

Image 1: Housing Located in Floodzones

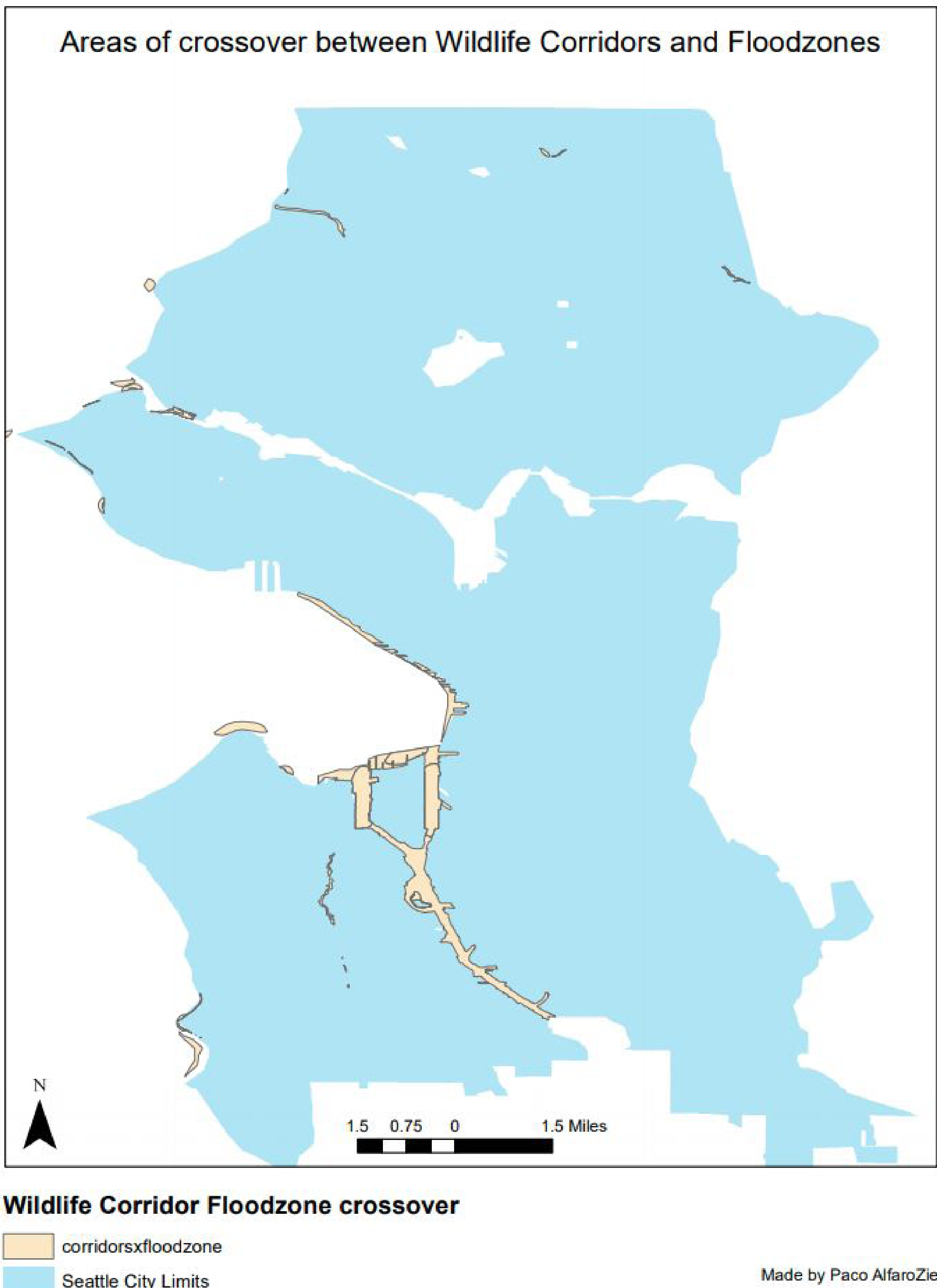


Image 2: Wildlife corridors in Floodzones

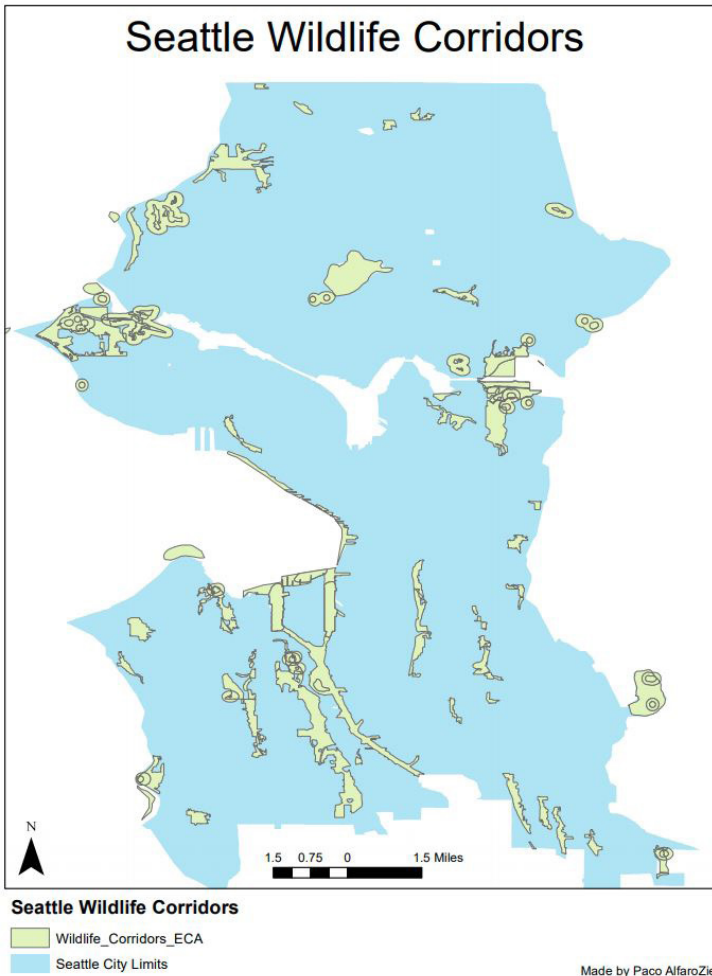


Image 3: Wildlife Corridors

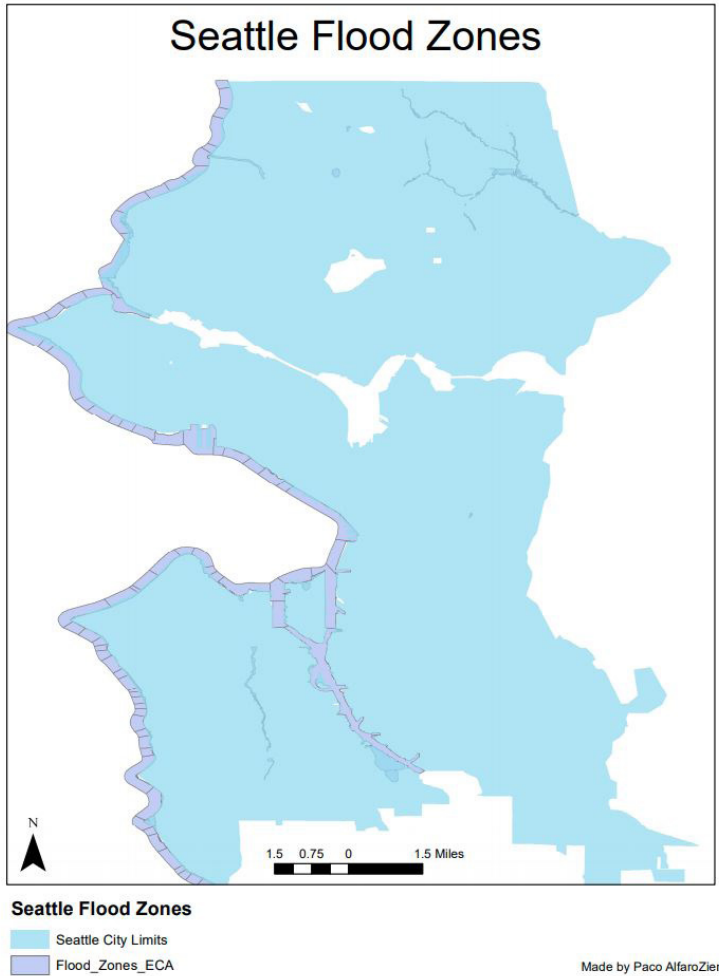


Image 4: Floodzones

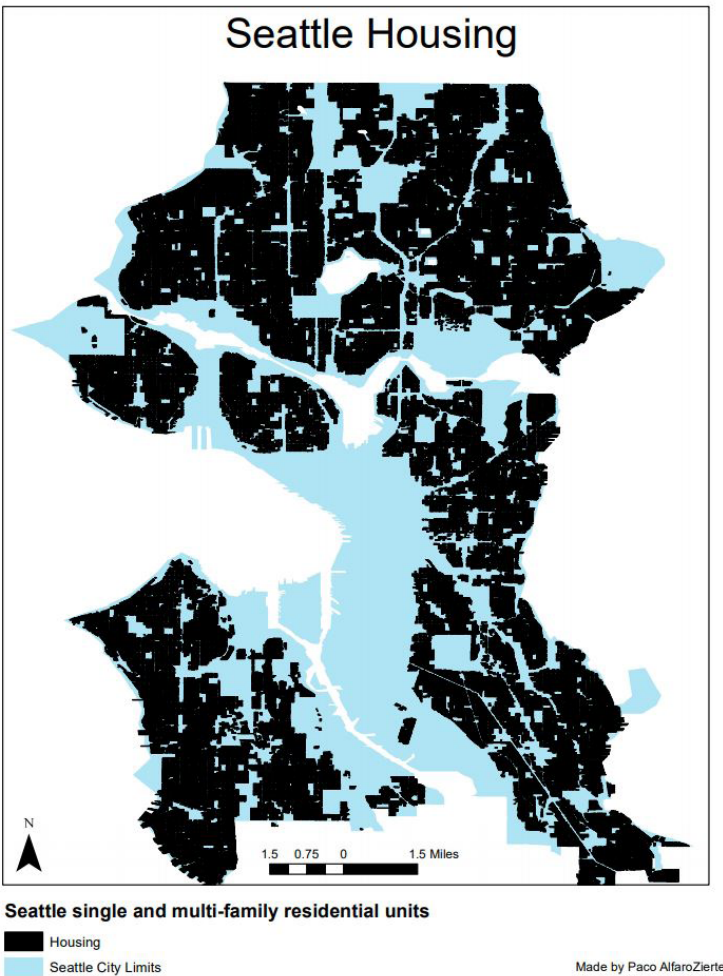


Image 5: Residential Housing

## Background

In this project, I looked at ArcGIS data on the city of Seattle. Specifically, I looked at ArcGIS data on wildlife corridors, flood zones, and single and multi family residential parcels located within the boundaries of Seattle. I planned to use this data to see the flood risk to animal habitat and compare it to the potential amount of damage that could be done to human residences. I ultimately Hypothesized that there is a greater amount of potential monetary damage to animal habitats, as opposed to human property.

## Methodology

The specific methodology I used to calculate land value was made possible due to a wide variety of sources. Firstly, I was able to access City of Seattle ArcGIS data on flood zones, wildlife corridors, and residential housing units. This can be seen in the three maps immediately above. I was then able to overlay this data to show mehousing units within a floodzone, and wildlife corridors within a floodzone. I then took these two maps, shown in Image 1 and 2, and used the King County Residential property assessment in order to quantify the value of the housing units in the flood zone. The way King County quantifies this is by This value is determined by analyzing sales of comparable bare land, and combining that data with data from both a market value approach, which determines total market value based on size, year built, quality of construction, and a cost value approach, which sets the value based on what it would cost to reproduce or replace the property, minus its depreciated value.

## Results

The results of this research proved my hypothesis to be correct. This means that the monetary value of land that consists of wildlife corridors in a floodzone is greater than the value of residential housing units in a floodzone. By calculating the land value of the regions shown in Image 1 and 2, I was able to determine that the land value of residential housing units within a flood zone add up to an estimated average of \$4,347,200 USD. While this may seem like a large amount, the land value of wildlife corridors that intersect with a flood zone equates to an estimated average of \$6,275,600 USD. This shows a difference of \$1,928,400 USD, which can also be seen as a 31% increase in value.

## Takeaway

The biggest takeaway from this is obviously that there is a higher land value in sections of land where a wildlife corridor intersects with a flood zone, than there is in residential housing units in a flood zone. Other takeaways can include the fact that neglecting to take into account water based wildlife corridors can drastically affect how you might initially perceive data. This is due to the fact that a large portion of the flood zone wildlife corridors are along the harbor, and are actually corridors for marine life, as opposed to terrestrial life as I initially believed it would be categorized as. All in all, even though my hypothesis was incorrect, I found this subject matter incredibly interesting and I will absolutely make a point of it to investigate further.

## References

Residential property assessments. (n.d.). Retrieved December 01, 2020, from <https://www.kingcounty.gov/depts/assessor/PropertyTaxAssessments/ResidentialPTA.aspx>

Floodplain maps. (n.d.). Retrieved December 01, 2020, from <https://www.kingcounty.gov/services/environment/water-and-land/flooding/maps.aspx>

ACS: Median Value (Dollars) / acs b25077 median-value. (n.d.). Retrieved December 01, 2020, from <https://gis-kingcounty.opendata.arcgis.com/data-sets/acs-median-value-dollars-acb25077-medianvalue/data?geometry=-123.630%2C47.448%2C-121.016%2C47.772>