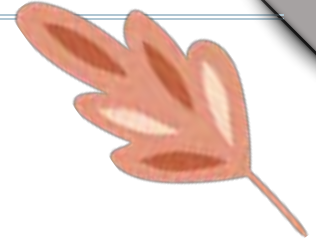


# Storymapping with Leaflet



# What does a map do?



## Narrate

Narrative maps overlay story onto map and emphasize the role of place in driving a story or history

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## Argue

Maps have assumptions and arguments embedded in them: in the names given to things, in the way they're organized, and in the frame of reference

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## Visualize

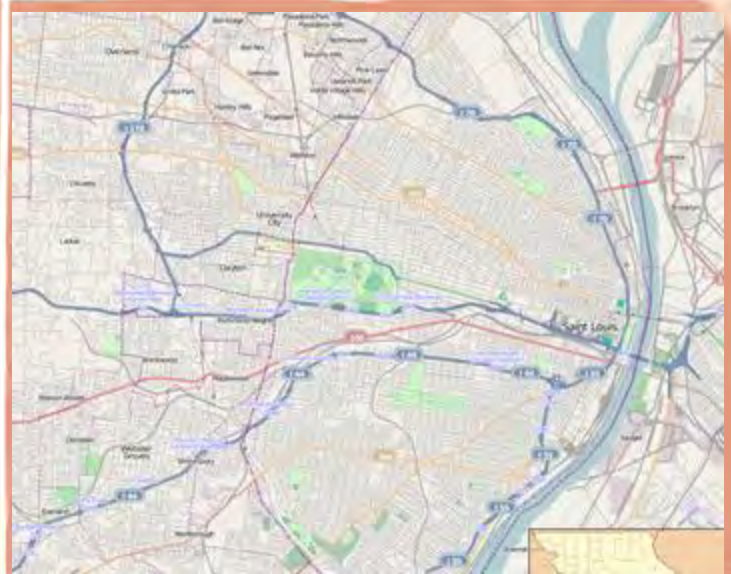
Even a very simple map conveys complex information; they're also a canvas on which to layer other data with spatial dimensions and discover or show patterns

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# What does a map NOT do?

Convey objective information without bias



Leaflet Storymaps



# Key Concepts



## Storymaps

A storymap is a type of digital storytelling project that anchors a narrative to a landscape. As you move through the narrative, you also move along the map. It's a powerful tool for reflecting on the relationship between place and history.

## Example storymap

[Troubled Waters: Critical Hiking at Saint Stanislaus Conservation Area, Hazelwood, MO](#)

[Troubled Waters Spreadsheet](#)

# Key Concepts



## HTML (Hypertext Markup Language)

This is the code that tells the computer how a web page is structured and how it should look. You can define and style elements on a page with tags inside angle brackets `< >`. You enclose the text you want to style with an opening tag `<>` and a closing tag `</>`.

Some useful tags:

`<i>Italics</i>`

`<b>Bold</b>`

`<u>Underline</u>`

# Key Concepts



## JavaScript

This is a code language that lets you create interactive and dynamic elements on a webpage. You don't have to learn any JavaScript! But it's helpful to know that that's what powers your storymap.

## LeafletJS

This is a JavaScript library, which means that it's a special subset of JavaScript designed to do specific tasks - in this case, building interactive, customizable maps.



1.  
How Leaflet  
Storymaps works





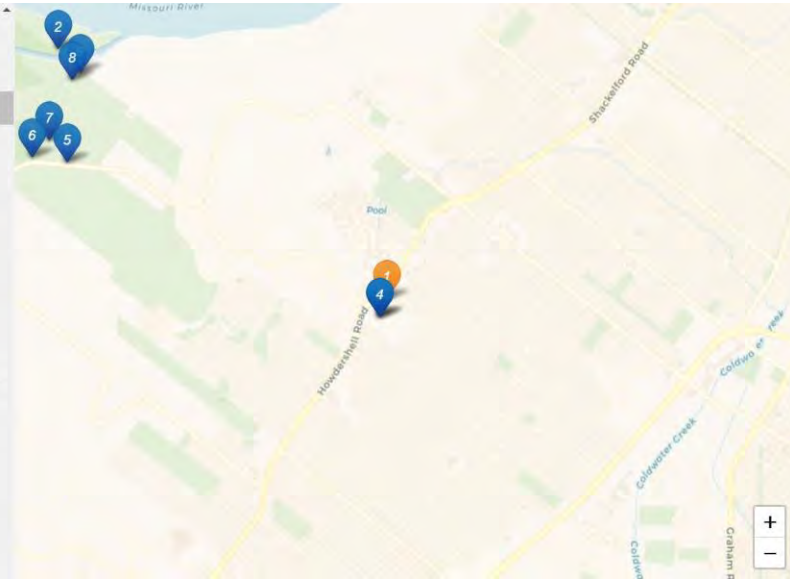
As you move from chapter to chapter, you'll also move along the map.

### Gateway to the West



"Where the Rivers Meet," Saint Louis University Museum of Art (Photo by Margaret Smith)

"Where the rivers meet, De Smet began." So says the sculpture "Where the Rivers Meet" that once stood on the campus of Saint Louis University and now permanently resides in the Saint Louis University Museum of Art. (1) Two hundred years ago, the American Confluence (the meeting of the Mississippi and Missouri Rivers just north of present-day St. Louis) drew a band of Jesuits to this region, where they established a base for Catholicism's westward expansion. Invited by Bishop William DuRoi, whose diocese comprised





2.

# How to make a storymap

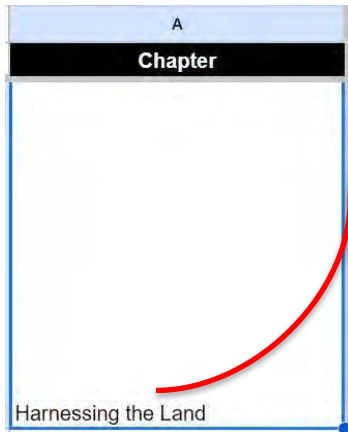
Individual slides



# Chapter



This is the heading that will appear as the title of your slide.



Harnessing the Land



Satellite view of Bryan Island (top left) in relation to Saint Stanislaus Seminary. (Google Maps aerial imagery)

The land acquired for the Jesuits in Florissant, known in the 1820s as "Bishop's Farm" or "Bishop's Lands," stretched roughly three miles westward from the present-day location of the seminary at 700 Howdershell Road in Florissant to Bryan Island. (1) The western portion of this land now comprises Saint Stanislaus Conservation Area. In the early days of the settlement, the land of the present-day park provided natural resources that the Jesuits harvested to support their mission.



View data by Margaret K. Smith | View code by HandsOnDataViz with Leaflet | © OpenStreetMap contributors © CARTO

# Media Link




This is the image, video, audio, or other media that will feature on your slide. Make sure that the URL is for the media item itself, not for the page you found it on! If you're using an image, an easy way to check is whether the URL ends in an image format like .jpg or .png.

B

**Media Link**

<https://iris.siue.edu/leaflet-storymaps/wp-content/uploads/sites/166/2024/10/howdershell.jpg>

Harnessing the Land



Satellite view of Bryan Island (top left) in relation to Saint Stanislaus Seminary (Google Maps aerial imagery)

The land acquired for the Jesuits in Florissant, known in the 1820s as "Bishop's Farm" or "Bishop's Lands," stretched roughly three miles westward from the present-day location of the seminary at 700 Howdershell Road in Florissant to Bryan Island (1). The western portion of this land now comprises Saint Stanislaus Conservation Area. In the early days of the settlement, the land of the present-day park provided natural resources that the Jesuits harvested to support their mission.



View data by Margaret K. Smith | View code by HandsOnDataViz with Leaflet | © OpenStreetMap contributors © CARTO

# Media Credit



This is where you can add the attribution for your media. Your citation should include as many of the following as possible:

- Name of the creator
- Title of the media item
- Date it was created
- Institution that owns the item (in the case of libraries, archives, museums, etc.)
- Website you found it at
- A rights statement (whether it's public domain or Creative Commons)

If you're the creator, you should still include a citation and note that! You can find some examples of MLA primary source citations on the Library of Congress website:

<https://www.loc.gov/programs/teachers/getting-started-with-primary-sources/citing/mla/>.


# Media Credit (continued)



Media Credit

Satellite view of Bryan Island (top left) in relation to Saint Stanislaus Seminary (Google Maps aerial imagery)

Harnessing the Land



Satellite view of Bryan Island (top left) in relation to Saint Stanislaus Seminary (Google Maps aerial imagery)

The land acquired for the Jesuits in Florissant, known in the 1820s as "Bishop's Farm" or "Bishop's Lands," stretched roughly three miles westward from the present-day location of the seminary at 700 Howdershell Road in Florissant to Bryan Island (1). The western portion of this land now comprises Saint Stanislaus Conservation Area. In the early days of the settlement, the land of the present-day park provided natural resources that the Jesuits harvested to support their mission.

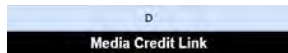


View data by Margaret K. Smith | View code by HandsOnDataViz with Leaflet | © OpenStreetMap contributors © CARTO

# Media Credit Link



This lets you add a link to the source for your media. (Optional, you don't need to add a link if you created the item.)



<https://maps.google.com>

*Satellite view of Bryan Island (top left) in relation to Saint Stanislaus Seminary (Google Maps aerial imagery)*

The land acquired for the Jesuits in Florissant, known in the 1820s as “Bishop’s Farm” or “Bishop’s Lands,” stretched roughly three miles westward from the present-day location of the seminary at 700 Howdershell Road in Florissant to Bryan Island.(1) The western portion of this land now comprises Saint Stanislaus Conservation Area. In the early days of the settlement, the land of the present-day park provided natural resources that the Jesuits harvested to support their mission.

<https://maps.google.com>

# Description



This is where you'll add your text of 250-350 words explaining what's significant about the spot on the map and how it fits into your broader narrative and argument. In order to make your text readable, you'll need to use some HTML. Here are a few essentials:

- Since you're entering your text into a spreadsheet, you won't be able to use line breaks to separate your paragraphs. But no one wants to read a wall of text! In order to break your text, use two linebreak tags between your paragraphs: `<br><br>`
- You might want to format your text. Some handy formatting tags include `<b>bold</b>`, `<i>italics</i>`, and `<u>underline</u>`.
- You can also include links in your text: `<a href="www.example-url.com">The text you want to show up on the page goes here</a>`

# Description (continued)



| Description   |
|---|
| <p>The land acquired for the Jesuits in Florissant, known in the 1820s as "Bishop's Farm" or "Bishop's Lands," stretched roughly three miles westward from the present-day location of the seminary at 700 Howdershell Road in Florissant to Bryan Island.(1) The western portion of this land now comprises Saint Stanislaus Conservation Area. In the early days of the settlement, the land of the present-day park provided natural resources that the Jesuits harvested to support their mission.&lt;br&gt;&lt;br&gt;When they arrived in Florissant, the land was densely forested and swampy, with one log hut that the Jesuits shared and two cabins, one of which was shared by the enslaved families who accompanied them. Recounting the early days of the institution, Jesuits writing in the 1860s described the process of gathering timber to build their early buildings:&lt;br&gt;&lt;br&gt;Soon they attempted to ameliorate their condition by the erection of a log house, but it was with great labors and inconveniences. The timber chosen for the purpose was still waving in the breeze, upon an island in the Missouri river. The distance was three miles through a trackless forest. Hills and swamps were to be overcome and paucity of means was weighing heavily upon them. The timber was felled, hewed and conveyed across a swift and deep stream, and thence with much trouble to the house. Fathers, brothers, novices labored with all the ardor which the warmest zeal could excite."(2)&lt;br&gt;&lt;br&gt;Notably missing from this account are the enslaved people who also labored on the construction of these buildings.&lt;br&gt;&lt;br&gt;(1) Gilbert J. Garraghan, &lt;i&gt;The Jesuits of the Middle United States&lt;/i&gt;, vol. 1 (Chicago: Loyola University Press, 1983): 92-108.&lt;br&gt;&lt;br&gt;(2) Juniors of the Province of Missouri at Saint Stanislaus Novitiate to the Provincial of Missouri Province. 1864. Saint</p> |

### Harnessing the Land

Satellite view of Bryan Island (top left) in relation to Saint Stanislaus Seminary (Google Maps aerial imagery)

The land acquired for the Jesuits in Florissant, known in the 1820s as "Bishop's Farm" or "Bishop's Lands," stretched roughly three miles westward from the present-day location of the seminary at 700 Howdershell Road in Florissant to Bryan Island.(1) The western portion of this land now comprises Saint Stanislaus Conservation Area. In the early days of the settlement, the land of the present-day park provided natural resources that the Jesuits harvested to support their mission.

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## Description (continued)



You should also include citations in your text. The easiest way to do that is to add footnotes, using parentheses to show the number in the text. Here's an [example](#) of how that looks in the spreadsheet vs. on the finished storymap. (Note the line break <br> tags!)

| E  | F    | G      |
|--|------|--------|
| Description  | Zoom | Marker |
| <p>"Where the rivers meet, De Smet began." So says the sculpture "Where the Rivers Meet" that once stood on the campus of Saint Louis University and now permanently resides in the Saint Louis University Museum of Art.(1) Two hundred years ago, the American Confluence (the meeting of the Mississippi and Missouri Rivers just north of present-day St. Louis) drew a band of Jesuits to this region, where they established a base for Catholicism's westward expansion. Invited by Bishop William DuBourg, whose diocese comprised the entire Louisiana Purchase, the earliest Jesuit mission included twelve Jesuits and six enslaved people who were forced to relocate from White Marsh, Maryland, leaving their children behind.(2) They settled on a piece of land purchased by Bishop DuBourg. Although some accounts emphasize their missionary zeal, a history written at Saint Stanislaus in the 1860s notes that the Jesuits in Maryland were facing extreme financial difficulties that likely also motivated their move.(3)&lt;br&gt;&lt;br&gt;Today, the same confluence draws hikers to the many parks and recreation areas that populate the landscape of metro St. Louis. Visitors come seeking (relatively) pristine naturespaces, away from the built environment of the city and its surroundings.&lt;br&gt;&lt;br&gt;(1) Anonymous, "Where the Rivers Meet," Bronze, 1953, Saint Louis University Museum of Art, St. Louis, MO.&lt;br&gt;&lt;br&gt;(2) "What We Have Learned," Slavery, History, Memory and Reconciliation Project, Society of Jesus. <a href="https://www.jesuits.org/our-work/shmr/what-we-have-learned/">https://www.jesuits.org/our-work/shmr/what-we-have-learned/</a>. Accessed 1 March 2023.&lt;br&gt;&lt;br&gt;(3) Juniors of the Province of Missouri at Saint Stanislaus Novitiate to the Provincial of Missouri Province, 1864, Saint Stanislaus Seminary Collection, Box 3.0148, Folder 14, Jesuit Archives and Research Center]</p> |      |        |

"Where the rivers meet, De Smet began." So says the sculpture "Where the Rivers Meet" that once stood on the campus of Saint Louis University and now permanently resides in the Saint Louis University Museum of Art.(1) Two hundred years ago, the American Confluence (the meeting of the Mississippi and Missouri Rivers just north of present-day St. Louis) drew a band of Jesuits to this region, where they established a base for Catholicism's westward expansion. Invited by Bishop William DuBourg, whose diocese comprised the entire Louisiana Purchase, the earliest Jesuit mission included twelve Jesuits and six enslaved people who were forced to relocate from White Marsh, Maryland, leaving their children behind.(2) They settled on a piece of land purchased by Bishop DuBourg. Although some accounts emphasize their missionary zeal, a history written at Saint Stanislaus in the 1860s notes that the Jesuits in Maryland were facing extreme financial difficulties that likely also motivated their move.(3)

Today, the same confluence draws hikers to the many parks and recreation areas that populate the landscape of metro St. Louis. Visitors come seeking (relatively) pristine naturespaces, away from the built environment of the city and its surroundings.

(1) Anonymous, "Where the Rivers Meet," Bronze, 1953, Saint Louis University Museum of Art, St. Louis, MO.

(2) "What We Have Learned," Slavery, History, Memory and Reconciliation Project, Society of Jesus. <https://www.jesuits.org/our-work/shmr/what-we-have-learned/>. Accessed 1 March 2023.

(3) Juniors of the Province of Missouri at Saint Stanislaus

# Zoom



This tells the storymap how closely to zoom in on your coordinates when it pans to the location. Zoom levels range from 0 to 18, and the higher the number, the more zoomed in you'll be. A zoom level of 4 or 5 will show a whole region of the country. A zoom level of 13 or 14 will show detail at the level of streets and buildings. You can set the zoom level for each slide, so think carefully about what you're trying to demonstrate and where you want your reader's attention! At the bottom of [this page](#), there's a map where you can zoom in to the frame you want and see what the zoom level is.



# Marker




This setting determines what marker shows up on the map for your slide. Choose between Numbered (where each pin will have a number assigned to it), Plain (where it's just a pin with no number), or Hidden (where the marker won't show, but the map will still center that location).

G

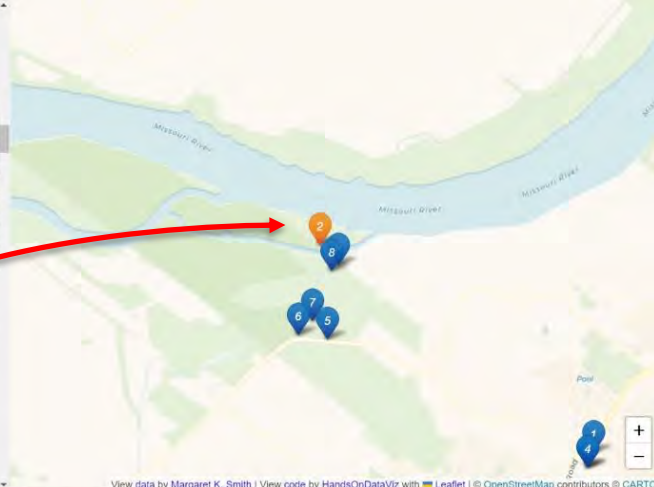
**Marker**

Numbered

Harnessing the Land



Satellite view of Bryan Island (top left) in relation to Saint Stanislaus Seminary. (Google Maps aerial imagery)



The land acquired for the Jesuits in Florissant, known in the 1820s as "Bishop's Farm" or "Bishop's Lands," stretched roughly 1.5 miles westward from the present-day location of the seminary at 700 Howdershell Road in Florissant to Bryan Island (1). The western portion of this land now comprises Saint Stanislaus Conservation Area. In the early days of the settlement, the land of the present-day park provided natural resources that the Jesuits harvested to support their mission.

View data by Margaret K. Smith | View code by HandsOnDataViz with Leaflet | © OpenStreetMap contributors © CARTO

# Marker Color



Here you can choose the color of each marker, either with a color name (choose from [this list](#)) or an [HTML color code](#), which is a # followed by 6 numbers or letters. (Note that in this case, the marker is orange because it's highlighted as the current slide.)

The screenshot shows a map application interface. On the left, a dropdown menu titled 'Marker Color' is open, showing the word 'blue' as the selected option. A red arrow points from the 'blue' text to a map on the right. The map, titled 'Harnessing the Land', shows a satellite view of a river area with several numbered markers (1-8). Marker 2 is highlighted in orange, while markers 3, 4, 5, 6, 7, and 8 are blue. The map also includes a zoom control and a data attribution at the bottom: 'View data by Margaret K. Smith | View code by HandsOnDataViz with Leaflet | © OpenStreetMap contributors © CARTO'.

# Location



Ignore! Leave this blank.

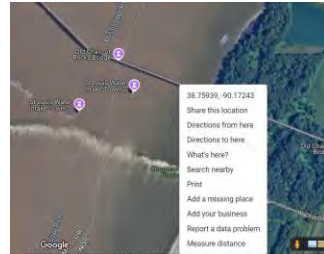
# Latitude and Longitude



These are the coordinates for your marker and/or, if your marker is hidden, for the center of the map on your slide. The easiest way to get coordinates is to find your location in Google Maps and right-click (or Ctrl-click on Mac). The coordinates will be at the top of the menu that pops up. Click on them, and they'll automatically be copied. Then you can paste them into the spreadsheet.

When you paste them, it'll paste latitude and longitude together into one cell. You'll need to cut the second number out and paste it into the longitude box. Don't forget to delete the comma in the latitude box!

| Latitude    | Longitude    |
|-------------|--------------|
| 38.81890618 | -90.39264167 |



# Overlay, etc.



You probably won't need these columns, and you can leave them blank. However, if you want to add shapes besides points, or if you want to overlay a historical map over the default map, this is where you do it. If you want to do this, you can follow the [instructions in the Hands On Data Viz tutorial](#) (go down to section F), or you can make an appointment to meet with Dr. Smith.

| L       | M                    | N               | O                          |
|---------|----------------------|-----------------|----------------------------|
| Overlay | Overlay Transparency | GeoJSON Overlay | GeoJSON Feature Properties |
|         |                      |                 |                            |

A historical map of Europe and North America, showing various geographical features and place names. A white text box is overlaid on the map, containing the text '3. How to make a storymap Finalizing your map' and a compass rose. The map includes labels for Hudson Bay, Bay of Canada, North America, and the Mediterranean Sea. The text box is centered on the map, and the compass rose is located below the text.

3.

## How to make a storymap

Finalizing your map




# Title Slide



Your storymap should begin with a title slide, an image, and 500 words, written collaboratively by the whole team. For this slide, make sure you set your latitude, longitude, and zoom level so that they show the whole scope of the storymap.


**Troubled Waters**



View westward from the ridge in Saint Stanislaus Conservation Area (Photo by Margaret Smith)

**Human Histories of a Saint Louis Naturescape**

The hiking trail in Saint Stanislaus Conservation Area, located in Florissant, Missouri, guides hikers through pleasant woods, scenic overlooks over the Missouri River, and multiple sets of stone ruins. Signage in the park informs visitors about the geological makeup of the site and Lewis and Clark's Corps of Discovery, which passed through the area as it moved westward. There is nothing to situate the ruins or the site's



View data by Margaret K. Smith | View code by HandsOnDataViz with Leaflet | © OpenStreetMap contributors © CARTO

# Edit Your Storymap Options



Navigate to the Options tab in the spreadsheet. (You'll find it at the bottom left of your screen.)

| D12 | A                               | B   | C  |
|-----|---------------------------------|---|--|
| 6   | Google Analytics Tracking ID    |   | Sample format: UA-5488840-29   |
| 7   | <b>Map Settings</b>             |   | <b>For help, see tutorial in <a href="#">HandsOnDataViz.org</a></b>  |
| 8   | Basemap Tiles                   | CartoDB.Voyager   | Select <a href="#">basemap</a> . For Stadia tiles, <a href="#">add domain-based authentication</a> .   |
| 9   | Basemap Tiles API Key           |   | <a href="#">If required, insert an API key for tiles. See Stadia note above.</a>   |
| 10  | Zoom Controls                   | bottomright   |  |
| 11  | Narrative Background Color      |   |  |
| 12  | Narrative Text Color            |   |  |
| 13  | Narrative Link Color            |   |  |
| 14  | Active Chapter Background Color |   |  |
| 15  | Media Container Height          | 300   | Maximum height of the image, in pixels. 200 is default. The image will be fit into the container with its proportions kept (it won't be skewed). |
| 16  | Pixels After Final Chapter      | 600   | In pixels. At least 100  |
| 17  | Enable Lightbox for Images      | yes   | yes or no  |
| 18  | <b>Credits</b>                  |   | <b>For help, see tutorial in <a href="#">HandsOnDataViz.org</a></b>  |
| 19  | Author Name                     | Margaret K. Smith   | Appears in map credits as "View data by..." (or leave blank)   |
| 20  | Author Email or Website         | <a href="https://ms.siu.edu/">https://ms.siu.edu/</a>   | Create link in Author Name by inserting your email or web address (or leave blank)   |
| 21  |                                 | <a href="https://github.com/handsondataviz/leaflet-storymaps-with-">https://github.com/handsondataviz/leaflet-storymaps-with-</a> | Insert your code repo URL to appear as link in "View code..." (or leave  |

+ ☰ Chapters ▾ Options ▾ Notes ▾ Geocoding Details ▾

# Required Settings



- Enter your storymap's title and subtitle.

| Setting                      | Customize   | Hints   |
|------------------------------|---|---|
| <b>Storymap Info</b>         |   | For help, see tutorial in <a href="https://handsondataviz.org">HandsOnDataViz.org</a> |
| Storymap Title               | Troubled Waters   |   |
| Storymap Subtitle            | Critical Hiking at Saint Stanislaus Conservation Area, Hazelwood, MO  | Add your subtitle, or delete that portion   |
| Storymap Logo                | <a href="https://iris.siu.edu/wp-content/uploads/2017/09/cropped-iris-logo.png">https://iris.siu.edu/wp-content/uploads/2017/09/cropped-iris-logo.png</a> | Path to a logo image  |
| Google Analytics Tracking ID |   | Sample format: UA-5488840-29  |

- Add your names to the Author Name section.

|                         |   |   |
|-------------------------|---|---|
| <b>Credits</b>          |   | For help, see tutorial in <a href="https://handsondataviz.org">HandsOnDataViz.org</a> |
| Author Name             | Margaret K. Smith   | Appears in map credits as "View data by..." (or leave blank)                          |
| Author Email or Website | <a href="https://iris.siu.edu/">https://iris.siu.edu/</a>   | Create link in Author Name by inserting your email or web address (or leave blank)    |
| Author GitHub Repo Link | <a href="https://github.com/handsontataviz/leaflet-storymaps-with-google-sheets">https://github.com/handsontataviz/leaflet-storymaps-with-google-sheets</a> | Insert your code repo URL to appear as link in "View code..." (or leave blank)        |
| Code Credit             | <a href="https://handsondataviz.org">HandsOnDataViz</a>   | Appears in credits as "...code by..." (or leave blank)                                |

# Optional Settings



- Choose your basemap. The basemap sets the style of the map for the whole project. You can use any basemap in the dropdown except for the Stadia options.

| Map Settings                    |   | For help, see tutorial in <a href="https://www.handsonteam.com/HandsOnDataViz.org">HandsOnDataViz.org</a>  |
|---------------------------------|---|--|
| Basemap Tiles                   | <input type="text" value="CartoDB.Voyager"/>          | Select <a href="#">basemap</a> . For Stadia tiles, <a href="#">add domain-based authentication</a> .   |
| Basemap Tiles API Key           | <input type="text" value="CartoDB.Positron"/>         | <a href="#">If required, insert an API key for tiles. See Stadia note above.</a>   |
| Zoom Controls                   | <input type="text" value="CartoDB.PositronNoLabels"/> |  |
| Narrative Background Color      | <input type="text" value="CartoDB.Voyager"/>          |  |
| Narrative Text Color            | <input type="text" value="Esri.WorldStreetMap"/>      |  |
| Narrative Link Color            | <input type="text" value="Esri.WorldGrayCanvas"/>     |  |
| Active Chapter Background Color | <input type="text" value="OpenStreetMap.Mapnik"/>     | Maximum height of the image, in pixels. 200 is default. The image will be fit into the container with its proportions kept (it won't be skewed). |
| Media Container Height          | <input type="text" value="Stadia.StamenTerrain"/>     | In pixels. At least 100  |
| Enable Lightbox for Images      |   | yes or no  |

- Color options: You can customize the color of your text and background using HTML color codes. But use caution! Make sure that your color scheme is legible and that it doesn't distract from your content.

|                                 |                      |
|---------------------------------|----------------------|
| Narrative Background Color      | <input type="text"/> |
| Narrative Text Color            | <input type="text"/> |
| Narrative Link Color            | <input type="text"/> |
| Active Chapter Background Color | <input type="text"/> |