

## **CRAWFORD STEWARDSHIP PROJECT**

*Karst Geology: Citizen Science in Action*

*with Legion GIS, LLC*

### **Day 2 — Aug. 9<sup>th</sup>, 2016**

### **Well Point Locations Improvement**

#### **What is the PLSS?**

The Public Land Survey System (PLSS) is a system used for subdividing and describing land in the United States. The PLSS is a series of rectangular land divisions which was laid out by the surveyors who performed the original surveys of this land in the late 1700's.

The PLSS is a system of subdivided grids; the largest division within this system is the **survey township** (which often corresponds with, but is technically different from, a municipal township). A survey township is divided into **36 sections**, each 1 mile square. Survey sections are further divided by  $\frac{1}{4}$  sections and  $\frac{1}{4}$ - $\frac{1}{4}$  sections. These units have generally served as the basis for the subdivision of land in the U.S.

#### **What is the Data?**

We will be working with a dataset of approximately 2,600 well points acquired from the WI DNR. The well data is collected from information recorded in well drilling logs over the last century.

For each well, PLSS info was recorded with varying levels of precision. All wells are associated with a township & section; many specify the  $\frac{1}{4}$ -section, and some go so far as to designate the  $\frac{1}{4}$ - $\frac{1}{4}$  section. The spatial locations of each well point were determined by estimating the centerpoint of the smallest PLSS section unit listed in the well drilling log.

#### **Overview :**

The goal is to examine well points and, where possible, improve the precision of their geographic locations by referencing against aerial imagery. To this end, volunteers will be using a simple web interface set up by Legion GIS, LLC to view and edit point data.

#### **Navigating the Web Map Interface :**

Click-and-drag on the map canvas to move the map. You can zoom in & out by using the scroll function on your mouse or trackpad (some trackpads have a special scroll area, while many newer trackpads have a two-finger scroll function). You can also zoom in on an area by double-clicking on the map canvas.

Alternatively, you can use the arrow buttons and zoom slider at the upper left to navigate around.

### **Editing the Points Data :**

1. At the top of the page, you will see a menu bar with several buttons. To begin, click on the “*Edit*” button at right:



2. You will be prompted to log in. Use username “**Guest**” and password “**guest**”.
3. At the left of the screen, notice the “Layers” panel. To choose a layer to edit, you must select it by clicking on it (you will see it become highlighted).
4. To edit a point, click on it. A small pop-up window will display the attributes for that feature. (If this window shows a whole set of blank attributes, you are about to create a *new* feature, which we don’t want to do today!).
5. At the bottom of the pop-up window, you will find another “*Edit*” button. Click this button to allow editing of the point feature.
6. You can now reposition the point by clicking-and-dragging it to its new location.
7. You can edit a specific attribute via the pop-up window for each feature. Locate the appropriate row in the table, double-click in a cell, and type to enter a new value.
8. When you are done, press “*Save*”. The point should change colors to reflect that it has been updated.

### **The Workflow :**

When you open the web interface, you will see a map view with aerial imagery, municipal divisions, and a field of points. At higher zoom levels, you will see  $\frac{1}{4}$ - $\frac{1}{4}$  section boundaries appear as well.

We will be performing the well points examination in batches, focusing first on well points that have positional info at the  $\frac{1}{4}$ - $\frac{1}{4}$  section level. If we are productive, toward the end of the night we may move on to another batch of points.

The map view will automatically be filtered to show only points which are within the current working batch. We will assign volunteers to regions based on municipal divisions.

Volunteers will be asked to examine each point in their assigned region and follow these steps:

**1. Is there only one visible house or building site within the  $\frac{1}{4}$ - $\frac{1}{4}$  section?**

- If yes, move the point to this house.

**2. Enter a value into the attribute field “*check*” based on the following:**

- If you have only located one house within the  $\frac{1}{4}$ - $\frac{1}{4}$  section, enter “**A**”.
- If you have located multiple houses or other building sites within the  $\frac{1}{4}$ - $\frac{1}{4}$  section, enter “**B**”.

**3. Enter an ‘X’ into the attribute field “*fixed*”.**

**4. Click “Save”.**