

Determining Land Ownership Based on Geometry

There is a specific business in my hometown in Montana, called onX, that I aspire to work for in the near future. Before leaving Montana for this program, I met with the Director of Engineering to introduce myself. At the end of the meeting they agreed to float relevant project ideas to me while I was away so I could build a portfolio for them over the next two years. I inquired for a suggestion to use for this course and the most interesting and realizable option I received was “Land ownership based on geometry: federal, state, city, private. For example, block management has a very distinct pattern”.

OnX makes a GPS mapping tool for hunters and outdoorsman. One of the many features available is administrative GIS layering, where the user can source what type of land they are in based on their location. According to the folks at onX, two of their biggest challenges with this feature relate to data integration and data resolution. In order to build these layers, the onX team has to source GIS data from an extraordinary number of different sources, ranging from federal to municipal management, across the entire country. Often two given datasets are too disparate to be easily merged.

A possible solution to this data integration problem is to build a classification model to predict the type of land (in this case the level of land ownership) based on the shape of the administrative parcel defining it. For example, private and block management land typically have a more box-like shape because they’re defined by arbitrary human decision-making. Whereas the shape of other ownership types like National Forests (belonging to the Federal Government) are defined by aspects of the landscape itself and therefore have more ambiguous shapes in general.

I do not have data sources ready at this time because I did not receive these suggestions from onX until March 3rd, the day before this proposal is due. If onX does not provide me with the data in the next few days, I’ll be able to source it myself. I have extensive GIS experience and am very familiar locating and using this type of data. Typically, it’s accessible through a municipal, state, or federal GIS portal. Presumably I will be selecting a study area to focus on for this project – most likely somewhere in Montana.

I will be working on this project alone and will assume responsibility for all aspects of its completion.