Introductory level GIS Projects - Monroe Community College (SUNY)

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Introduction

The first GIS course at Monroe Community College ran Fall 2009. Introduction to GIS course (GEG 181) is a hands-on GIS course with many labs and one inquiry based project. Students complete active learning exercises and lab assignments before implementing their inquiry based project.

Many of the early lab assignments use GIS-ready data sets posted online (ESRI, 2010). Instead of students becoming frustrated as they try to find (Sinton and Schwartz, 2009), and then convert it into usable GIS datasets, students can jump right in and begin to learn how to use GIS tools, but more importantly, learn new concepts. Lloyd (2001) and Sinton and Schwartz (2009) find that this technique promotes conceptual learning. The labs are scoffolded building upon previous GIS techniques. By mid-way through the course, students begin to explore real data sets and begin research on their project. Sinton and Schwartz (2009) explain that acquiring, converting and creating usable GIS datasets is time consuming. Requiring students to bring data into a GIS project can be very rewarding and changes the student from a passive learner to an active learner (Sinton and Schwartz, 2009).

Project Description

Student use geospatial tools (AEJEE, WebGIS, and/or ArcGIS 9.3) to create a **total of 4 original maps** that begin to provide a solution to a real world problem. Student projects are assessed based on a rubric. Students are asked to critique student project(s). The project is broken down into the following steps over ~9 weeks:

1. Choose your topic
2. Problem Statement (students ask a question)
3. Accessing data activity
4. Write introduction and their GIS plan (method)
5. Create maps using GIS
6. Analyze maps
7. Finish essay – results and conclusion
8. Be a cartographer!
9. Poster template

Problem Statement

Their project problem statement, a concise 1-3 sentence description of their project (i.e., research based question) guides their work.
*The **research question (problem statement)** should address all six questions: what, how, where, when, why, and who. On the other hand, **a statement of the problem** (or problem statement) is one or two sentences claim that outlines the problem that the study addresses. The **statement of the problem** should briefly address the question: What is the problem that the research will address?*

Rubric and Learning Outcomes

Final projects were self, peer, and teacher evaluated based upon a rubric (Figure 1) and student learning outcomes. The rubric were modified from the University of Maine (2010).

Learning outcomes included: 1) Explain the Geographic perspective and discuss why geography is fundamental to understanding sustainability and our environment; 2) Obtain, organize, analyze, synthesis, represent, interpret, communicate, and evaluate data using GIS; and 3) Demonstrate an understanding of how environmental or human problems can be solved by GIS.

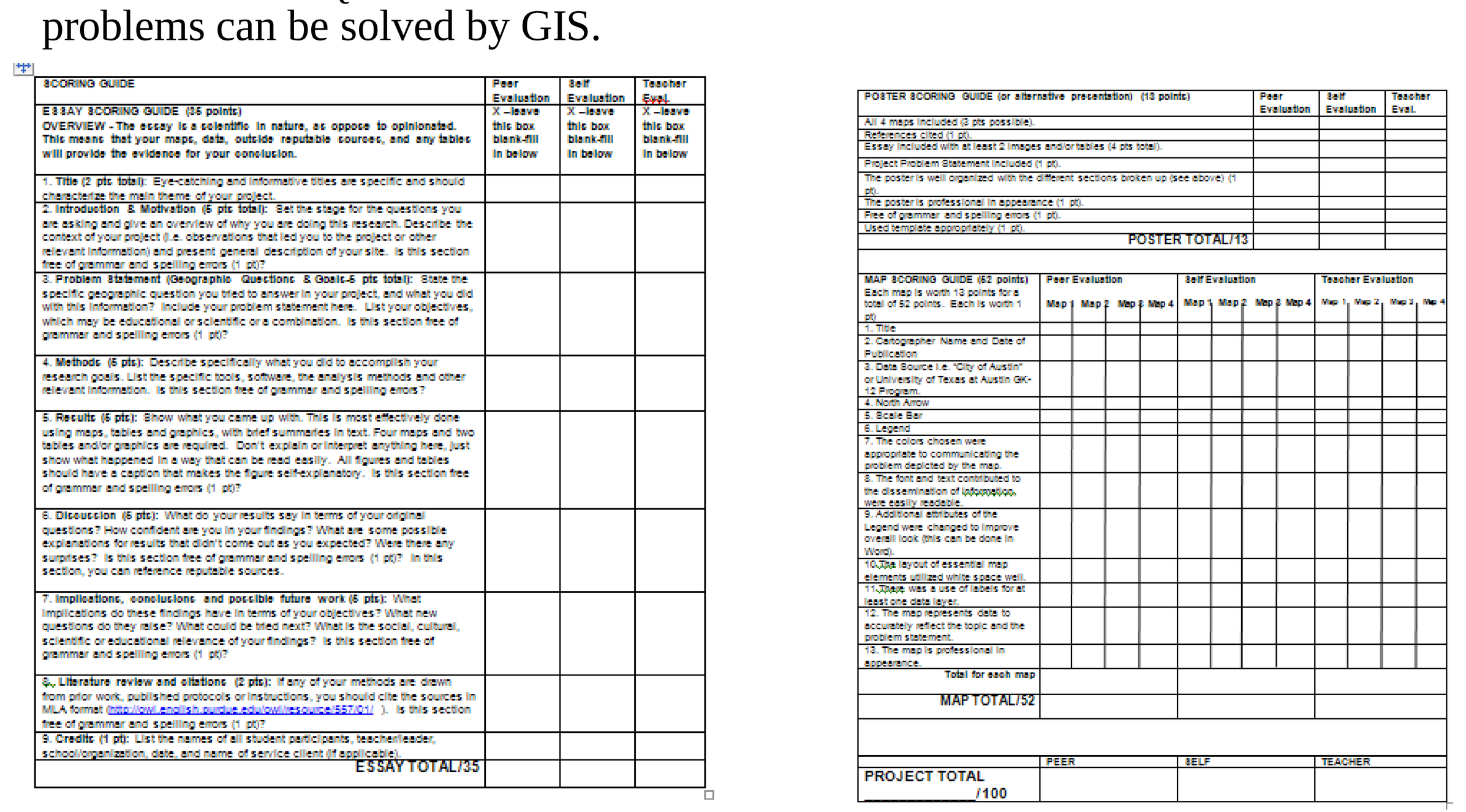

Figure 1. The scoring rubric was based on three main components: 1) essay, 2) four maps, and 3) poster (13 points) for a total of 100 points and approximately 20% of their course grade. Within the essay, stress was put on the problem statement, methodology, results, discussion, and conclusions. Within the map section, point structure was divided evenly for each task.

GIS Projects

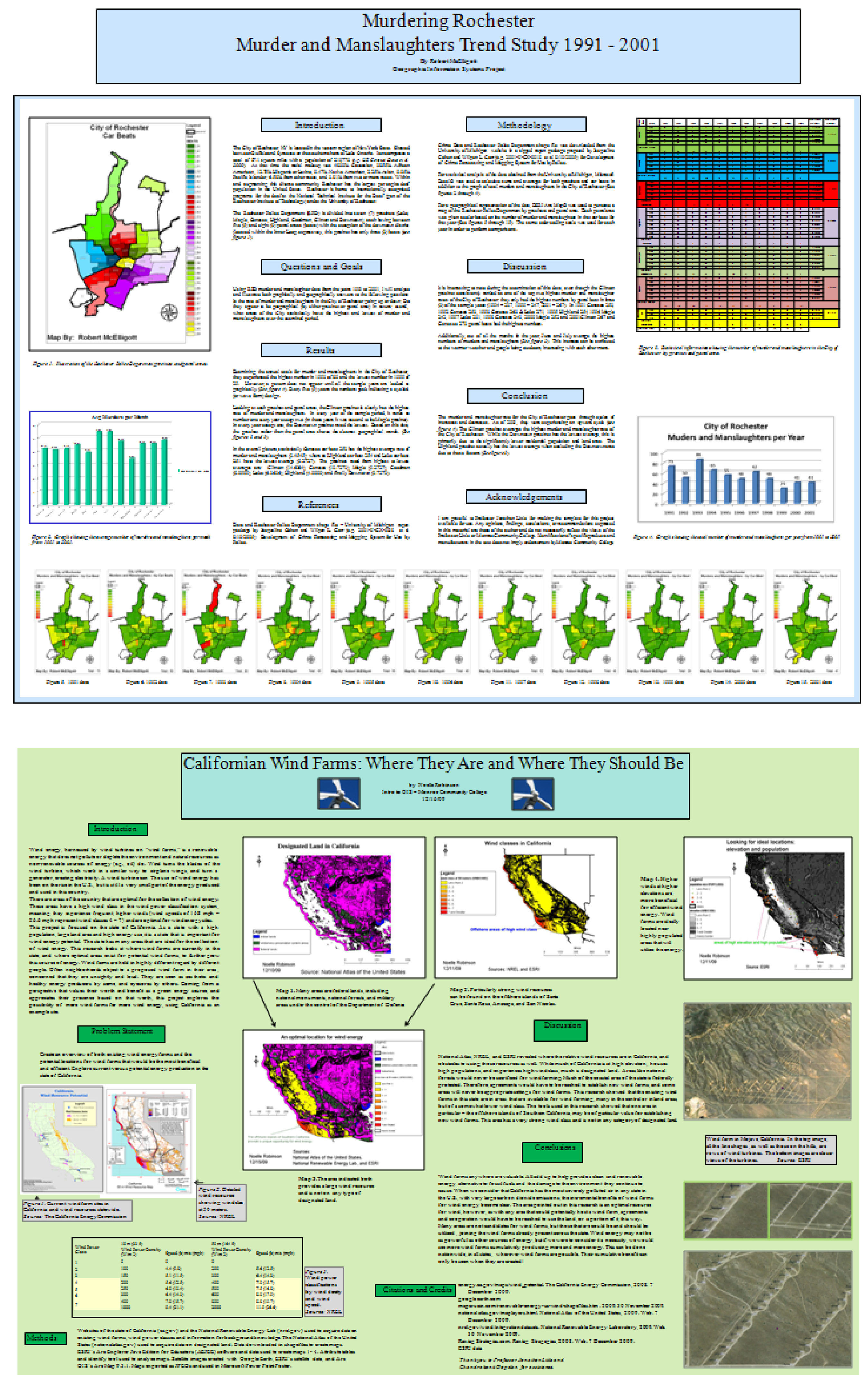

Figure 2. (top) Robert McElligot's Fall 2009 GIS project. (bottom) Noelle Robinson's Fall 2009 GIS project.

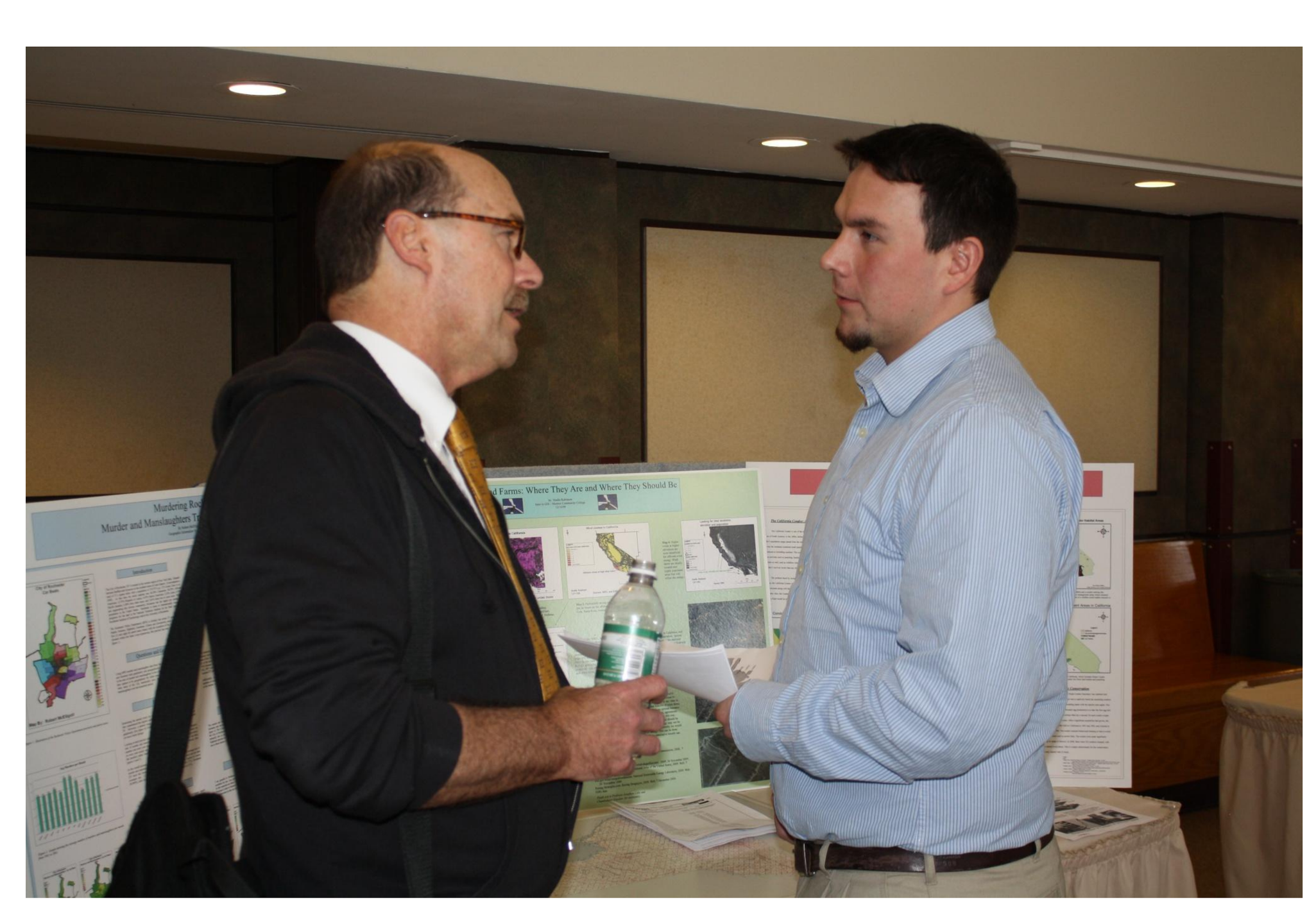

Figure 3. Jess Thompson speaks with Vice President of Technology at MCC, Dr. Jeffrey Bartkovich at MCC's Scholars' Day (April 2010).

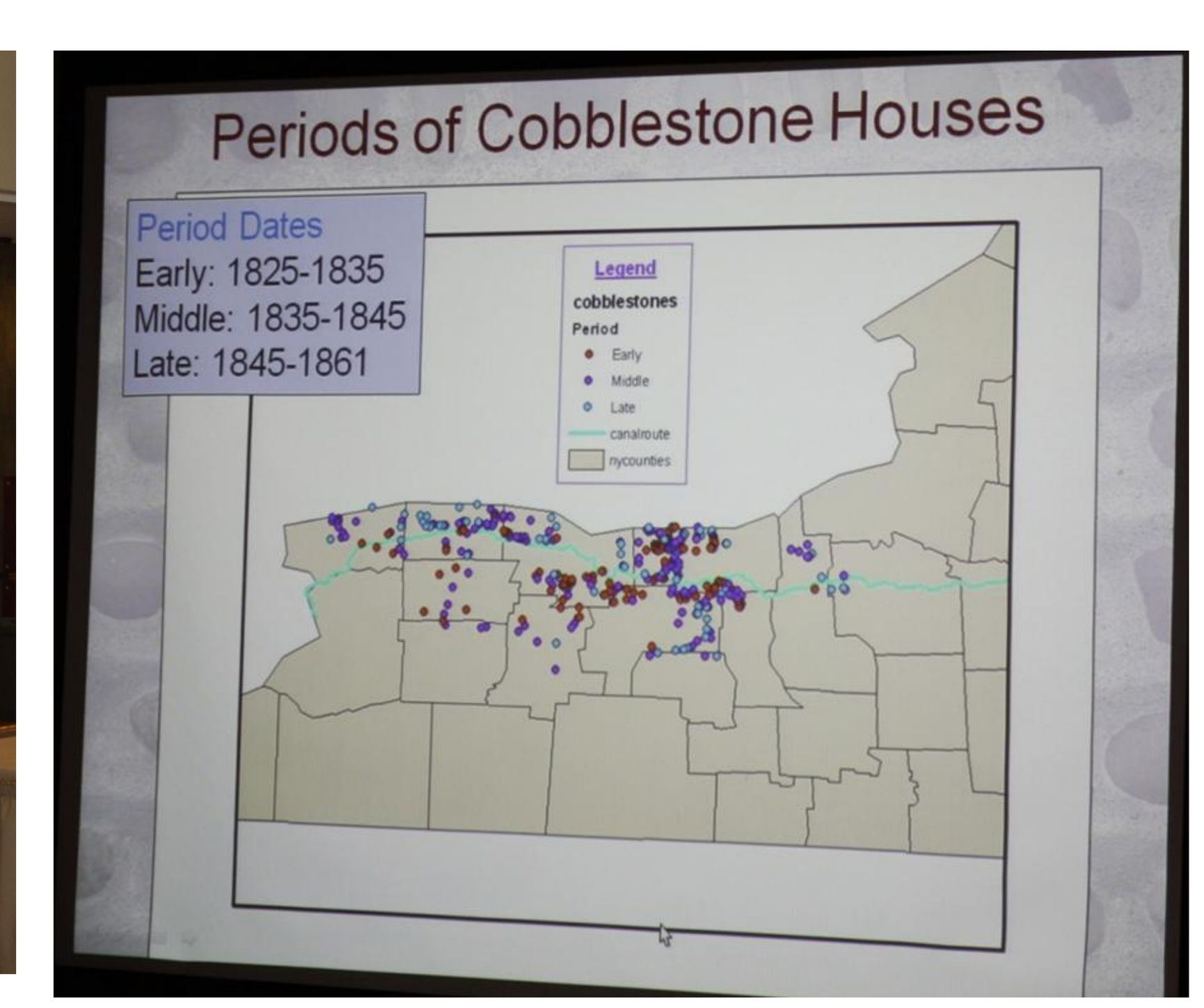

Figure 4. Amber Miller presents her GIS work on Cobblestone houses for Scholars' Day (April, 2010).

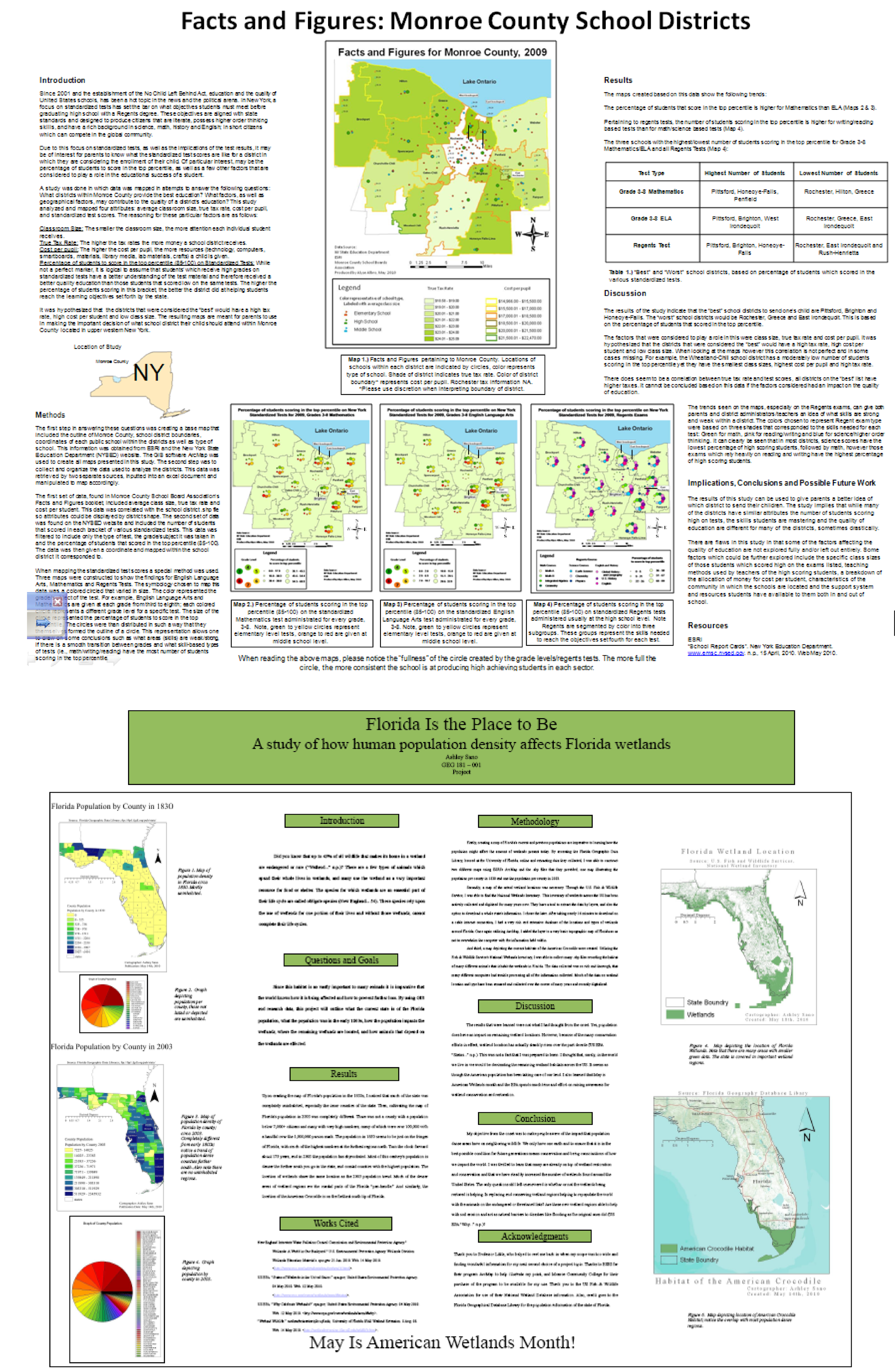

Figure 5. (top) Alyse Albro's Spring 2010 GIS project. (bottom) Ashley Sano's Spring 2010 GIS project.

Acknowledgements

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