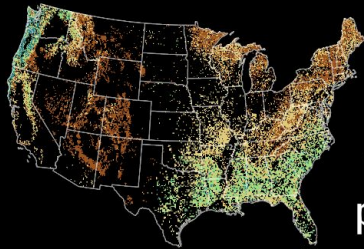
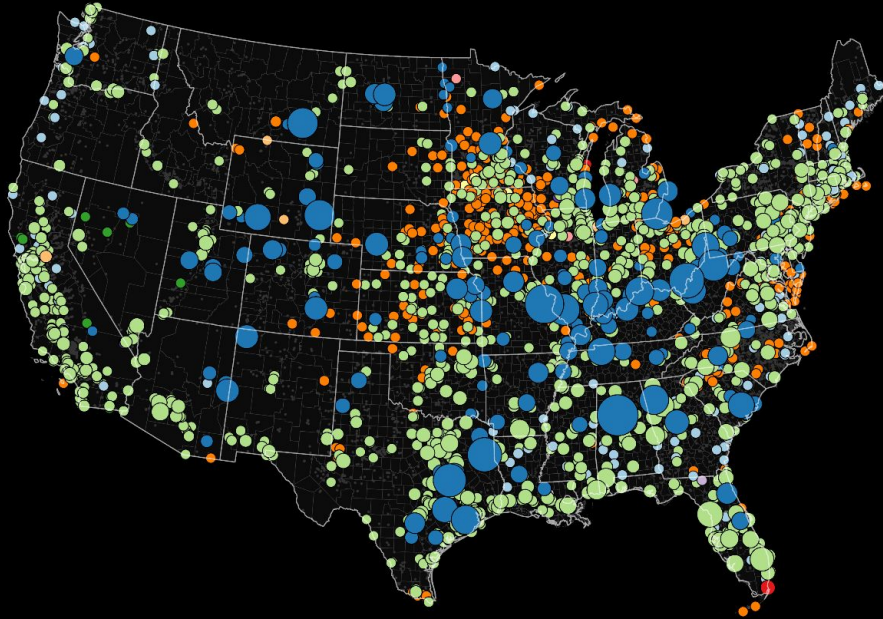
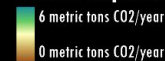
What patterns do you notice?

Fuel type Annual CO₂ emissions (tons)



vary by
other
attributes
sucks to
edit

Carbon sequestration



How do carbon emissions
from power plants
stack up against
plant power?

POWER PLANTS AND PLANT POWER

The map at the top draws on the EPA's eGrid dataset to show CO₂ emissions (in tons) and fuel type of power plants across the United States. Meanwhile, the map on the bottom shows carbon sequestration in the nation's forests.

What patterns do you notice?

Fuel type

- BIOMASS
- COAL
- GAS
- GEOTHERMAL
- HYDRO
- NUCLEAR
- OFSL
- OIL
- OTHF
- SOLAR
- WIND

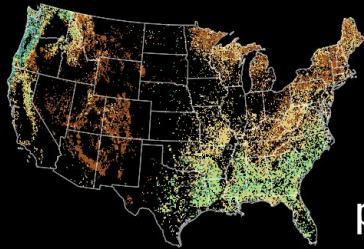
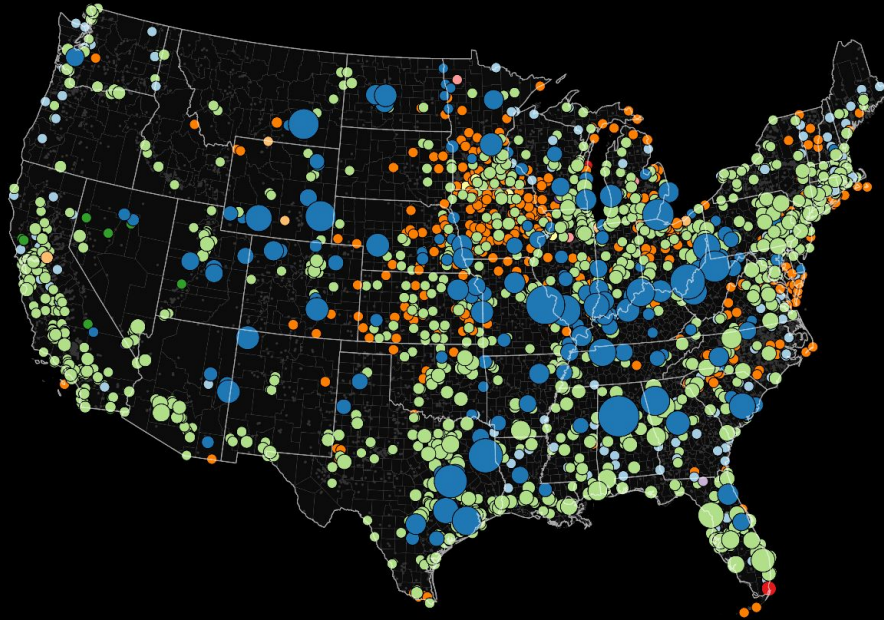
Annual CO₂ emissions (tons)

- 1
- 6,036,390
- 12,072,800
- 18,109,200

Carbon sequestration

- 6 metric tons CO₂/year
- 0 metric tons CO₂/year

trouble
making
layout
canvas bg
black



How do carbon emissions
from power plants
stack up against
plant power?

Map by Ian Spangler (2026), created for GEOG 260: Foundations of Geospatial Analysis. Data from Esri's Living Atlas and EPA's eGrid Data.

POWER PLANTS AND PLANT POWER

The map at the top draws on the EPA's eGrid dataset to show CO2 emissions (in tons) and fuel type of power plants across the United States. Meanwhile, the map on the bottom shows carbon sequestration in the nation's forests.

What patterns do you notice?

Fuel type

- BIOMASS
- COAL
- GAS
- GEOTHERMAL
- HYDRO
- NUCLEAR
- OFSL
- OIL
- OTHF
- SOLAR
- WIND

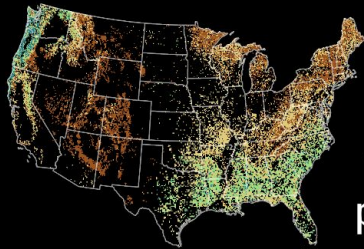
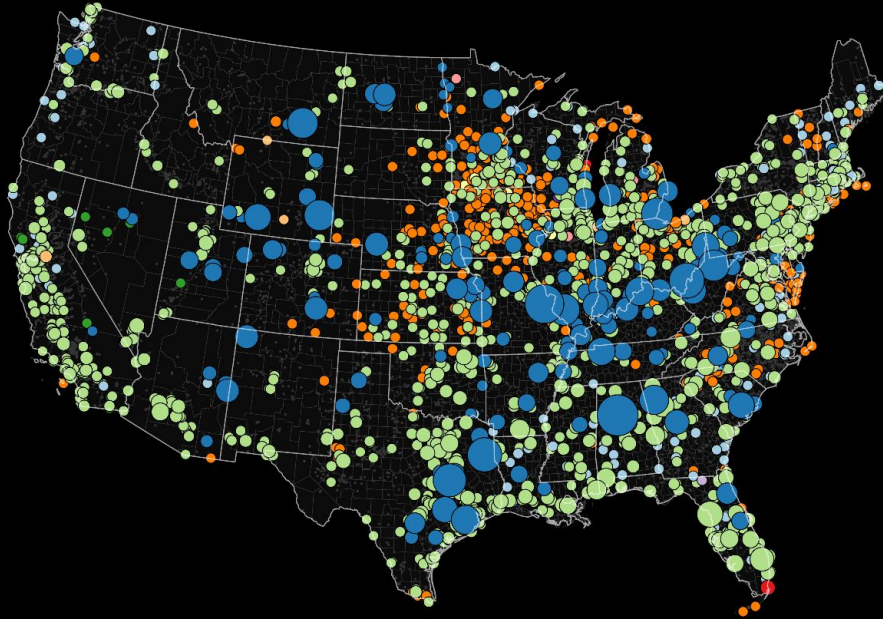
Annual CO2 emissions (tons)

- 1
- 6,036,390
- 12,072,800
- 18,109,200

Carbon sequestration

- 6 metric tons CO2/year
- 0 metric tons CO2/year

which
meant i
had to
awk crop
PR/AK



How do carbon emissions
from power plants
stack up against
plant power?

POWER PLANTS AND PLANT POWER

The map at the top draws on the EPA's eGrid dataset to show CO₂ emissions (in tons) and fuel type of power plants across the United States. Meanwhile, the map on the bottom shows carbon sequestration in the nation's forests.

What patterns do you notice?

Fuel type

- BIOMASS
- COAL
- GAS
- GEOTHERMAL
- HYDRO
- NUCLEAR
- OFSL
- OIL
- OTHF
- SOLAR
- WIND

Annual CO₂ emissions (tons)

- 1
- 6,036,390
- 12,072,800
- 18,109,200

Carbon sequestration

- 6 metric tons CO₂/year
- 0 metric tons CO₂/year

forgot to
make this
a separate
legend

How do carbon emissions
from power plants
stack up against
plant power?

Map by Ian Spangler (2026), created for GEOG 260: Foundations of Geospatial Analysis. Data from Esri's Living Atlas and EPA's eGrid Data.

POWER PLANTS AND PLANT POWER

The map at the top draws on the EPA's eGrid dataset to show CO2 emissions (in tons) and fuel type of power plants across the United States. Meanwhile, the map on the bottom shows carbon sequestration in the nation's forests.

What patterns do you notice?

Fuel type

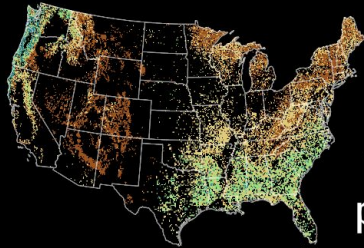
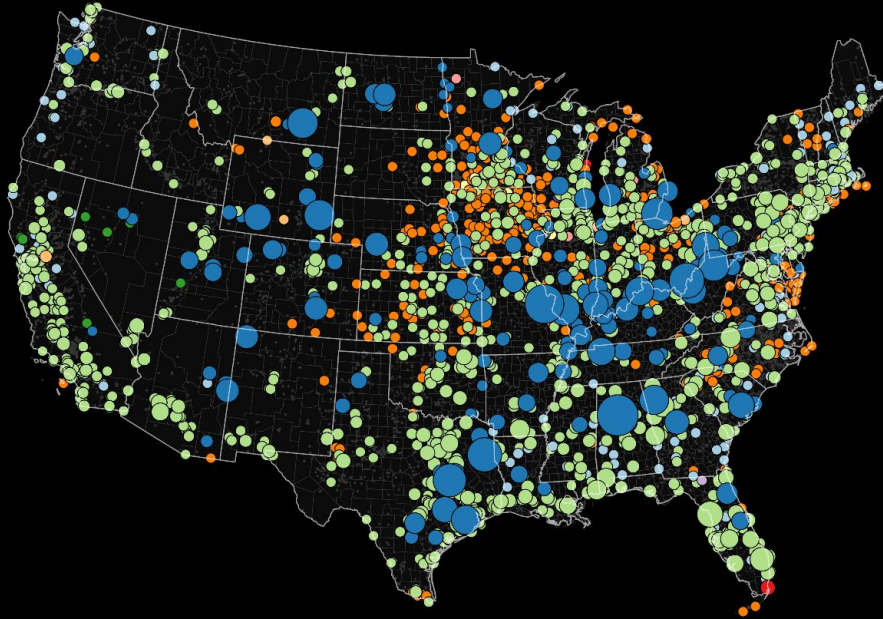
- BIOMASS
- COAL
- GAS
- GEOTHERMAL
- HYDRO
- NUCLEAR
- OFSL
- OIL
- OTHF
- SOLAR
- WIND

Annual CO2 emissions (tons)

- 1
- 6,036,390
- 12,072,800
- 18,109,200

Carbon sequestration

- 6 metric tons CO2/year
- 0 metric tons CO2/year



How do carbon emissions
from power plants
stack up against
plant power?

???

**illustrator will let you fine-tune
these things more easily than Arc**

okay, now basemaps!

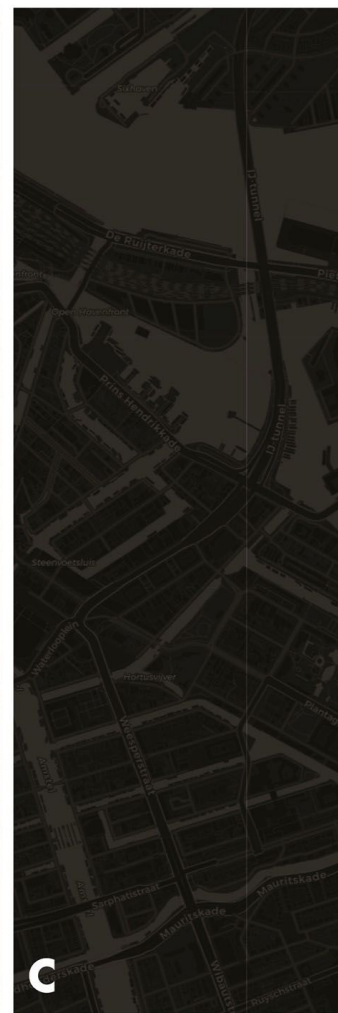
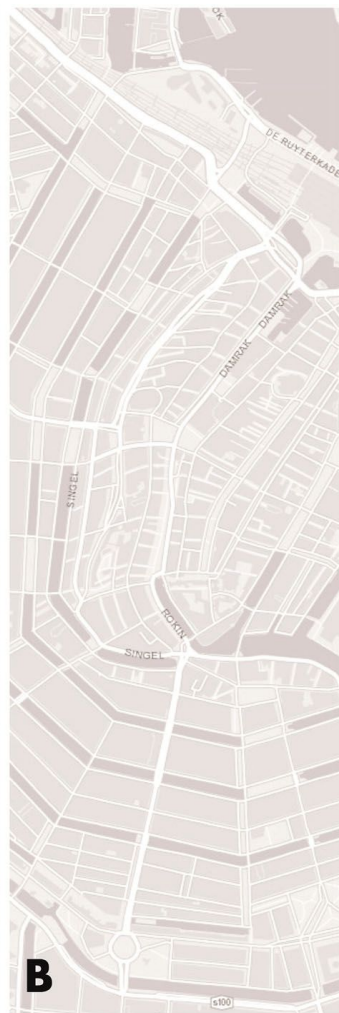
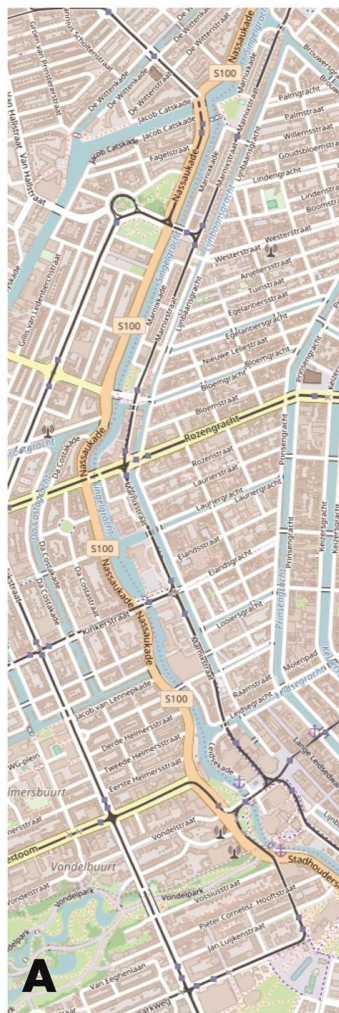


Figure 3. Mood as a visual storytelling trope. The visual style of maps and graphics set the mood for a story, influencing the audience's affective and emotional reaction. The following deconstructs four basemap designs by the stylistic elements of form, colour, type, and texture. (A) **OpenStreetMap**. The default OpenStreetMap design is similar to a reference road map. The linework form is complex, using precise, thin strokes to outline roads, buildings, and other built infrastructure. The colour palette is similarly complex to symbolize the numerous layers, producing a visual hierarchy that emphasizes major roads over other features. The type is dense, using a simple sans serif font to communicate a sense that there are many features in the landscape. There are few textures, particularly for natural features. Overall, the visual style likely activates the audience affectively, giving an authoritative sense (perhaps too much so) of the accuracy and trustworthiness of the basemap. (B) **Esri World Gray Canvas**. Esri's various grey styles are designed specifically to layer thematic information on top. The linework form is simpler, with most features removed and roads given subtle outlines; as a result, the water features and other aspects of the natural environment are more visible. Per the name, a greyscale colour palette is used, with most colours on the lower half of the value range. The type is sparse, using a thin sans serif in uppercase for major thoroughways. There are few textures (e.g., the railroad), further subduing the palette. Overall, the visual style likely deactivates the audience affectively, leading them to ignore the basemap. (C) **CARTO Dark Matter**. There are many similarities of CARTO's Dark Matter to the Esri World Gray Canvas. The linework form is simple, the palette is in greyscale, the type is sparse (although using a thicker sans serif in lowercase), and there are few textures. However, the colours are dark, almost ominous, allowing for any added bright, saturated thematic layers to contrast markedly against the basemap. Because of the dark palette and high contrast, the visual style likely activates rather than deactivates the audience, and, depending on other aspects of design, could evoke an angry, anxious, or otherwise unpleasant reaction, a response that can be used purposefully to build suspense in the visual story. (D) **Stamen Watercolor**. Stamen's Watercolor is a creative departure from most slippery basemaps. The linework form again is simple, with many features outlined in a white stroke for contrast and their lines whimsically varying as if brushed by hand. The colour palette is bright, using many primary colours while balancing lights and darks. The textures mimic the movement of watercolour on the canvas – pooling at edges and spreading in a gradient over large expanses – and thus give the audience the impression of a physical material rather than a digital map. There is no type, allowing the symbols to take lead. Overall, the visual style likely activates the audience, creating a pleasant experience that invites the audience to get lost in the map and its many arrangements of form, colour, and texture.

the ~5 core principles of cartography (from Raisz 1963):

scale

selection

emphasis

symbolization

generalization

6 principles of map design (from Judith Tyner 2010):

clarity: emphasize important points; eliminate what doesn't enhance message.

contrast: how are you utilizing difference? bright/dark, thick/thin, heavy/light.

balance: place weight at optical center of map (5% above Cartesian center).

unity: how are you building your map elements into a cohesive purpose?

harmony: how are the elements of your map working together visually?

order: logic of the map. is there clutter? how is it oriented (X or Y axis)?

other important elements of a map

larger-scale locator map

smaller-scale inset maps showing detail

insets of locations outside main map

title

subtitles

legends

scale indicators

orientation indicators

graticule (lines of latitude and longitude)

extent indicators

explanatory notes

source note

publisher credit and copyright notice

author credit

neatline

additional graphics (photos, graphs)

**basemaps should
achieve these
principles**

**so what makes a
basemap work?**

5-7 minutes

1. open ArcGIS Pro
2. make a new project (it can be in your workspace, but it doesn't have to be)
3. click through the standard streaming basemaps in Arc
4. pick 2-3, and reflect (write) on what makes these "work"
5. think about contexts in which you'd use one over another

Base Data

The base data present a background reference for the thematic information in order to make the theme of the map clearer and more easily understood. Base data are not the focus of the map. They provide a structural framework for the design and help the map reader to interpret and elaborate the purpose of the map. It is important that only information that will help the reader be included in the base, but that enough background data is supplied. Too much or extraneous information serves only to clutter the map and is a source of confusion. Too little base information frustrates the reader, making it difficult to relate the thematic information to the real world.

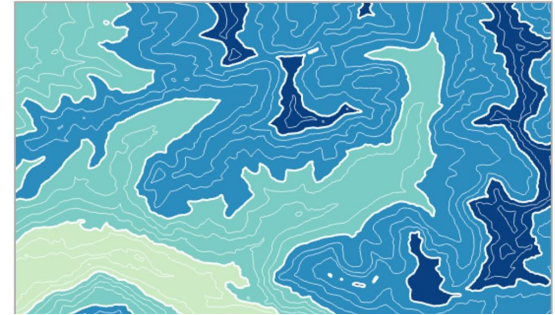
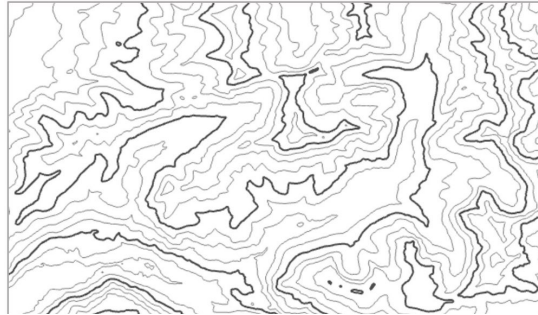
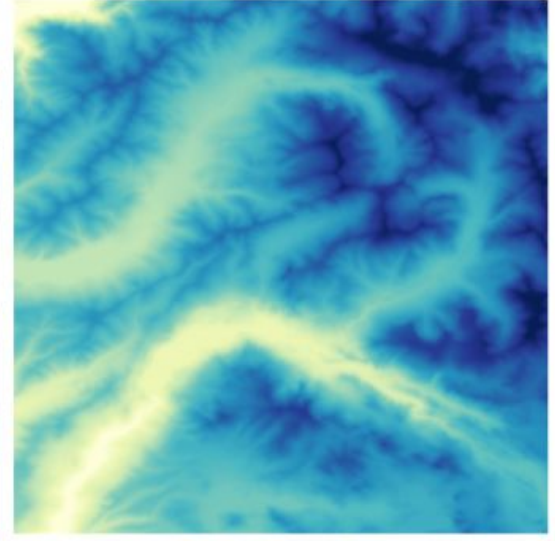
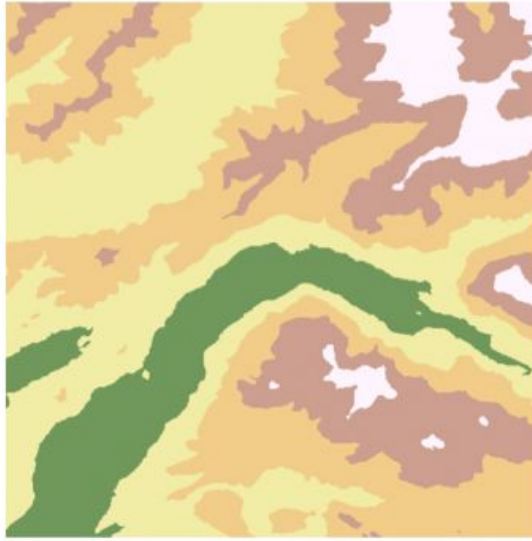
Dennis Fitzsimons has made a useful classification of base data as “internal” or “external.” *Internal base data* include such things as administrative boundaries, coastlines, cities, transportation routes, place-names, mountains, rivers, and lakes, that is, geographic information on or within the mapped area itself. For a series of maps these data form the base layer that will be used for all maps in the series and together are called the *base map*. *External base data* include title, legend, scale, north arrow, grid, and text. The external base data have an explanatory function. These have been discussed in Chapter 2 as design elements and are also discussed in other chapters. Therefore, only internal base data is discussed here. The projection chosen is an important part of the base map; this topic is discussed in Chapter 6.

layers of a base map*

*many resources for this kind of thing, i am using [PSU as a reference](#) & Tyner 2010

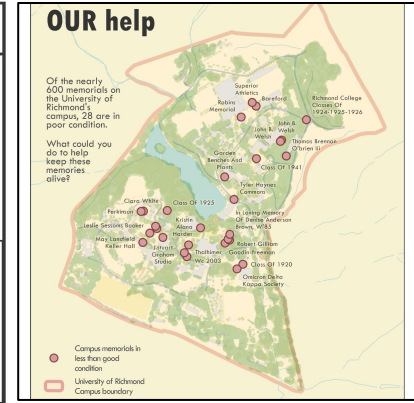
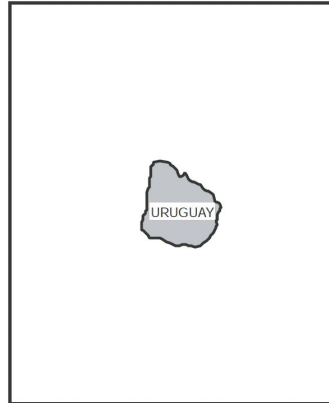
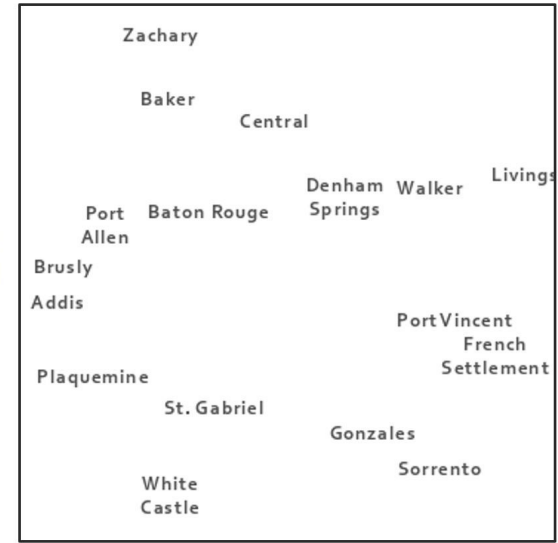
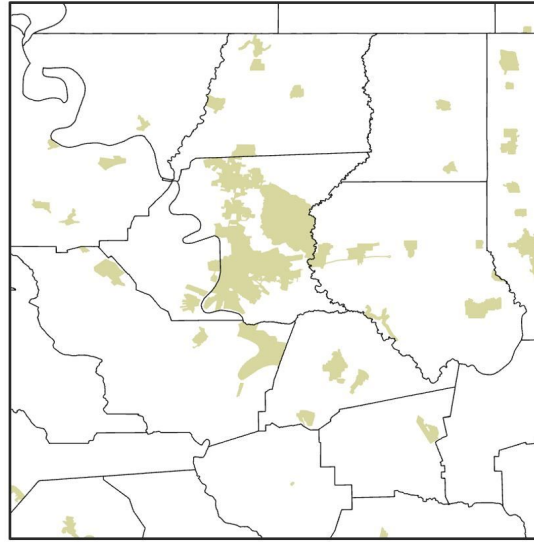
terrain

DEMs,
elevation,
contour
lines?



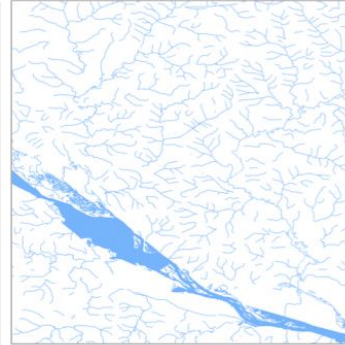
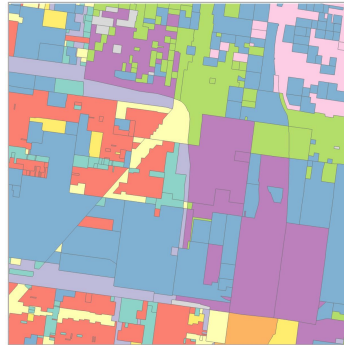
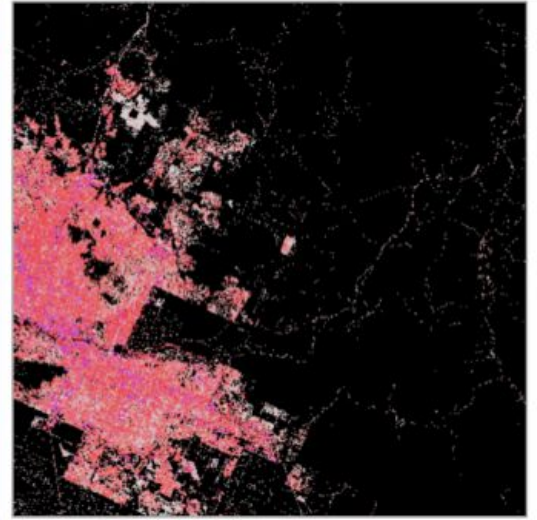
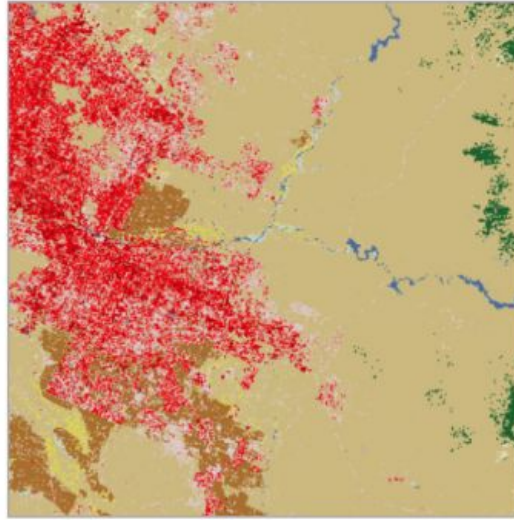
cultural

your audience
might need more
or less cultural data
as a reference,
depending on their
familiarity with a
place



phyiscal

land use,
hydrography?
one of these is
zoning, not really
“physical,” but it fit
better on the slide

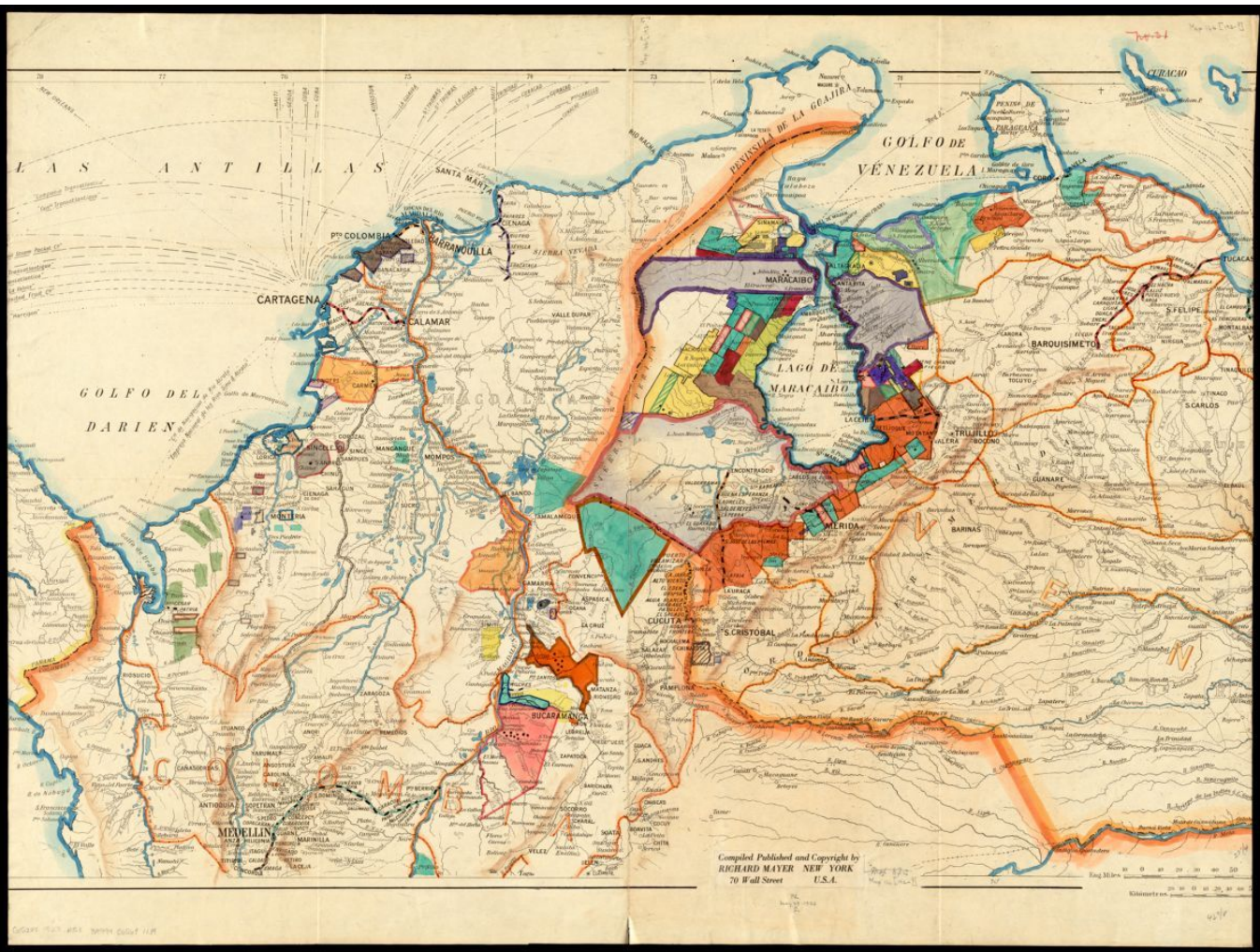


**but the basemap is
also a metaphor**

it frames what we know...
the “default” knowledge

**we could think of it as
what geographer Peirce Lewis
termed our “unwitting
autobiography”...**

... “both mold and mirror”



COLOMBIA

	Atlantic Gulf & West India 22% in Colombian Syd		Equatorial Oil Co. CARIB SYNDICATE
	Anglo Saxon Petroleum Co. ROYAL DUTCH		Granada Oil Co. JOSEPHAL CO.
	Arkansas Natural Gas Co. 20% in American Pet. Co.		Gulf Refining Co. South Amer. Gulf Refg.
	Barco Petroleum Corp.		International Petrol. Co. Tropical Oil Co.
	Boone Oil Co. CARDEN CO.		Leonard Exploration
	British Controlled Oil Flds Ltd		Mid Colombia Oil & Devel. Co. TRANSCONTINENTAL OIL CO STANDARD OIL OF CAL
	Canadian Oil Co. KELLY		New England Oil Corp. COCHRANE HARPER CO
	Carib Co of Maine 75% in American Pet. Co.		South Amer. Gulf Refg. GULF REFINING
	Carib Syndicate CARIB CO. OF ME.		Shell Transport & Trad. Co. Anglo Saxon Petrol. Co.
	Colombian Am. Oil Syd.		Standard Oil of N.J. International Petrol. Co.
	Cia Fomento de Uraba		West India Oil Co. GUYANA PET. CO., S.O. of California
	Cartagena Waterworks Ltd. BRITISH INTERESTS		Royal Dutch Anglo Saxon Petroleum Co.
	Central American Petrol. Co.		Standard Oil of California
	Cia. Colombiana de Petroleo COLOMBIAN INTERESTS		Sinclair Gulf Corp. Sinclair Exploration Co.
	Cia. de Petroleo del Sini COLOMBIAN INTERESTS		Texas Co. CARIB CO.
	Cia. Exploradora de Petroleo COLOMBIAN INTERESTS		Tidal Osage Co. 22% in Colombia Syd.
	CitiesService Corp. 75% in American Petrol. Co.		Tide Water Oil Co. Tidal Osage Co.
	Colombian Min. & Expl. Co. Ltd BRITISH INTERESTS		Transcontinental Oil Co. BENDUM TREES PITTSBURGH
	Colombian Oil Fields Ltd. BRITISH INTERESTS		Tropical Oil Co. INTERNATIONAL PET CO.
	Colombian Petroleum Co. CARIB SYD. 25% CITIES SERVICE CORP. 75%		West India Oil Co. Standard Oil Co.
	Colombian Syd. Pittsburgh 25% in American Petrol. Co.		
	Diego Martinez y Cia. COLOMBIAN INTERESTS		
	R.W. Edgett		

VENEZUELA

WELLS shown thus •

	Lago Petroleum Co. Option on the Lake of Maricao except 1 km of coast line		Standard Oil of N.J. For the Lake of Maricao
	Americas Petroleum & Refining Co. Yervant BAKSHIAN		Shell Transport Anglo Saxon Petroleum Co.
	Anglo Saxon Petroleum Co. ROYAL DUTCH-SHELL TRANSPORT		Sun Co. Venezuelan Sun Co.
	Alves Syndicate British Controlled Oil Flds.		Texas Co. CARIB CO. OF ME.
	Aranguren Interest		Venezuelan Oil Corps. Co. BULLY
	Barco Petroleum Co.		V.G.C. Holding Co. Venezuelan Oil Concessions
	British Controlled Oil Flds Ltd. Belvoir Oil Co.		Venezuelan Oil Concessions ROYAL DUTCH SHELL TRANSPORT
	British Equatorial Oil Co. Ltd. Southern Oil & Transport		Venezuelan Sun Co. SUN CO.
	Burlington Investment Co. 75% ROYAL DUTCH SHELL TRANSPORT 25% GENERAL ASPHALT		Western Development Co.
	Bermudez Co. GENERAL ASPHALT		West India Oil Co. STANDARD OIL OF N.J.
	Buckley Oil Trust For Venezuelan Oil Concessions Co.		Standard Oil of Venezuela Standard Oil of N.J.
	Bolivar Oil Concessions Co. BRITISH CONTROLLED OIL FIELDS LTD		Grissac Oil Co. Pure Oil Co.
	Caribbean Petroleum Co. GENERAL ASPHALT 25% ROYAL DUTCH SHELL TRANSPORT 75%		Maricao area being developed by Standard Oil Co.
	Gulf Refining Co. S. Amer. Gulf Refining		More Exploration Co. MARACAIBO OIL EXPLORATION CO
	Colon Development Co. Ltd 75% ROYAL DUTCH SHELL TRANSPORT 25% CARIB CO. OF ME.		Minerals Exploration Co. MARACAIBO OIL EXPLORATION CO
	Colonial Syndicate		Standard Oil of Venezuela developing areas of the British Controlled Oil Flds.
	Creole Syndicate		Pure Exploration Co. MARACAIBO OIL EXPLORATION CO
	Carter Oil Co. STANDARD OIL N.J.		Tachira Oil Co.
	General Asphalt Standard Oil of Venezuela Co. Ltd. Maricao Development Co. Ltd. Bermudez Co.		Union Exploration Co. MARACAIBO OIL EXPLORATION CO
	Carib Co. of Maine TEXAS CO. 25% Lake Devel.		Perla Exploration Co. MARACAIBO OIL EXPLORATION CO
	Griffith's Concession		Valmet - Nord Syd
	Maracaibo Oil Exploration Co. Union Expl. Co. More Expl. Co. - Pure Expl. Minerals Expl. Co. - Perla Expl. Co.		W. H. H. Co.
	North Venezuela Petroleum Co. CENTRAL MINING CO. LTD.		Venezuela Pet. Co.
	New England Oil Co. COCHRANE HARPER CO		S. A. Gulf Refining
	New England Oil & Sun Co.		Tribal Landhold
	Pure Oil Co. Puritan Oil Co. STANDARD OIL CO.		Garcia
	Royal Dutch Co. Gulf Refining Co. Ltd. Burlington Investment Co. Venezuelan Concessions Ltd		Belvoir

Terra infirma: On the base map in urban cartography and GIS

EPD: Society and Space
2024, Vol. 42(5–6) 734–757
© The Author(s) 2024
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/02637758241263205
journals.sagepub.com/home/epd



Clancy Wilmott 

University of California, Berkeley, USA

Alexis E Wood 

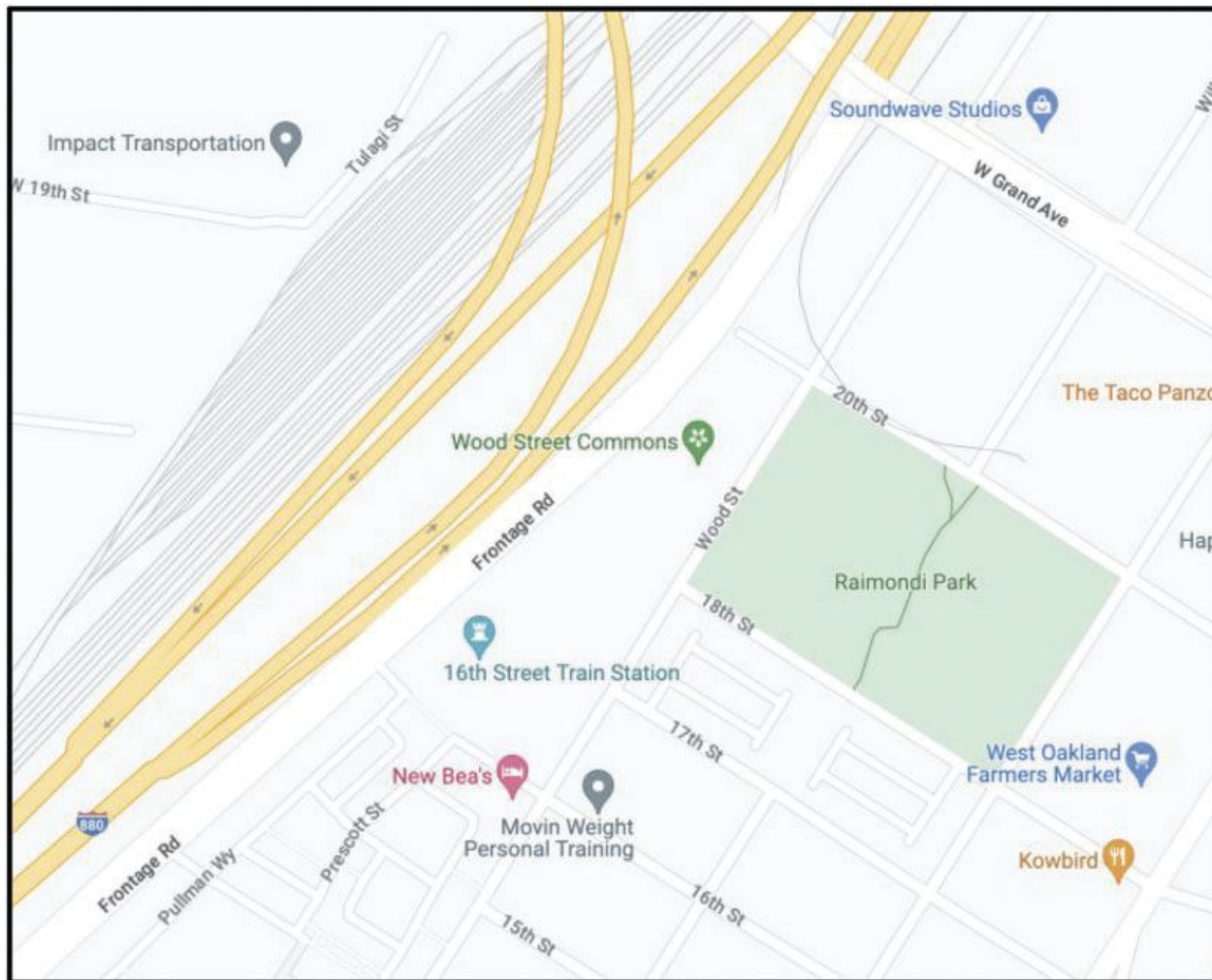
University of California, Berkeley, USA

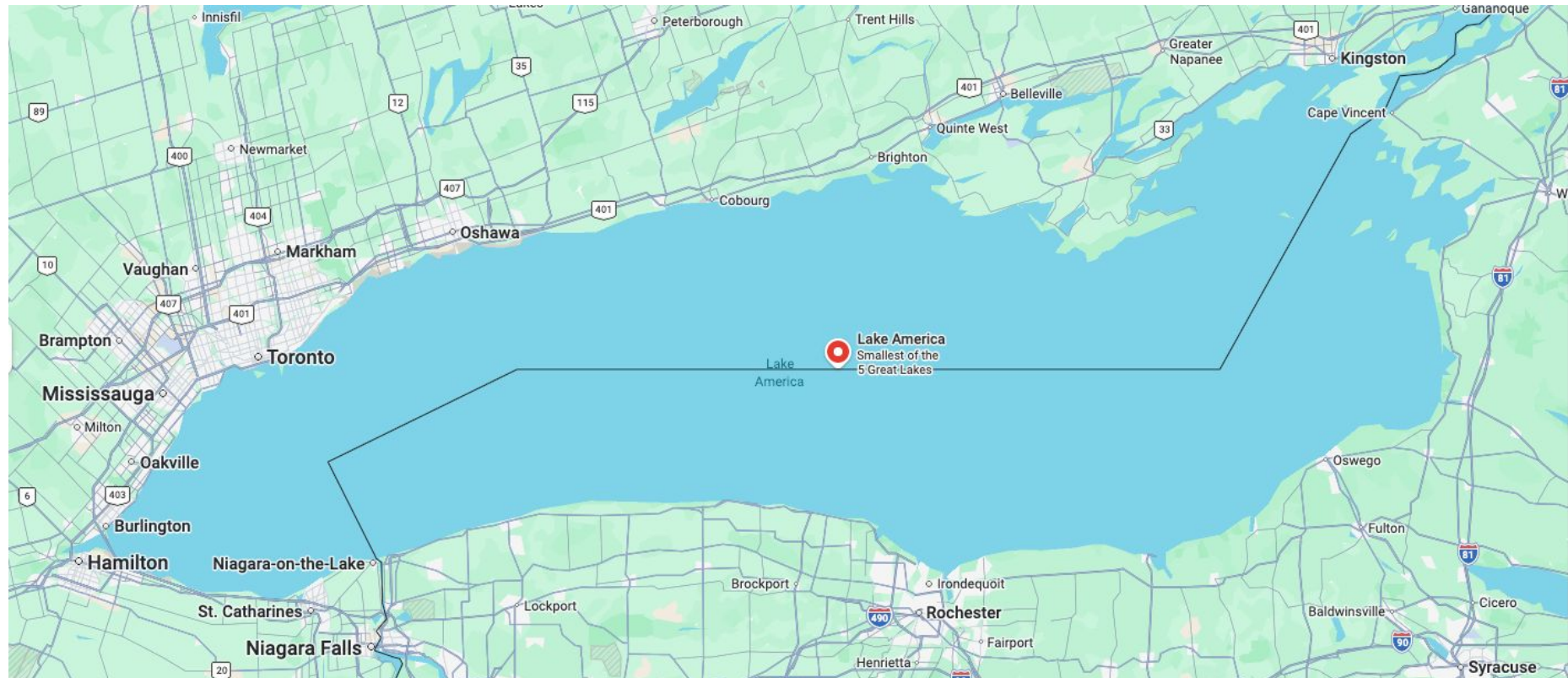
Abstract

This article investigates the ways in which base maps are a fundamental, but under-recognised, starting point for planners, architects, cartographers and geographic information scientists in urban spatial planning and decision-making contexts. Focusing on the case study of a collaborative mapping project with the Wood Street Commons, an unhoused community in West Oakland, it contends that base maps create a cartographic terra infirma, fundamentally shaping the process of negotiations over urban space in ways that reinforce possessive logics and normalize property as central to the function of the city. **Base maps do so by paradoxically absenting all people** – with the effect of absenting the occupation of land by unhoused people, while shielding property owners from view while enacting their possession through infrastructure, parcel boundaries and land features. We argue this privileging inherent in the urban base map ultimately fuels a process of “unbecoming” (Fraser, 2018) – a simultaneous invisibilizing and reproduction of spatial inequality – and in response, call for attention towards the politics of base maps from urban cartographers, planners, architects and spatial scientists alike.

Keywords

Cartography, GIS, housing, mapping, property, urban







▢ PRESIDENTIAL ACTIONS

HONORING THE AMERICAN HISTORY OF THE GREAT LAKES AND RENAMING LAKE ONTARIO AS LAKE AMERICA

Executive Orders | August 27, 2026

Sec. 2. Lake America. (a) The body of water currently known as Lake Ontario is a tremendous asset to the United States and part of our Nation's heritage. With the deepest parts of the Lake's waters lying within United States territory, the United States claims most of the Lake's volume. The Lake has long been an integral asset to American exploration, settlement,

Grid Extract

Use the Grid Extract interactive map to create and download spatial subsets of bathymetry from each of the Great Lakes.

Launch Grid Extract

Lake Erie and Lake St. Clair



Lake Huron



Lake Michigan



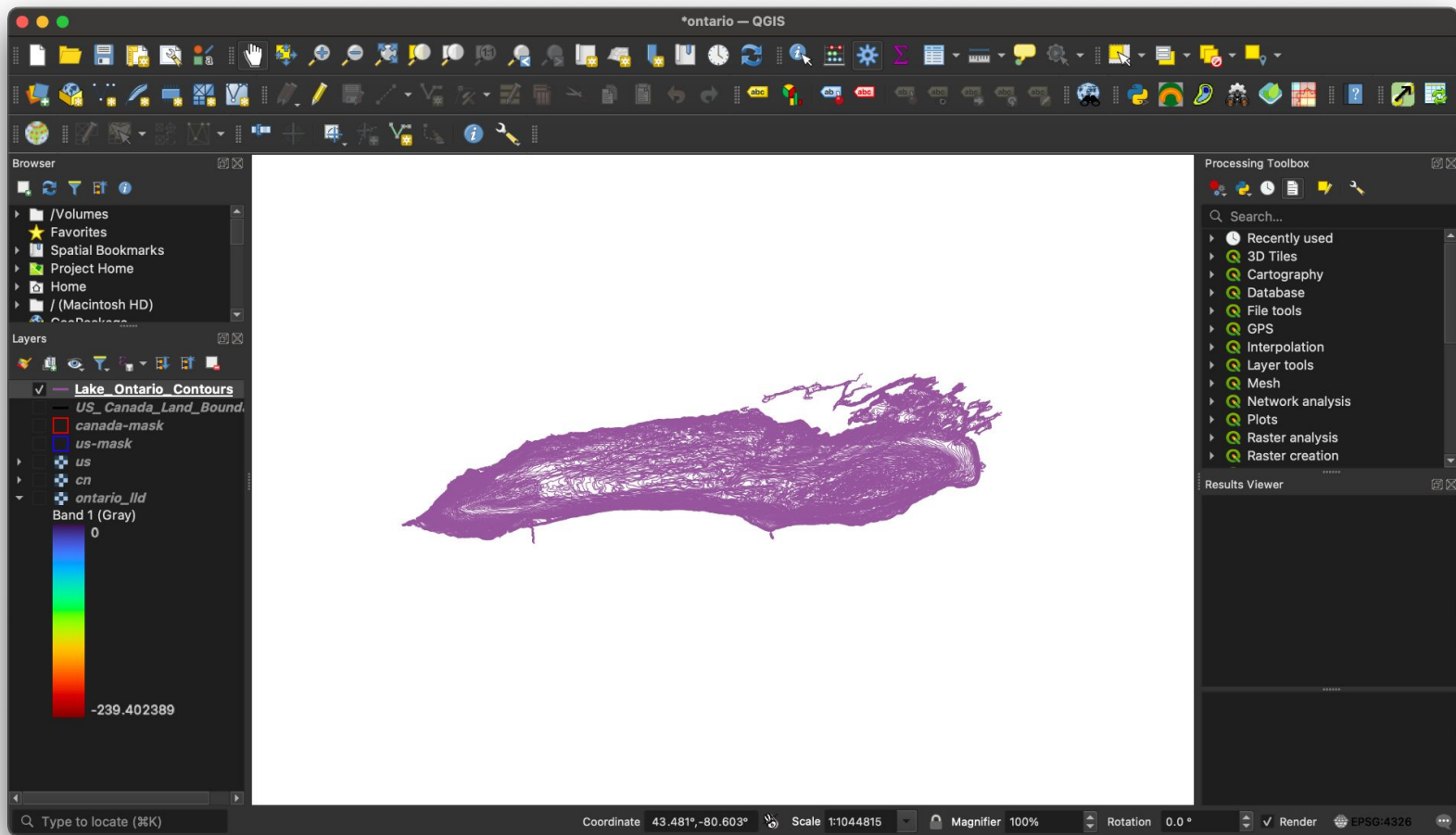
Lake Ontario



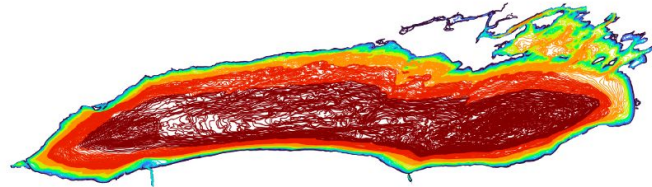
Data

- [Bathymetry Contours Shapefile](#)
- Standard Grid: [ARC ASCII](#) | [Binary Float](#) | [GeoTiff](#) | [NetCDF](#) | [GRD98](#) | [XYZ](#)
- [Metadata](#)

Citation: National Geophysical Data Center, 1999. Bathymetry of Lake Ontario. National Geophysical Data Center, NOAA.
[doi:10.7289/V56H4FBH](https://doi.org/10.7289/V56H4FBH) [access date].



vector contours show depth



Browser

- /Volumes
- Favorites
- Spatial Bookmarks
- Project Home
- Home
- / (Macintosh HD)
- QGIS Bookmarks

Layers

- ✓ Lake Ontario Contours
 - ✓ 1 - 4
 - ✓ 4 - 7
 - ✓ 7 - 12
 - ✓ 12 - 18
 - ✓ 18 - 28
 - ✓ 28 - 52
 - ✓ 52 - 100
 - ✓ 100 - 244
- US_Canada_Land_Bou
- canada-mask
- us-mask
- us
- cn
- ontario_11d
- Band 1 (Gray)
- 0

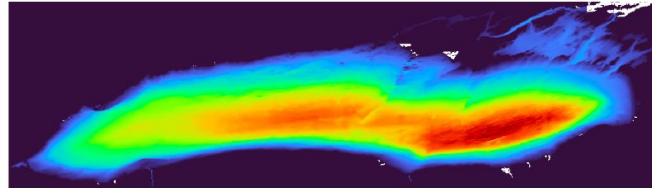
Processing Toolbox

Search...

- Recently used
- 3D Tiles
- Cartography
- Database
- File tools
- GPS
- Interpolation
- Layer tools
- Mesh
- Network analysis
- Plots
- Raster analysis
- Raster creation

Results Viewer

they're computed from a source raster



Browser

- /Volumes
- Favorites
- Spatial Bookmarks
- Project Home
- Home
- / (Macintosh HD)
- QGIS Bookmarks

Layers

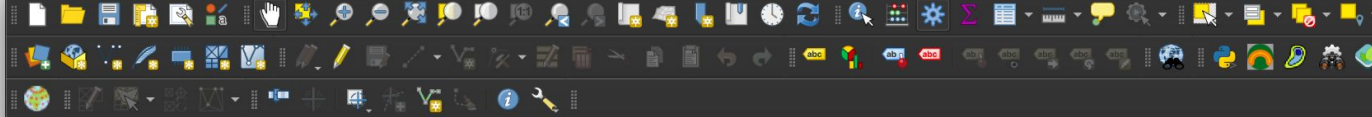
- ✓ Lake Ontario Contour
 - ✓ 1 - 4
 - ✓ 4 - 7
 - ✓ 7 - 12
 - ✓ 12 - 18
 - ✓ 18 - 28
 - ✓ 28 - 52
 - ✓ 52 - 100
 - ✓ 100 - 244
- US_Canada_Land_Bou
- canada-mask
- us-mask
- us
- cn
- ✓ ontario_lld
 - Band 1 (Gray)
 - 0

Processing Toolbox

Search...

- Recently used
- 3D Tiles
- Cartography
- Database
- File tools
- GPS
- Interpolation
- Layer tools
- Mesh
- Network analysis
- Plots
- Raster analysis
- Raster creation

Results Viewer



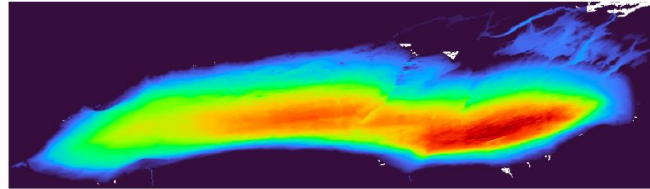
Browser

- /Volumes
- Favorites
- Spatial Bookmarks
- Project Home
- Home
- / (Macintosh HD)
- QGIS Bookmarks

Layers

- ✓ Lake_Ontario_Contour
 - ✓ 1 - 4
 - ✓ 4 - 7
 - ✓ 7 - 12
 - ✓ 12 - 18
 - ✓ 18 - 28
 - ✓ 28 - 52
 - ✓ 52 - 100
 - ✓ 100 - 244
- US_Canada_Land_Boundaries
- canada-mask
- us-mask
- us
- cn
- ✓ ontario_lid
 - Band 1 (Gray)
 - 0

no country borders here...



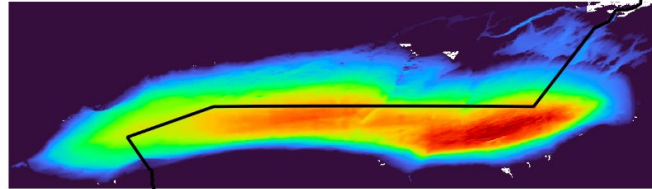
Processing Toolbox

Search...

- Recently used
- 3D Tiles
- Cartography
- Database
- File tools
- GPS
- Interpolation
- Layer tools
- Mesh
- Network analysis
- Plots
- Raster analysis
- Raster creation

Results Viewer

we can split the raster by a vector line



Browser

- /Volumes
- Favorites
- Spatial Bookmarks
- Project Home
- Home
- / (Macintosh HD)
- QGIS Bookmarks

Layers

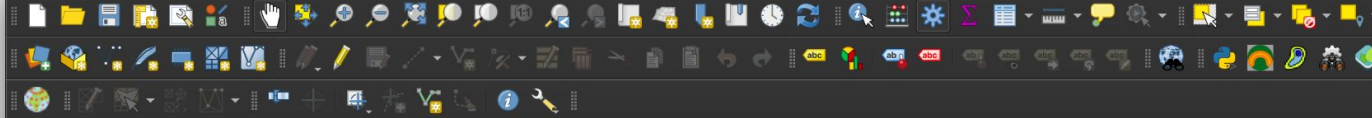
- ✓ Lake_Ontario_Contour
 - ✓ 1 - 4
 - ✓ 4 - 7
 - ✓ 7 - 12
 - ✓ 12 - 18
 - ✓ 18 - 28
 - ✓ 28 - 52
 - ✓ 52 - 100
 - ✓ 100 - 244
- ✓ US_Canada_Land_Bour
 - canada-mask
 - us-mask
 - us
 - cn
- ✓ ontario_lld
 - Band 1 (Gray)
 - 0

Processing Toolbox

Search...

- Recently used
- 3D Tiles
- Cartography
- Database
- File tools
- GPS
- Interpolation
- Layer tools
- Mesh
- Network analysis
- Plots
- Raster analysis
- Raster creation

Results Viewer



Browser

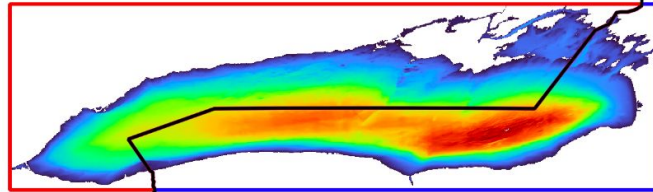
- /Volumes
- Favorites
- Spatial Bookmarks
- Project Home
- Home
- / (Macintosh HD)
- QGIS Bookmarks

Layers

- ✓ 18 - 28
- ✓ 28 - 52
- ✓ 52 - 100
- ✓ 100 - 244
- ✓ US_Canada_Land_Bour
- ✓ canada-mask
- ✓ us-mask
- ✓ us
- ✓ cn
- ✓ ontario_ild
- Band 1 (Gray)
- 0

-239.402389

we also get a vector extent and
drop the values > 0

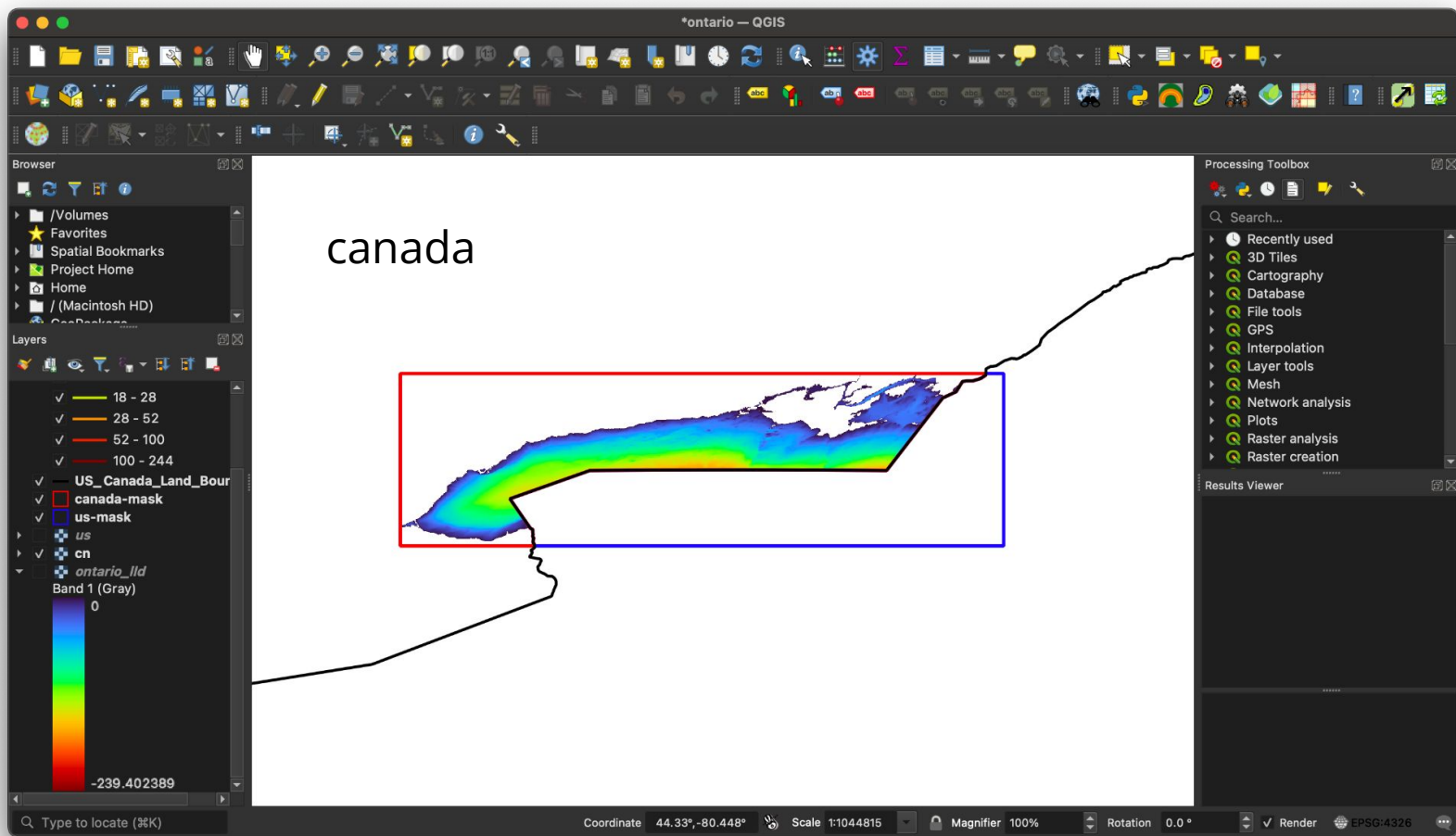


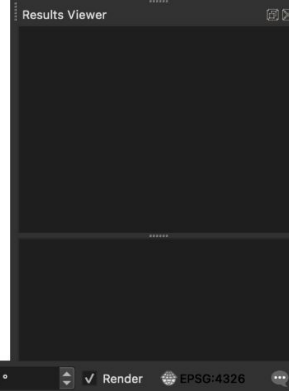
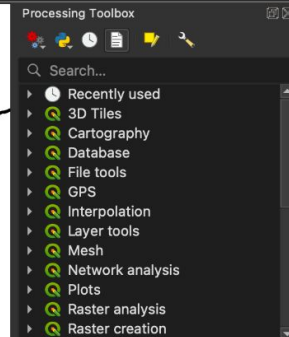
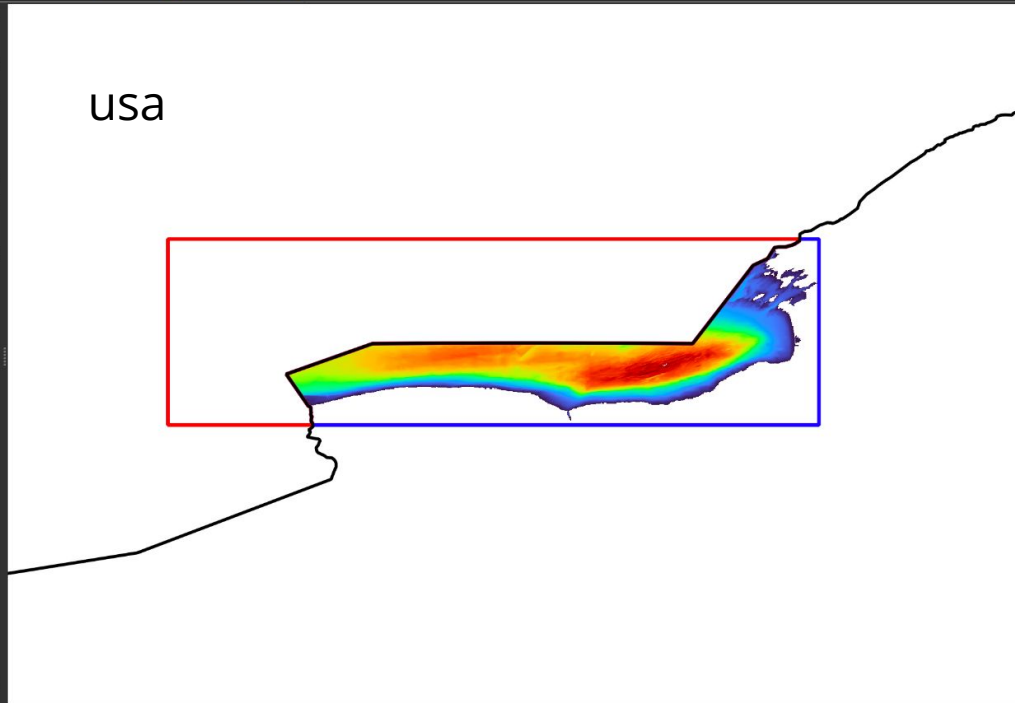
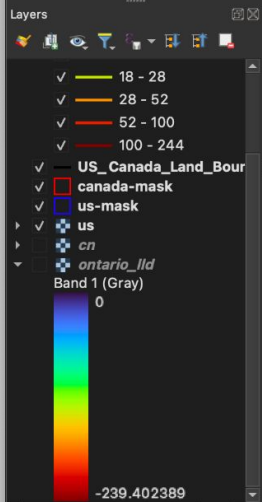
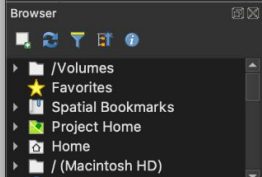
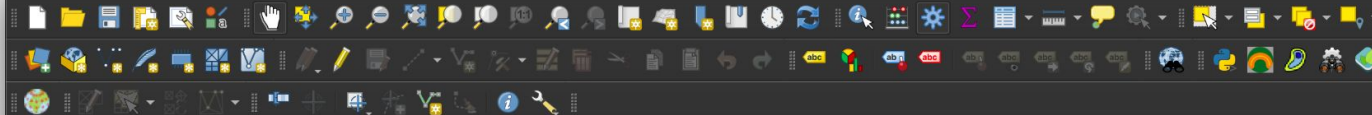
Processing Toolbox

Search...

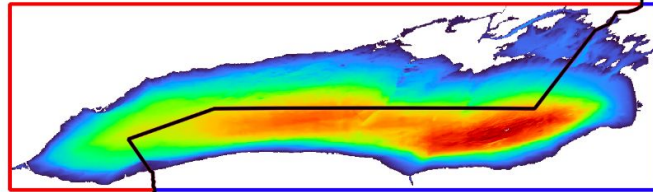
- Recently used
- 3D Tiles
- Cartography
- Database
- File tools
- GPS
- Interpolation
- Layer tools
- Mesh
- Network analysis
- Plots
- Raster analysis
- Raster creation

Results Viewer





next... summarize the cells by depth?



Browser

- /Volumes
- Favorites
- Spatial Bookmarks
- Project Home
- Home
- / (Macintosh HD)
- QGIS Bookmarks

Layers

- ✓ 18 - 28
- ✓ 28 - 52
- ✓ 52 - 100
- ✓ 100 - 244
- ✓ US_Canada_Land_Bour
- ✓ canada-mask
- ✓ us-mask
- ✓ us
- ✓ cn
- ✓ ontario_ild
- Band 1 (Gray)
- 0

-239.402389

Processing Toolbox

Search...

- Recently used
- 3D Tiles
- Cartography
- Database
- File tools
- GPS
- Interpolation
- Layer tools
- Mesh
- Network analysis
- Plots
- Raster analysis
- Raster creation

Results Viewer

The historical role of base maps in soil geography



B.A. Miller^a, R.J. Schaetzl^b

^a Leibniz-Centre for Agricultural Landscape Research (ZALF) e.V., Institute of Soil Landscape Research, Eberswalder Str. 84, 15374 Müncheberg, Germany

^b Michigan State University, Dept. of Geography, 673 Auditorium Rd., East Lansing, MI 48912, USA

ARTICLE INFO

Article history:

Received 7 March 2014

Received in revised form 8 April 2014

Accepted 16 April 2014

Available online 11 May 2014

Keywords:

Soil mapping

Geographic technology

History

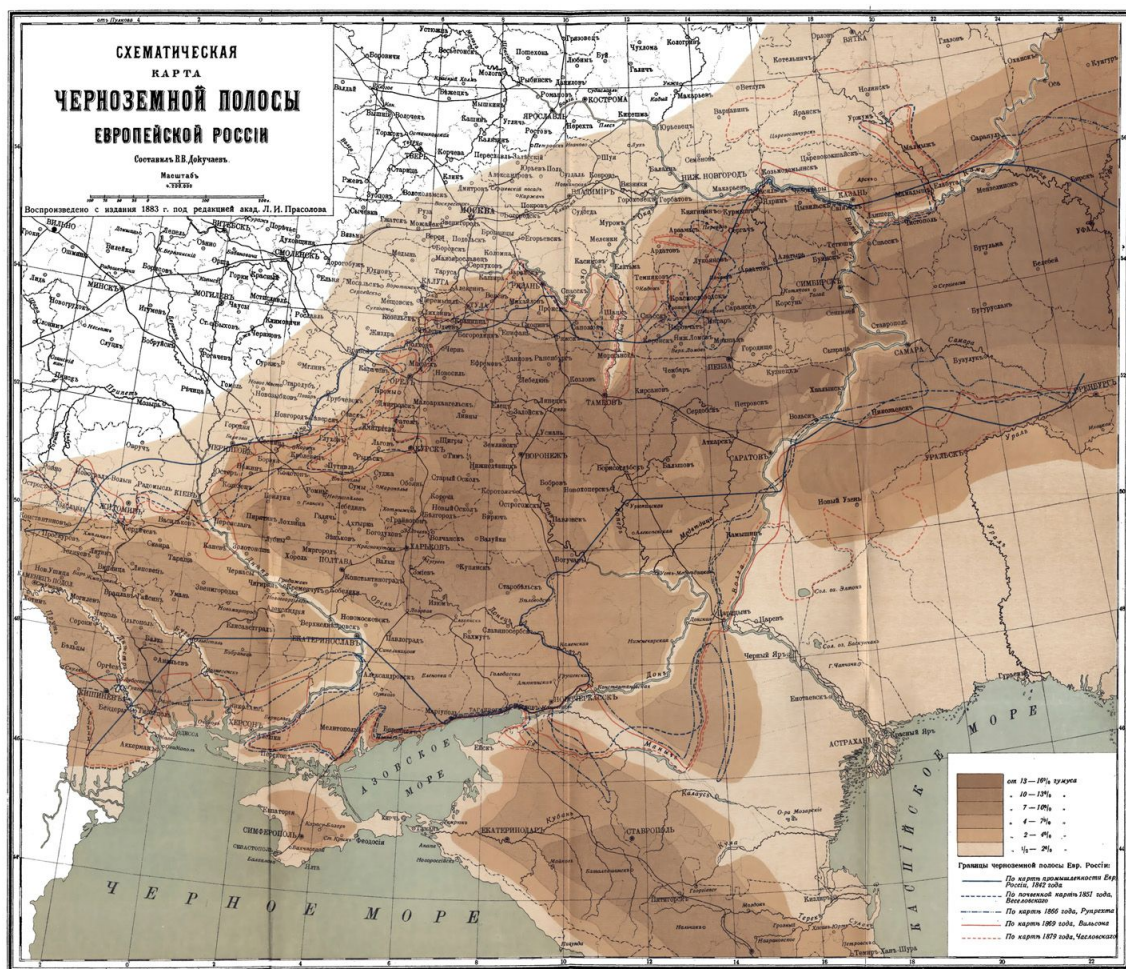
Environmental correlation

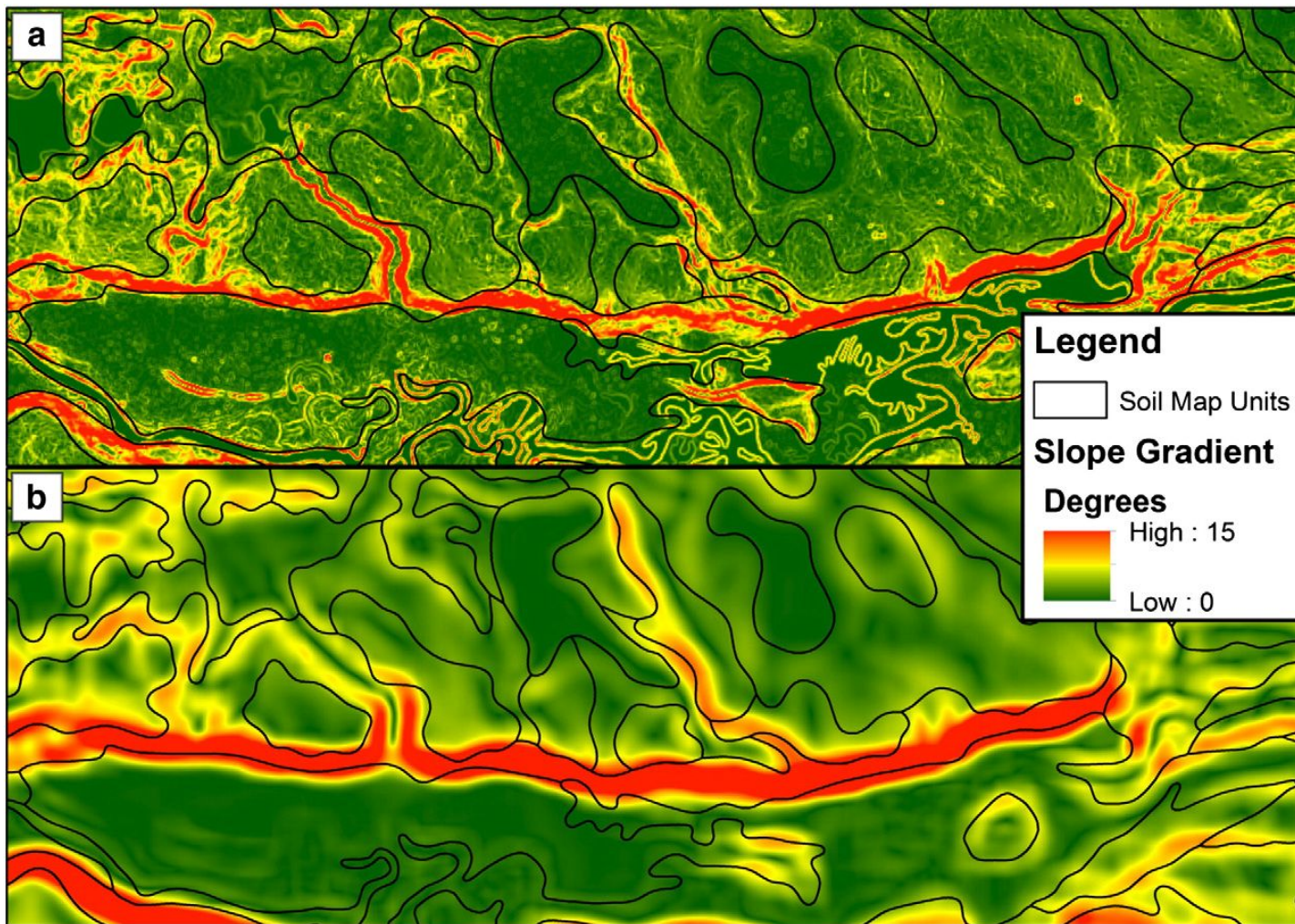
Model parameters

History of mapping

ABSTRACT

Soil mapping is a major goal of soil science. Soil maps rely upon accurate base maps, both for positional reference and to provide environmental data that can assist in the prediction of soil properties. This paper reviews the historical development of base maps used for soil mapping, and evaluates the dependence of soil mapping on base maps. The availability of geographic technology for producing base maps has both constrained and directed the geographic study of soil. The lack of accurate methods for determining location limited early geographic descriptions of soils to narratives, or to listings of attributes for property-based map units. **The first real base maps available for soil mapping were outline maps produced in the late 18th century, fueled by governments' interests in documenting national boundaries and popular interest in world atlases.** These early soil maps primarily used outline maps as a positional reference onto which soil-related thematic detail was added. Eventually, additional spatial information, in the form of topographic maps and later aerial photographs, increased the predictive role of base maps in soil mapping. In the current digital, geospatial revolution, global positioning systems and geographic information systems have nearly replaced the positional reference function of base maps. Today, base maps are more likely to be used as parameters in soil-landscape models for predicting the spatial distribution of soil properties and classes. **Formerly, as a reference for spatial position, paper base maps controlled the cartographic scale of soil maps. However, this relationship is no longer true in geographic information systems. Today, as parameters for digital soil maps, base maps constitute the library of predictive variables and constrain the supported resolution of the soil map.**





Counter-mapping as Action Research: Lessons Learned from the Microgeography of Universal Public Restrooms

Jennifer Mapes (she/her)
Kent State University
jmapes@kent.edu

Noelle Spence (she/her)
Kent State University
nspence8@kent.edu

Single-occupancy restrooms benefit families and caregivers as well as trans and non-binary people. Recent US state laws restricting the use of gendered restrooms based on a person's sex assigned at birth highlight the importance of improving access to these places. Part of our university's response to a state law restricting restroom access was to share a map (layer) that identified the location of all-gender restrooms on campus. After identifying mistakes and learning these locations were not ground-truthed, we re-mapped these locations by visiting every public building on campus. Our work illustrates the nuances of restroom access on college campuses, identifies opportunities for advocacy, and provides a product that helps students and staff who do not conform to a binary definition of gender.



Search...

Search



CLEAR

☒ **Parking** >

☐ **Performance Venues** >

☐ **Personal Care and Wellness** >

☐ **Points of Interest** >

☒ **Single-Occupancy (Universal) Restrooms** >

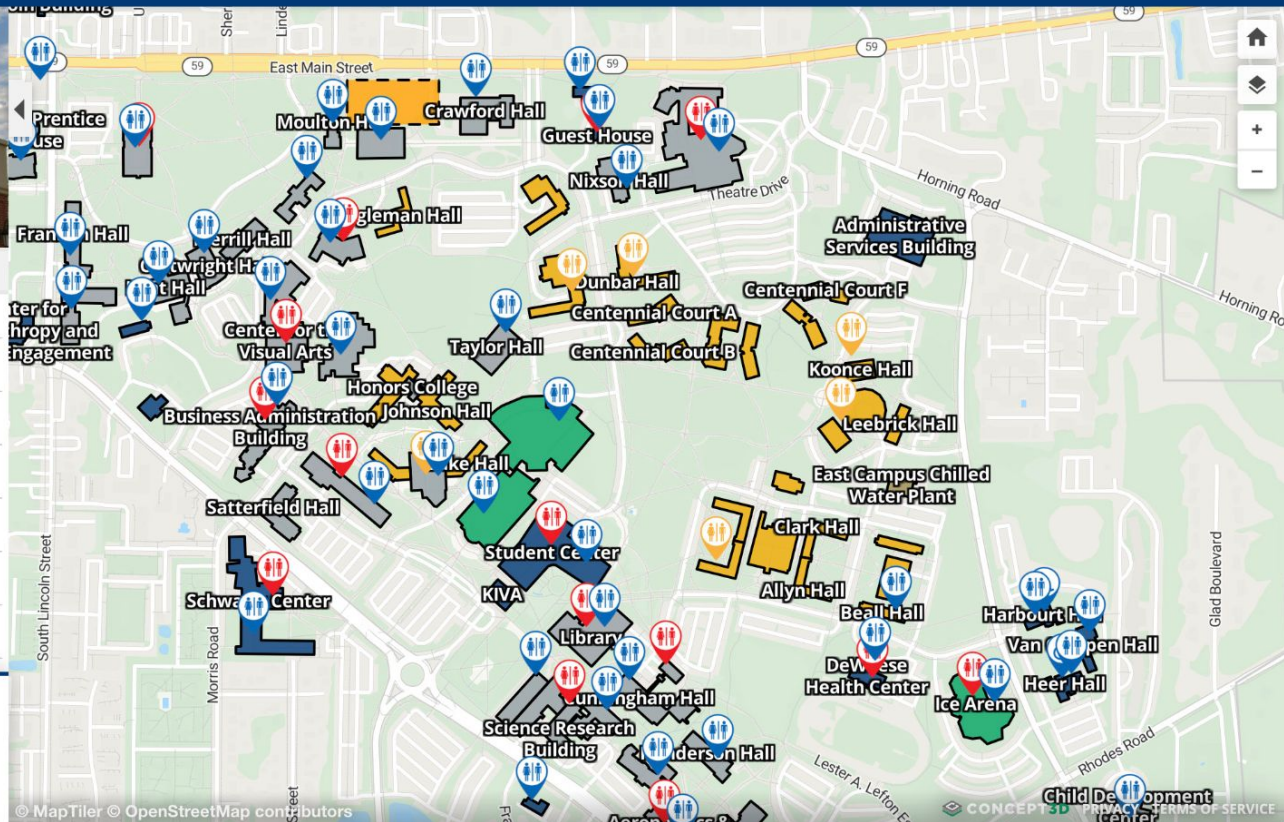
☐ **Student Services** >

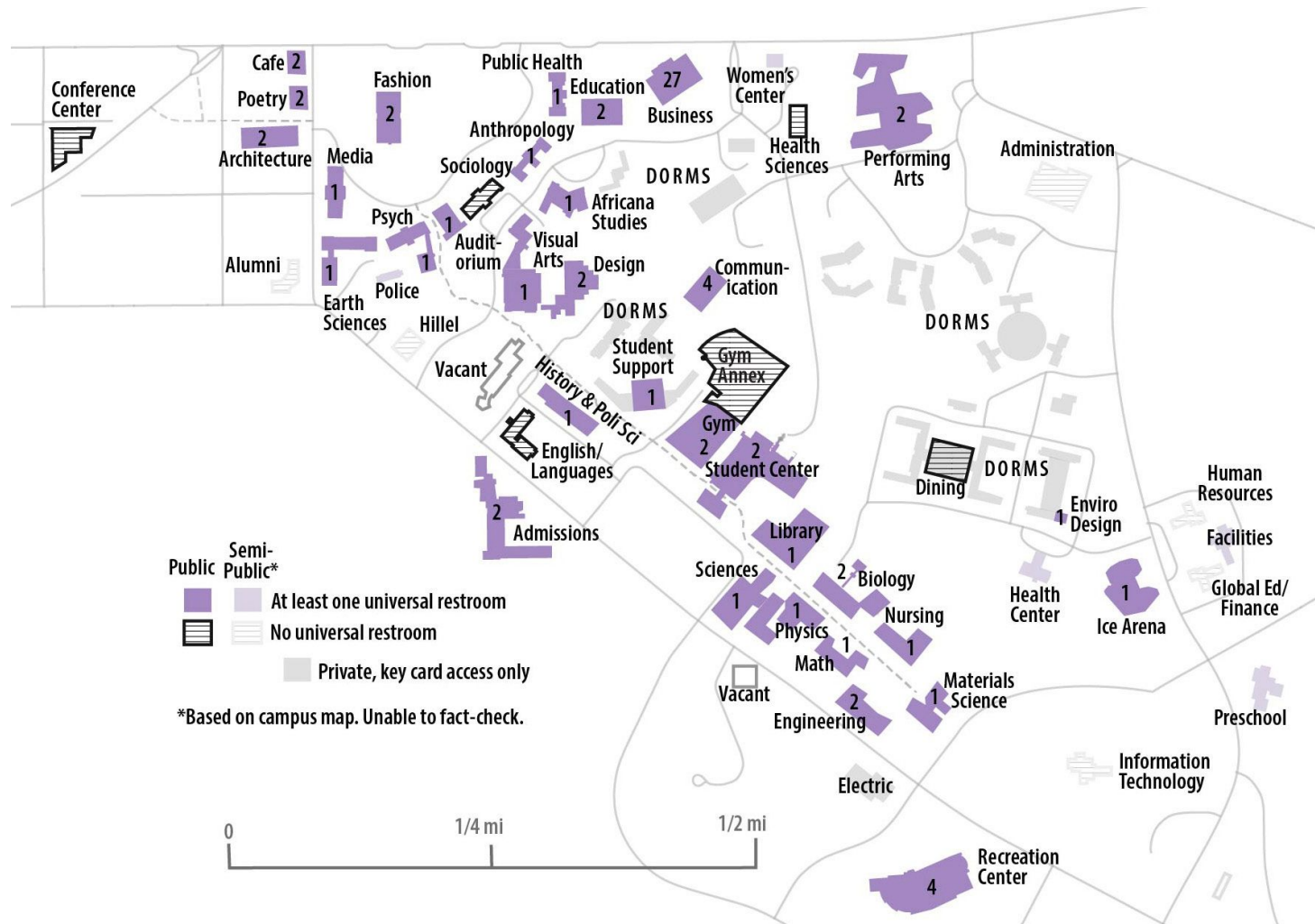
☐ **Transportation** >

Kent State University
800 E. Summit St.
Kent, OH 44240

330-672-3000

[Text-only](#)





sample vector base map!