

Background

- Land use change due to anthropogenic activity has altered more than 1/3 of Earth's land surface, impacting ecosystems and increasing pollutants.
- Wetlands support biodiversity, sequester carbon, and filter pollutants and excess nutrients from water and storm runoff.
- Trees and natural lands provide habitat for numerous species, sequester carbon, and reduce the pollutant ozone.
- Natural lands have intrinsic values such as spiritual and aesthetic benefits.
- Studies have shown the benefits of having green space in urban areas.
- Ecosystem services have provided a useful classification to assess an ecosystem's monetary value which is relevant when discussing land use change and management policy.
- The UCF campus has approximately 800 acres of natural lands and wetlands remaining. A comprehensive evaluation of the ecosystem services provided by these natural lands was essential.

Methods

Hedonic Analysis

- Map of UCF wetlands acquired and 2 neighborhoods chosen located on land.
- Standard home was identified in Zillow and 3 bed 2 bath homes were used.
- "Green" home located on wetland and "non green" home is not on wetland.
- Ginger Creek and Regency Parks contained 127 "green" homes and 93 "non green" homes.
- Addresses were plugged in Orange County Tax Appraiser to calculate market value and assessed values.

Water Quality

- 3 pairs of retention ponds and wetlands were sampled
- Two 16oz samples from each body of water sampled
- Both surface water and sediment samples were analyzed

Value of Natural Land's Trees

- To evaluate the economic value of UCF campus trees we used data found in a previous UFORE study.
- This study analyzed carbon sequestration amounts from trees on natural lands compared to the urban canopy.

Value Transfer

- We used a previous study conducted in New Jersey that studied the value of similar freshwater wetland ecosystems
- Value determined to be \$11,568 per acre in ecosystem services
- We then used this value and applied it to the area of wetlands that are a part of the natural lands on campus

IS IT WORTH IT?

The Value of UCF's Natural Lands

Terry Canizales, Suzanne Connor, Alia Court, Natalie Ocampo, Christian Pilato, Jennifer Schumacher

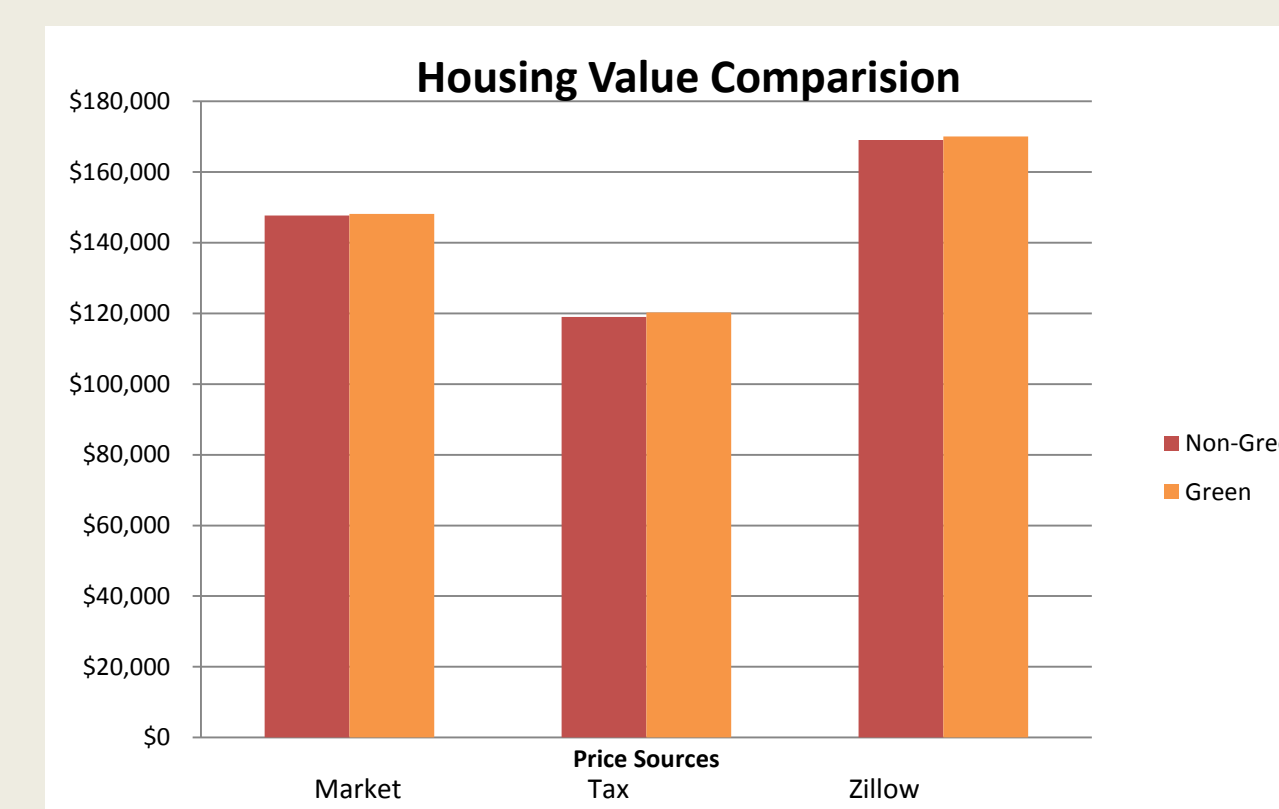
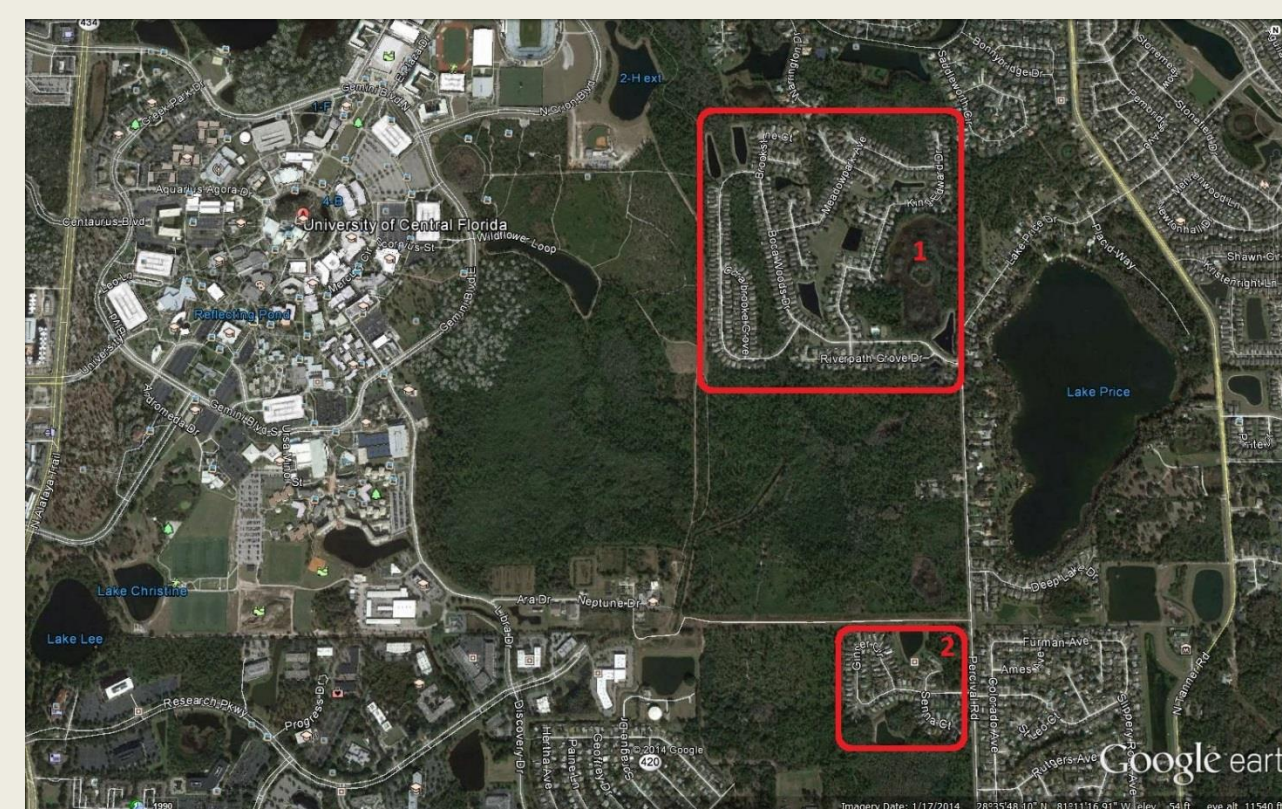
Research Objective

What is the value of the Natural Lands on the UCF campus?

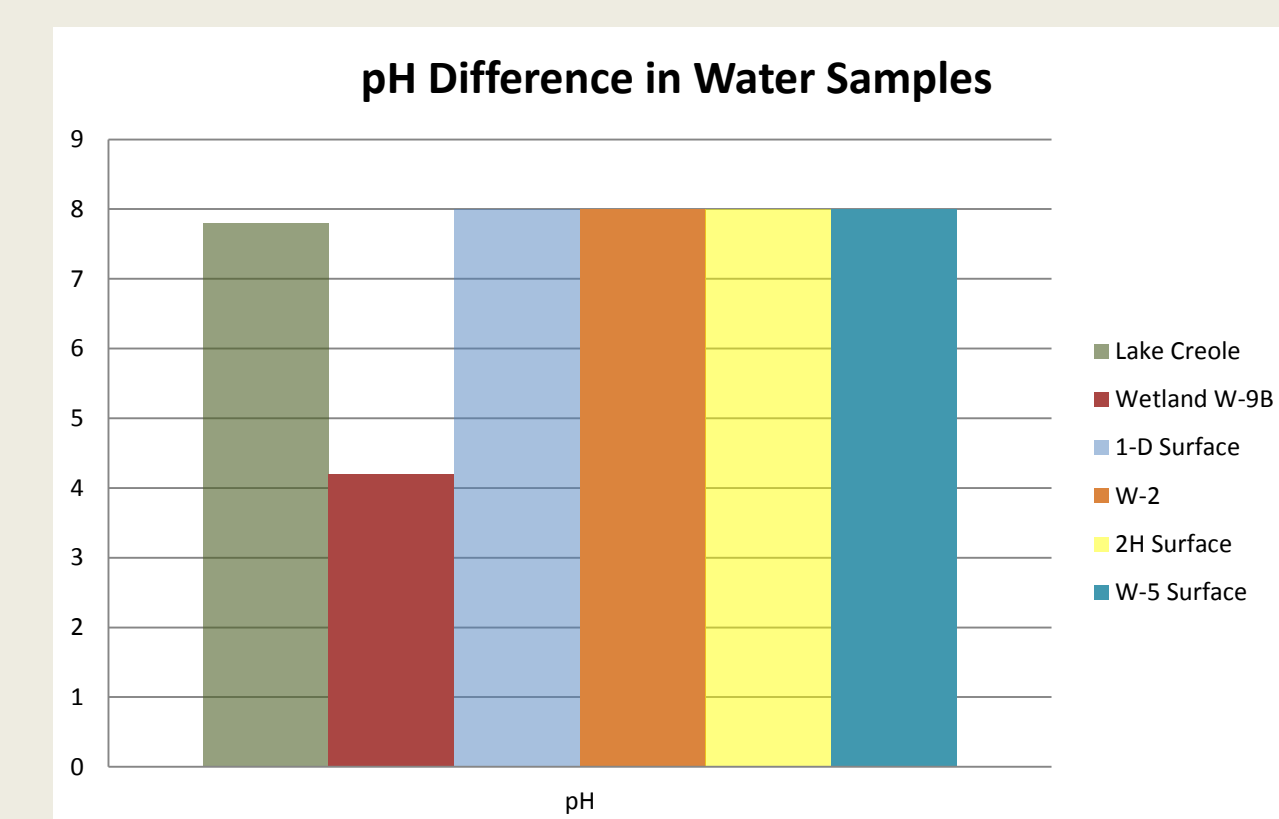
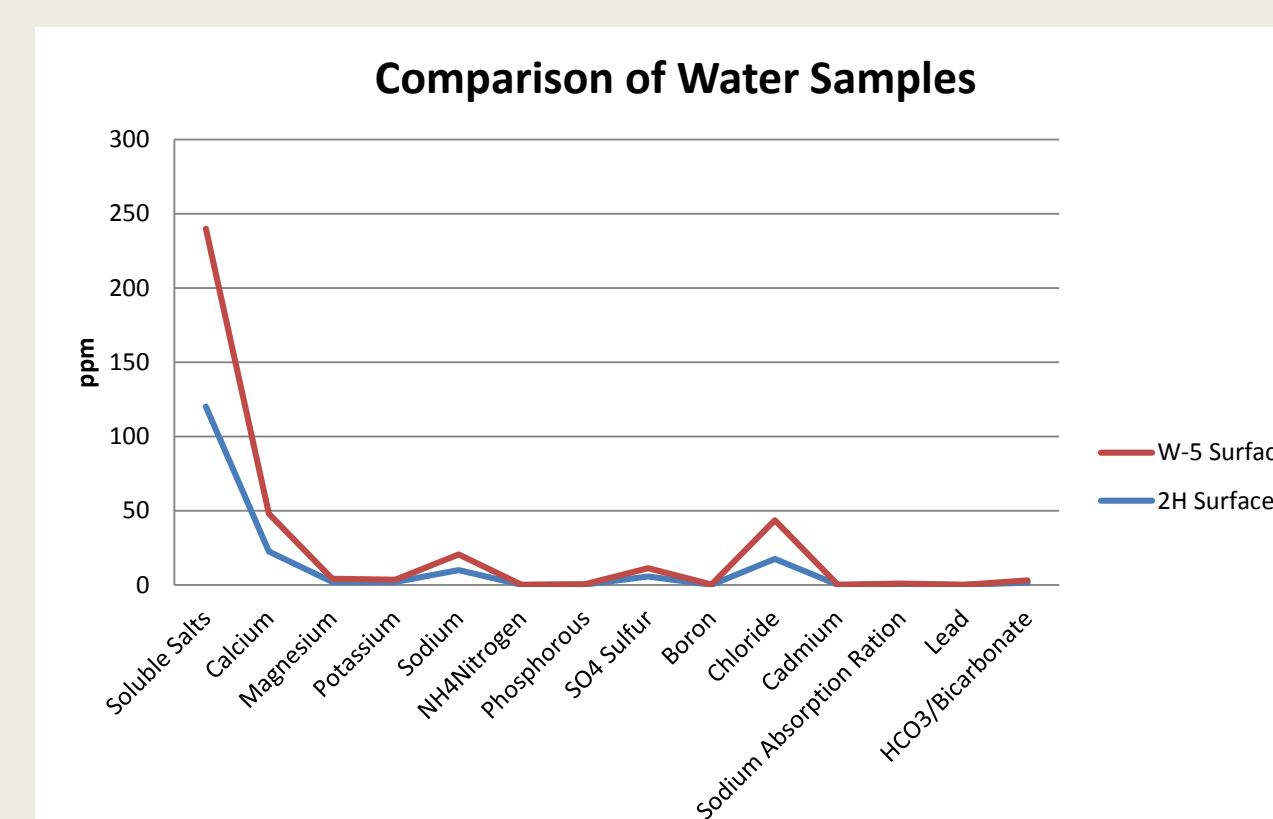
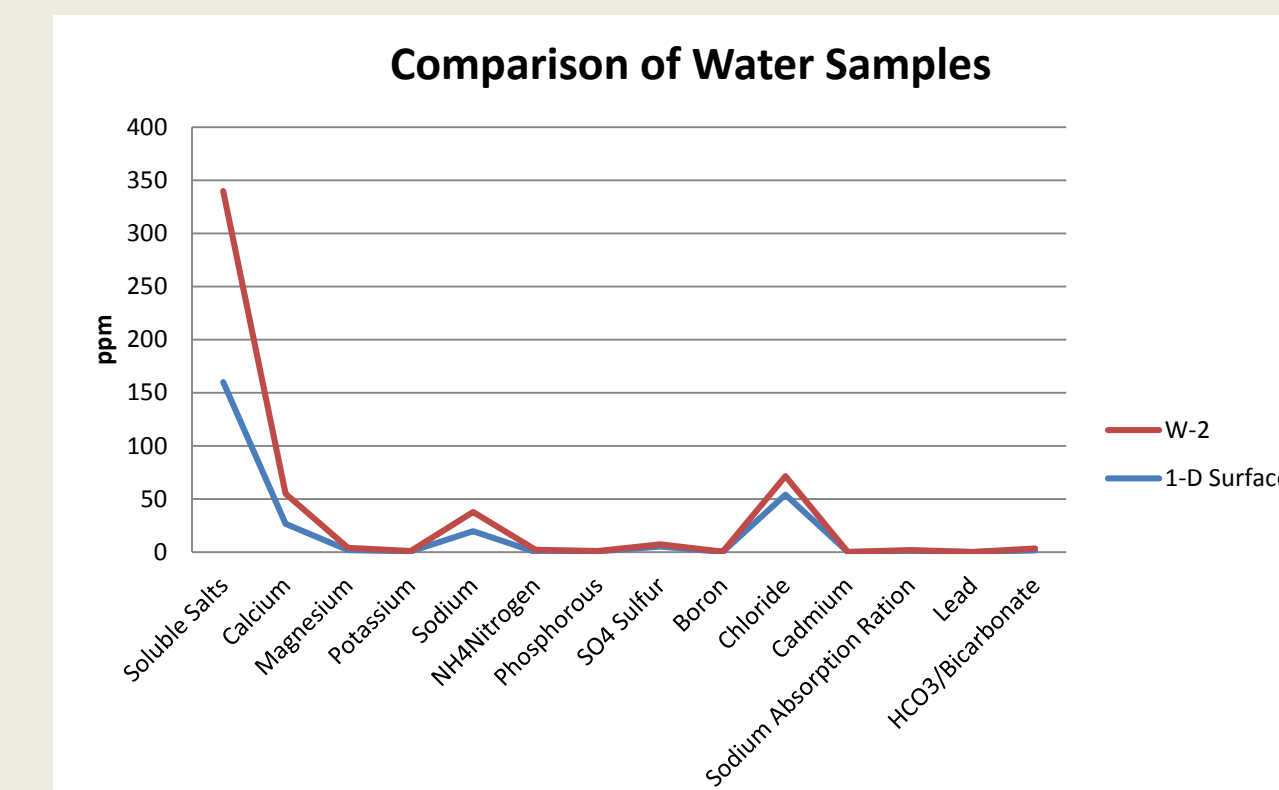
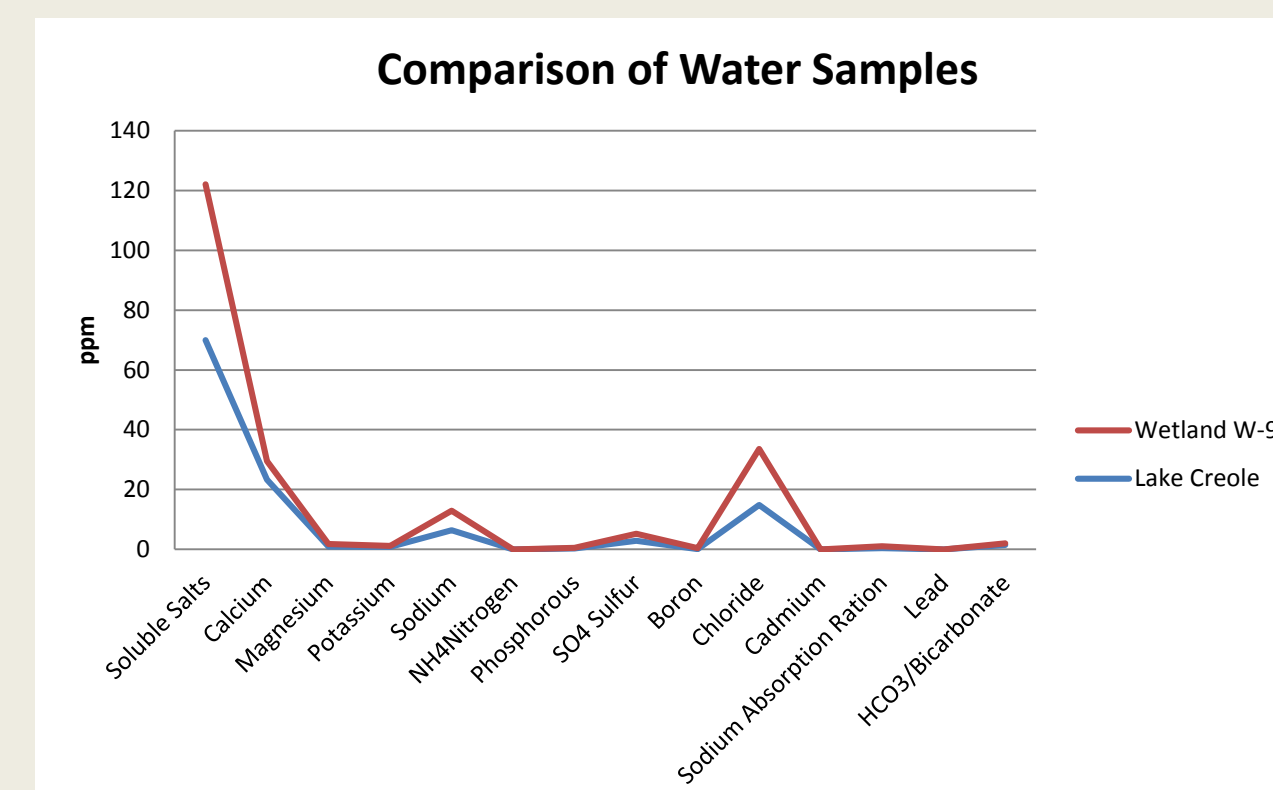
Results

Hedonic Analysis

Residential properties bordering the UCF natural lands are on average \$1,000 higher in market price than properties not adjacent to of green space in the same neighborhood.



Water Quality



Value of Natural Land's Trees

The Sample Total Carbon Sequestration/year for natural lands came out to .66 metric tons/year while the urban canopy sequestered .46 metric tons/year. The value of the sampled UCF trees came out to \$24,309 for natural land.

Value Transfer

With the use of the data collected from a previous study in New Jersey, we were able to calculate the value wetland areas of the University of Central Florida. We concluded UCF has a total of 626 acres of wetland areas, and used this value to calculate the total worth of UCF's natural wetlands.

References

- Farber, Stephen., Costanza, Robert., Childers, Daniel L., Erickson, Jon., Gross, Katherine, Grove, Morgan, et al. (2006). *Linking Ecology and Economics for Ecosystem Management*. Bioscience. 56: 121-133
- Vitousek, Peter M., Mooney, Harold A., Lubchenco, Jane., Melillo, Jerry M. (1997). Human Domination of Earth's Ecosystems. *Science*. 277:494-499.
- Zedler, Joy B. & Kercher, Suzanne. 2005. Wetland Resources: Status, Trends, Ecosystem Services, and Restorability. *Annual Review of Environment and Resources*. 30:39-74.

Conclusion

Hedonic Analysis

- The multitude of ecosystem services provided by natural lands such as those found on the UCF campus directly contribute to higher property values for homes close in proximity to natural areas
- The increase in property values is determined to be the consumers willingness to pay for green space and is representative of the value of natural lands
- We suggest future studies analyzing difference in prices as houses are chosen from locations farther remove from UCF's natural lands will have greater differences in price

Water Quality

- No significant difference was seen between retention ponds and wetland systems in regards to water quality.
- Additional sample points could help determine difference in nutrient composition

Value of Natural Lands Trees

- This amount of CO2 sequestration is equivalent to 555,498 gallons of gas, 11,523 barrels of oil, or 972 passenger cars annually.
- The UFORE study was able to conclude that pollution removal by campus trees translates to a total of \$174,129.46 in health care savings.

Value Transfer

- UCF wetlands estimated value = \$7,242,609, based on the total acreage.
- This takes into account the ecosystem services that were valued in previous studies.
- Providing an economic value to the UCF wetlands services may help justify the protection of the wetlands.

