

EarthXplorers

Tackling Geographic Inquiry through a Historic Lens Using ArcGIS Online

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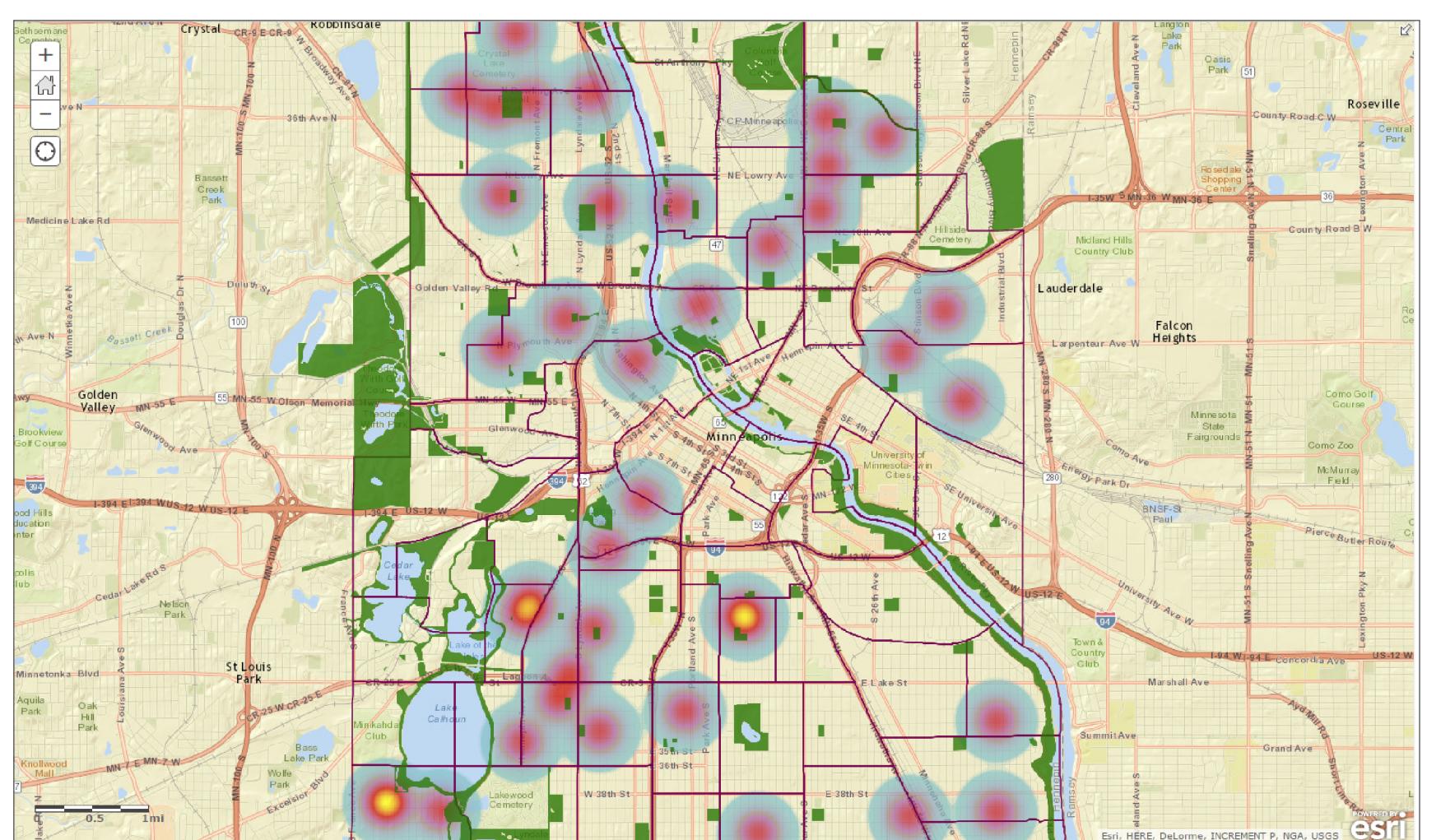
OBJECTIVES

To create a new online learning environment that offers an inquiry- and project-based approach to learning GIS. ArcGIS Online will be used to teach middle and high schoolers across the nation how modern geographic tools can promote the preservation of historic places.

METHODS

EarthXplorers consists of six lessons that highlight different historical sites. Students connect the events of the past with those of today to see how historic preservation is beneficial; all the while learning new geographic skills with ArcGIS Online. Learners engage in field-based activities, data collection, analysis, spatial visualization, and storytelling as they tackle modern-day challenges centered on these national sites. There is no order to the lessons, with the exception of History of Cartography, which teaches many basic ArcGIS Online skills. Educators are able to pick and choose which lesson they wish to incorporate into their curriculum, and can do as much or as little as they desire.

HISTORY OF CARTOGRAPHY

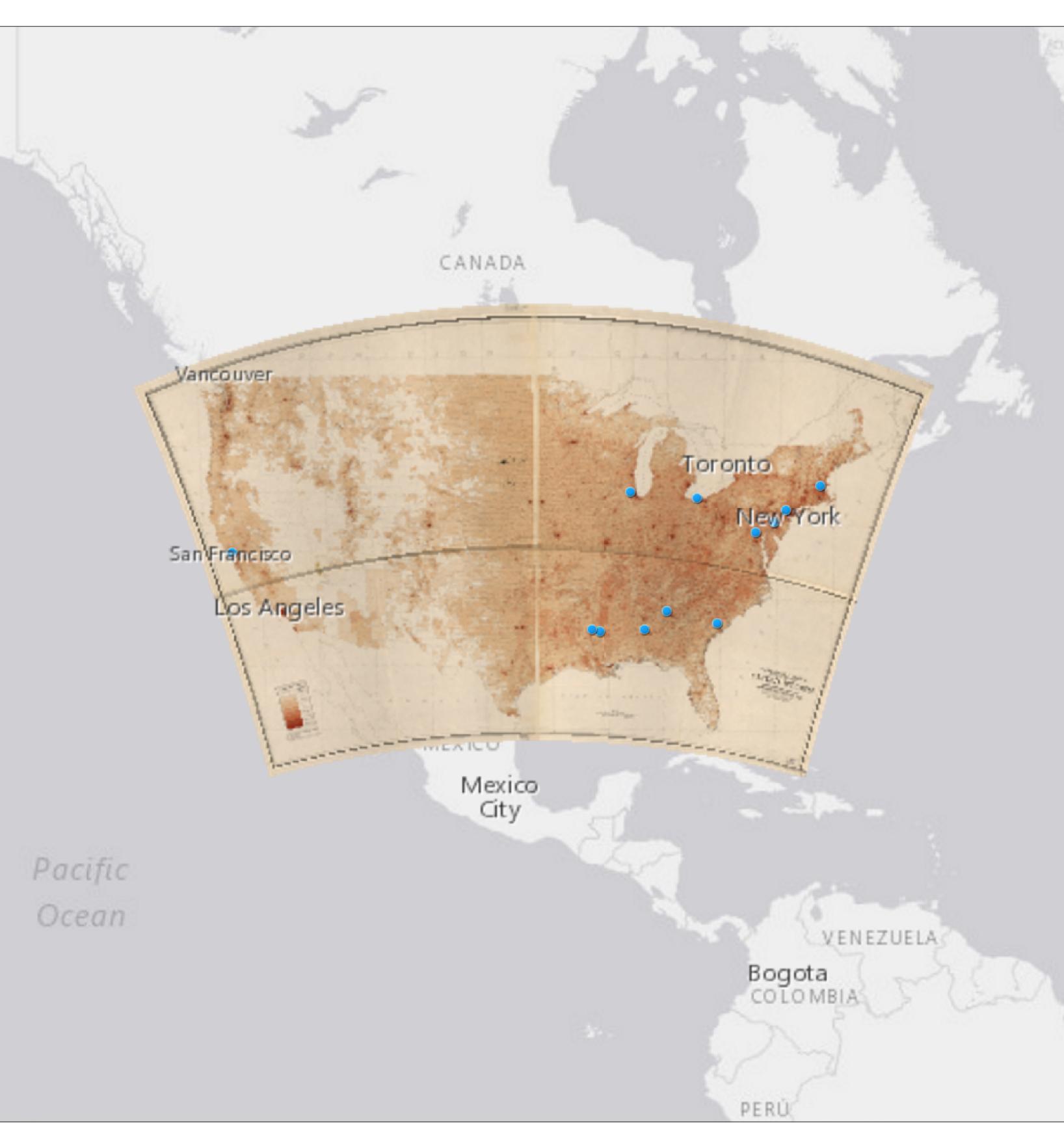


Students create a web map using existing data on ArcGIS Online. Throughout the lesson students learn basic skills they will be using in future lessons. They start by learning what GIS is and are then shown how it can be used to answer geographic questions.

Screenshot showing the data used during the History of Cartography lesson.

MISSISSIPPI DELTA

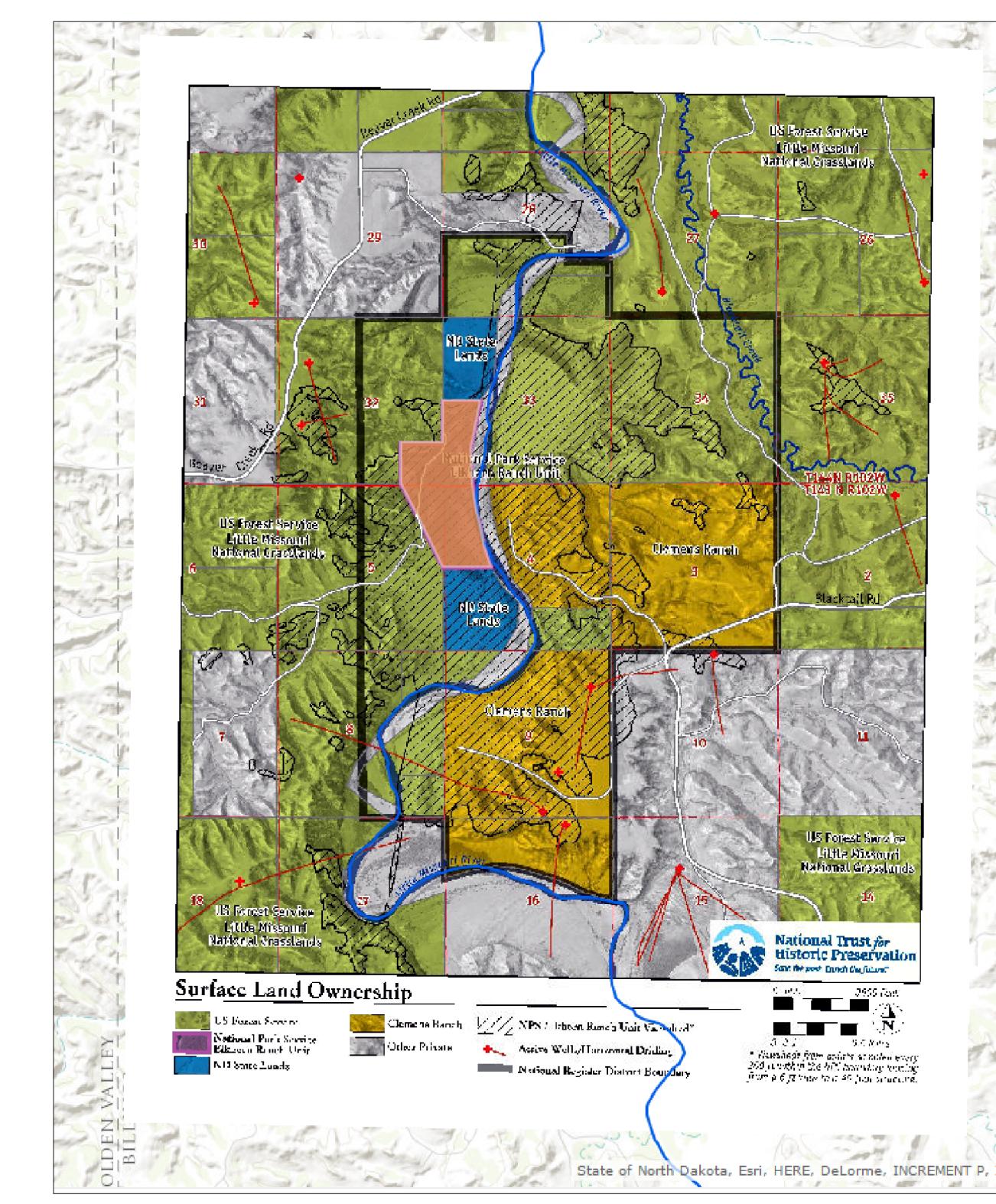
In about a 50 year time span roughly 6 million African Americans migrated north in the US. This migration began in the Mississippi Delta, a land of rich heritage that spawned everything from the Civil Rights Movement to the birth of Blues music. In this lesson students view US Census data showing African American population from 1910 - 1970 and compare it to a historic population density map from 1940. Through this data students learn about projections and choropleth mapping.



Screenshot showing the data used during the Mississippi Delta lesson. The static map can be seen projected onto the ArcGIS Online basemap.

ELKHORN RANCH

Theodore Roosevelt's Elkhorn Ranch is often cited as the cause of his presidential conservation work. A proposed bridge and gravel mine pit could ruin the landscape that Roosevelt fell in love with. In this lesson students use the Map Notes features of ArcGIS Online to digitize modern and historic data from a static map of Elkhorn Ranch, while contemplating how to balance modern economic and infrastructure needs with the preservation of wild places and historic landscapes.



Screenshot of the static map used to create Map Notes.

HINCHLiffe STADIUM

Hinchliffe Stadium is best known for being one of the few remaining stadiums that was host to Negro League Baseball, but it has also hosted auto racing, boxing, high school athletics, and even rock concerts. It eventually fell into disrepair and was threatened with demolition. It gained National Landmark Status in 2014, but is still in need of funds for revitalization. In this lesson students explore the story of Hinchliffe Stadium through the creation of a Story Map.



An example Story Map created during the Hinchliffe Stadium lesson. Students are given data and taught the basics of story map creation, but are then free to go in any direction they choose.

JAMES RIVER



A map of Virginia created by John Smith.

The banks of James River have a rich history going back all the way to the start of our nation. Growing energy needs have made this an area of interest for a proposed high voltage powerline. Students learn about viewsheds while performing one for a subset of the proposed powerline to see what cultural assets are impacted by the towers. Different tower heights are used to compare how dramatically a viewshed can change.

RESULTS/CONCLUSIONS

ArcGIS Online is the ideal educational tool to see how widespread the benefits of preservation can be and how many people they can potentially reach. Students are able to not only learn about historic sites, but understand them even further through the use of geographic inquiry. There are lessons that can only be done with an ArcGIS Online Organizational account, but there are also some that can be done with a Public account, so as long as they have access to a computer and internet, any student can become an EarthXplorer.



ACKNOWLEDGEMENTS

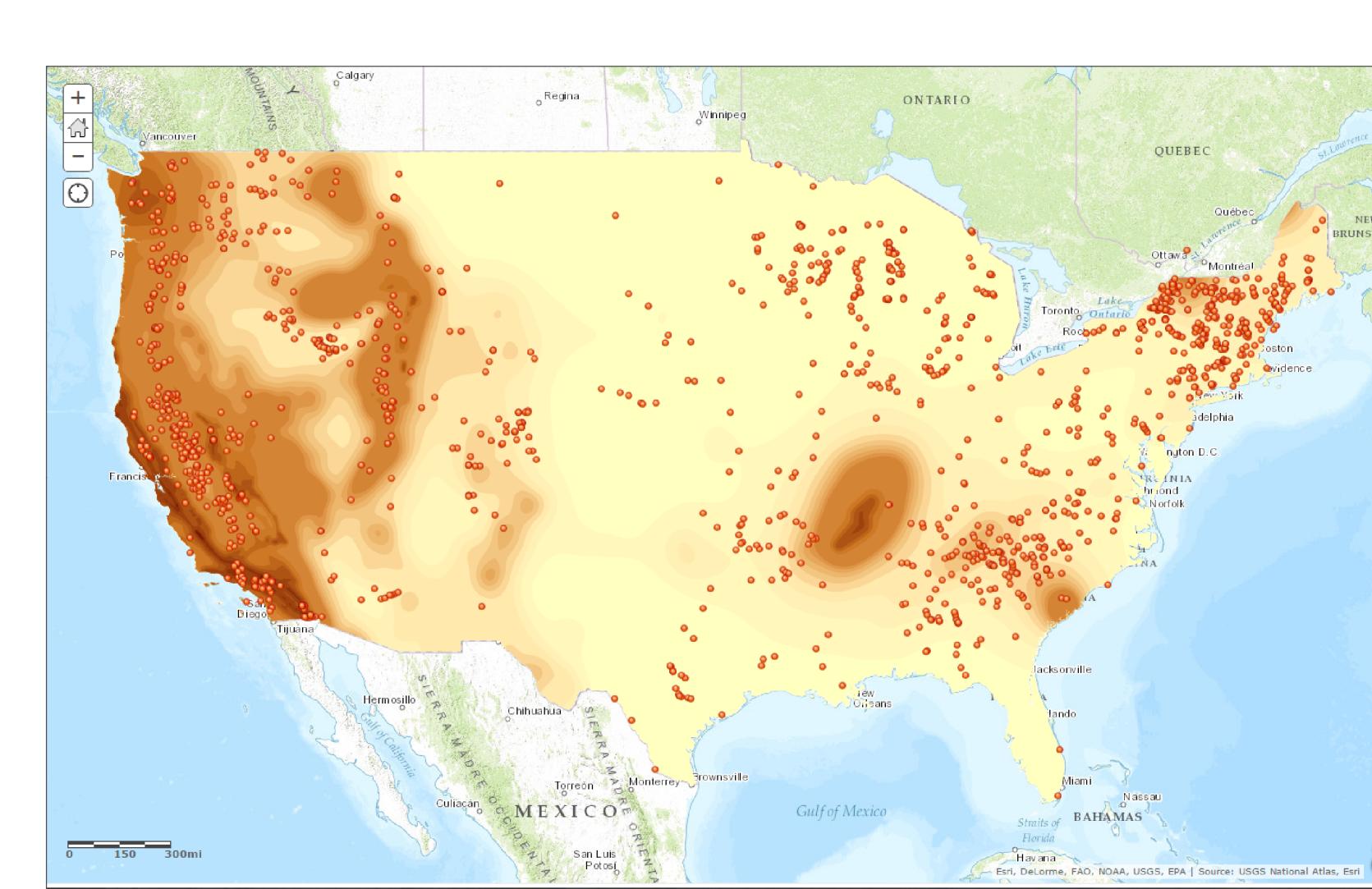
This project was a collaboration between the Learning Technologies Media Lab, the National Trust for Historic Preservation, and Esri.

SOURCES

National Park Service
National Trust for Historic Preservation:
Saving Places



MANHATTAN PROJECT



Screenshot showing some of the data used during the Manhattan Project lesson. Students focus in one area instead of the whole nation to reduce credit consumption.

Students explore the top secret scientific project that created the first atomic bomb, while learning about all the technology that has come from it. While mapping existing nuclear and renewable power, students use some analysis features of ArcGIS Online to explore what factors went into choosing the Oak Ridge, TN Manhattan Project location.