Notes from Geospatial/GIS Meetup
January 20, 2026

Zoom

Attendees: Janet Reyes, facilitator

Via Zoom: Ahmed Eldawy, Ashish Kulkarni, Canserina Kurnia, Ethan Luo, Evan Mogulof, Luciane Musa, Luis Barrios, Nawajish Noman, Peace, Rick Sarkar, Roland L, Ryan Bruellman, Tiffany Larrabee, Wallace Gara

Announcements

This meeting was recorded; video is available here. The passcode to view is $z.0@a2W

The University of Redlands hosts a Spatial Business Speaker Event series. The next event is on January 29 at 6:15 pm, with options for attending virtually or in person. The topic will be "**Disaster Response: Helping Organizations Leverage Their Technology Investment."**

The School of Public Policy now offers a **Geospatial Analysis minor**, open to undergraduates in all disciplines. For questions or to register, email spp-advising@ucr.edu.

Janet will be offering a **GIS Basics workshop** on Zoom on Tuesday, February 3 at 2:00 pm. A recording will be available on the Library's YouTube channel.

UC Love Data Week will be held online February 9-13. Sessions of particular geospatial relevance are "Visualizing Data with ggplot for R Users" on February 12 at 10:00 am, and "Deep Learning with Drone Imagery in ArcGIS Pro" on February 13 at 1:00 pm.

The next **Geospatial/GIS meetup** will be held Tuesday, February 10.

The **LA Geospatial Summit** on Friday, February 27 offers presentations and networking opportunities for students.

Esri's support for the classic version of Story Maps is coming to an end in February 2026. UCR affiliates should have received an email from ITS on this topic on December 5. If the **sunsetting of Classic Story Maps** impacts some of your content, you may want to watch the video of "Remaking your classic stories in ArcGIS StoryMaps" or refer to the guidance found here.

Professor Anthony Jerry, chair of the Department of Black Study, is seeking **assistance in designing a web map** for the department's website which would reflect faculty expertise and regional focus. Please contact Janet if interested.

Shared links

Ancient Roman roads: https://itiner-e.org/

Orthomaps of the Moon:
https://blogs.loc.gov/maps/2025/12/mapping-the-moon-the-apollo-transforming-printer/

Most and least fun cities:
https://www.newsweek.com/map-reveals-most-and-least-fun-cities-in-the-us-11139817

Presentation

Ryan Bruellman, a Ph.D. candidate in Genetics, Genomics, and Bioinformatics at UCR, presented on **More Than You Bargained for: Dollar Store Influences on One's Food Environment**.

Most US households shop for food at a typical grocery store, which provides access for fresh, high quality food necessary for a healthy diet. A recent trend is the increase in households using dollar stores as a grocery source, for reasons such as ease of access and more affordable prices. Dollar stores predominantly offer packaged and processed foods.

Current US food environment policy revolves around increasing traditional grocery store access or limiting unhealthy food options. These approaches are often unsuccessful. Food deserts are designated by the USDA as areas with high poverty and low access to grocery stores. Food swamps are areas with a high density of unhealthy food options, such as fast food and convenience stores, even when grocery stores are also present. Food swamps are characterized by a Retail Food Environment Index (RFEI).

Ryan had two research hypotheses. The first was that unhealthy outcomes are negatively associated with access to traditional grocery stores, while unhealthy outcomes are exacerbated when grocery sources focused on packaged and processed foods (such as dollar stores) are prevalent in neighborhoods. The second hypothesis related more to policy: that food desert and food swamp designations both lack accuracy due to the influence of dollar stores as grocery/food sources.

For data, Ryan geocoded the location of more than 370,000 food source locations across all 50 states for the years 2016-2020. Food sources were categorized as either traditional grocery stores, dollar stores, fast-food outlets, or convenience stores. He wasn't able to include corner grocery stores (or bodegas), which are significant food sources in many major cities. Traditional grocery stores were labeled as Standard Quality sources, while dollar stores were labeled as Low Quality.

Ryan used network analysis in ArcGIS, developing counts of Standard Quality and Low Quality food sources within 10 minute driving time of households by Census tract. For information on health outcomes, he used the 500 Cities Project from the Centers for Disease Control. This provides disease/condition prevalence rates by tract. A subset of 60 metropolitan areas across 38 states were assessed in Ryan's research. Another dataset produced by the CDC, the Social Vulnerability Index Overall, was incorporated to assess economic and other challenges of local populations. Ryan also calculated a Quality Ratio by dividing the number of dollar stores by the number of traditional grocery stores.

To test the first hypothesis, generalized linear regressions were run with the outcome of diabetes and the variables being Low Quality grocery access, Standard Quality grocery access, and SVI Overall. To test the second hypothesis, generalized linear regressions were run with the outcome of obesity and the variables being a food desert designation, RFEI, the Quality Ratio, and SVI Overall.

The presentation included a slide with links to results for various cities, grouped by region. Ryan first shared results for the Inland Empire, where the median diabetes rate is 10.5% and median number of Low Quality grocery stores account for 29% of the total grocery sources per Census tract. This is a lower percentage than the overall national rate, but the IE diabetes rate is a little higher than the national rate. Maps overlaying Low Quality or Standard Quality grocery store density with areas of above average diabetes and hypertension rates were shared, as were tables of the regression model results. In the case of St. Louis, the LQ/SQ ratio is close to 50/50, and the median diabetes rate is 12%.

Regarding the second hypothesis, Ryan shared regression model results, as well as maps of Chicago, Los Angeles, and New Orleans obesity rates overlaid with food deserts and with food swamps. Significance of the correlations varied, but the hypothesized associations were often observed.

Conclusions were that food source quality did have significant associations with negative health impacts, and that dollar stores do matter when considering the food environment. Regarding policy, assessing food deserts and food swamps isn't enough for characterizing food environments. Excluding dollar stores from neighborhoods is unlikely to be effective in improving health outcomes.

Refer to the slides for more of the presented results. Contact Ryan if you'd like to see the results for other cities or for regions.

Discussion

Janet asked if similarities were noted between or among regions. Ryan said that generally, the South, the South Atlantic, and the Midwest had higher levels of dollar stores. There were variations in the results at the city level. Janet also asked whether dollar stores are uniquely an American phenomenon. Ryan said similar stores exist in other countries, but the business model appears to be different. He also noted that Hawaii has no dollar stores.

Canserina asked about the map for Chicago; in the south, the high obesity rates coincided to a large extent with the food desert designation. Ryan said a big factor in those neighborhoods might be the high density of dollar stores, which are unlikely to pivot to offering more fresh, healthy food options.

In the chat, **Roland** asked about how recent changes in SNAP benefits and the nutrition triangle might cause impacts. Ryan commented that he had looked at including farmers markets in the study, but their seasonality makes it challenging. In any event, it is tricky to forecast the impacts of the recent changes. Roland also asked whether the study looked at disposable income vs. neighborhood spend. It did not, but those factors could be considered in future research. As to whether the data will be made available, Ryan said it's currently going through peer review, but can be made available after that.

Ahmed wondered if there might be a market solution (supply & demand) rather than a policy solution. Ryan thought perhaps the dollar stores could be encouraged to connect with local farmers to provide more healthy options. There probably isn't a one-size-fits-all solution. Ahmed also asked if grocery delivery services could be part of the solution as to lack of access. Ryan noted that because the cost of goods obtained through a delivery service is notably higher, households with higher incomes use the services more.

Another question was posed about the influence of a population's ethnic background. Ryan responded that that gets to the larger question of diet habits. Leaders at the city level might have the best view on what local preferences are and what approaches might be effective.

Contact

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