

StoryMap (100 pts)

Storymaps use geography as a means of organizing and presenting information. They tell the story of a place, event, issue, trend, or pattern in a geographic context. They combine interactive maps with other rich content—text, photos, illustrations, video, and audio—within intuitive user experiences. When data and stories are used together, they resonate with audiences on both an intellectual and emotional level, which means they may be more effective than text alone. This assignment will integrate mapping and science communication to present an issue related to the values of Biodiversity.

Many types of stories can be told with StoryMaps. Some are fairly basic (Locate something; Provide directions; Describe places; Summarize situations), while others are more complex. These complex issues are those you are most likely to use for this assignment, and include:

- Explain geography-related topics
- Comparing multiple themes (presence/absence, pre & post)
- Demonstrate co-occurrence of different factors (cause and effect; case control)
- Showing change over historic time or forecasting future changes
- Present a briefing

Your goal is to tell a story about How Biodiversity Matters. The overall goal of the assignment is to practice effective communication on a class-related topic for a general audience that describes how human health depends on environmental health. Specifically you need to describe a storyline that shows how some aspect of Biodiversity (species, ecosystems, genetic diversity) generates Goods &/or Services that contribute to Human Health and/or Well-being (well-being is very broad, it includes all the benefits to humans outside of health). You will be making an *original* argument about how Biodiversity matters – this is not just duplicating information or maps that can be found elsewhere. You will need to do some research and gather information from the scientific literature to provide evidence, facts, and data to support your story, to inform any conclusions you might make, and to provide perspective.

The best Storymaps are both scientifically interesting but also creative, innovative, and beautiful in writing, design, and appearance. You will be judged primarily on the content, but a significant amount will be based on the quality of the writing, and the appearance (design, organization) of your Storymap. You can make static or dynamic maps, you can use the data provided by ESRI or you can go the extra step and import data you have found in a scientific paper. The scope can be local, regional, or global, and you should think hard about using the right set of data for the right geographic location(s).

There are some key features of any good story (see the resources listed below, or google the web for info). Think about some of the best articles you have read – what made them so good? A dynamic character, a compelling story with a clear message, a simple message often repeated, interesting language, and visual imagery.

Before you begin consider: Who is your Audience? If you post this to the web who would you like to read it? What do you want them to think? To feel? To do? What kind of resources or follow up information will you give them if they want more information?

- It should be obvious that you have done sufficient, scientific research – the information is complete, your conclusions are scientifically sound, and the citations are relevant to your topic. You need to cite the references of any information used.
- It should be well-written, and should demonstrate the good habits you have learned about writing from our discussions of our readings, posters, and science writing (Compass Messagebox!).
- It should be creative, well-designed, and attractive. You should include custom pop-ups with tables, photographs, and charts in your Storymap that contribute to the understanding of the maps themselves. You need to cite the sources of any data used.
- It should be well-designed, and attractive – a pleasing color scheme, correctly sized fonts and labels. You need to cite the sources of any images used.

Text: Length should be at least 2-3 pages (~2000 word) that includes at least 3 references from the scientific literature and at least 3 links to online news articles or scientific blogs.

Titles: Should be catchy, interesting, and related to the rest of the text. If the paper is about agriculture, then mention it in the title. The goal is to pique the reader's interest & make them read more!

First paragraph: Should grab the reader's attention. Use strong imagery, creative storytelling, contrast, or other tools to engage the reader's attention. It should be closely linked to the title, and serve as a general intro to the rest of the article that will make 2-3 points in support of your argument.

Content: the most important thing:

All papers must clearly demonstrate how biodiversity produces goods and services that contribute to human health & well-being.

This is not a report that just lists the environmental impacts of some threat (e.g., pollution is bad, biodiversity is good, earth is in trouble). It needs to demonstrate a) how human health & well-being are dependent on biodiversity, and b) how that threat will affect/damage/reduce those benefits we receive.

You can do this by showing/quantifying/describing many of the numerous benefits and values (e.g., provisioning, sustaining, economic, aesthetic, educational, etc) we humans receive from healthy functioning ecosystems (aka nature, biodiversity). The strongest papers will not only show the variety of benefits, but will also quantify the various kinds of benefits (\$\$ earned, #lives saved, #families supported, savings accrued, effort saved). The summary from the Millennium Ecosystem Assessment (google it, or find it in the class library) has many examples, citations, & links to not only those benefits, but also quantifies the amount and rate of the treats by habitat type. I encourage you to use the framework provided by the MEA as a way to explicitly link biodiversity to human health or well-being within the context of your topic.

You can also do this by describing how some threat (e.g., pollution, acidification, climate change, urbanization, etc.) disrupts the linkage between biodiversity and human health/well-

being, how efforts to restore biodiversity have reestablished or restored the linkage resulting in improvements in human health, or you may decide to describe some new approach/angle that would minimize the effects those threats have on the linkage, but you must make that link to get full credit. The strongest papers will quantify the numbers/kinds of people affected by such a threat, and in what ways. Remember, the goal is to show how valuable healthy environments are to people, by a) quantifying the values we “earn” from healthy environments, b) by quantifying the damage we “pay” when the environment is damaged or disturbed, or c) doing both!

Argument: The 2nd most important thing. You may think it is clear, but often times it is not. So best to write it out so nobody has to guess. Write out the point of every paragraph if that helps – stick them at the front of every paragraph. What is your argument? What are you trying to convince the reader? What is the point of the overall essay, or even of each paragraph? Can you write out a clear statement of the problem? A clear statement of a possible solution?

Writing Style: This is not strictly a scientific report. Nor is it strictly a story or an essay. It takes the best of both worlds to make a strong scientifically based message that is accessible to a general audience. It needs to make a point (like an essay) by using data, facts & research (like a report), but it should be written in a less formal language that should be accessible (even better if you can make it entertaining & compelling) to a general audience. It can show some of your individuality and personality as it relates to the topic – after all there is no better way to engage a reader than to tell them something that you are passionate about. But, it must be factual - statements you make need to be backed up with data, evidence, citations, or other expert opinions. Depending on your audience and your message the kind and amount detail will vary, but because this is a science-based course, you will need to include a sufficient amount of detail.

Language: You want to use clear, precise language that communicates exactly what you mean. Since this is for a general audience, you should avoid using scientific jargon, or other specialized language and strive for simplicity. Creative, beautiful words that create an image are good because they engage the reader. Extreme words or phrasing may also catch the reader’s attention, but consider if they may also turn off a reader and replace them with something less dramatic.

Specifics: Beware the general statement; they almost always have exceptions, or only apply to particular cases, species, areas, etc. Be sure to give specific examples: data, numbers, values, citations, case studies, evidence in support of a general statement.

Less Is More: In order to get enough detail into your article, you will need to focus on a few major points and develop them thoroughly. Beware of trying to make too many points, as it is hard to completely describe them all in sufficient depth, and the paper reads like a laundry list of points, rather than a well-thought out discussion of your topic.

Creativity & Innovation: Don’t be boring. Your Storymap should be creative, well-designed, and attractive. You should include custom pop-ups with tables, photographs, and charts in your Storymap that contribute to the understanding of the maps themselves. You need to cite the sources of any data used.

Design & Appearance: It should be well-designed, well-organized, and attractive – a pleasing color scheme, correctly sized fonts and labels. You need to cite the sources of any images used.

The organization will vary with the format you choose – but you should need to include at least 1 original map.

Citations: Give credit where credit is due. You must cite every bit of information taken from somewhere else, whether it is data, text, quotes, or figures/images. All figures need a Legend that describes what we are looking at, and what it means, as well as the source for the image itself. Do not plagiarize text, or even something as small as your title – if you got it from someone else, then you need to cite it.

Format: You should use one consistent format throughout your project – refer to one of the scientific papers we have read and follow that. OR you can also use hot links. My suggestion would be to cite a paper in your text as (Smith & Jones 1988; Jones et al. 2009;

AmphibiaWeb 2019), while the full citation in the literature cited should be similar to this:

- AmphibiaWeb. 2018. <<https://amphibiaweb.org>> University of California, Berkeley, CA, USA. Accessed 24 Oct 2018.
- Jones, B., A. Smith, and Z. Miler. 2009. An even larger compendium of astonishing facts. *Society and Biodiversity*, 22: 456-789.
- Smith, A. and B. Jones. 1988. A compendium of important facts. *Biodiversity and Society*, 12: 123-456.

Final paragraph: Short, concise review of your main point. Should return to something in the beginning that is notable or memorable (e.g., a catchy phrase, strong imagery, creative language). End on a strong note. Often you can put in a plug for some action here (follow-up links, contact info, projects/shows), but only if it is consistent with the rest of the article. In the end, if you want to make an impression, or get people to do something, you need to provide them with evidence, and motivate them through emotions.

“At the end of the day people won't remember what you said or did, they will remember how you made them feel.”— Maya Angelou

Resources to Learn More about Scientific StoryTelling:

<http://www.fromthelabbench.com/from-the-lab-bench-science-blog/2015/6/25/hwfxd4d2rik3w0wj6e3xbdb3fn4t>

<https://blogs.plos.org/ecology/2016/12/30/the-importance-of-storytelling-in-science/>

<https://www.enago.com/academy/storytelling-in-science-communicating-your-research-effectively/>

<https://medium.com/science-of-story-building/science-of-story-building-create-space-for-your-audience-38ab415e57d4>