THE VALUE OF LANDSCAPE AMENITIES:

Contrasting Feature Proximity and View

Presented by:
Thomas Dudley

HEDONICS, GIS

- **Hedonics-** a revealed preference method of estimating economic value, decomposes the item being researched into its constituent characteristics, and obtains estimates of the contributory value of each characteristics.
- A common application of hedonics is for quantifying the effects of features on home prices
- Typical environmental variables: distance to parks, distance to lakes, tree coverage with a set distance
- **Geographic Information Systems (GIS)-** systems designed to capture, store, manipulate, analyze, manage, and present all types of geographical data.

VARIABLE CREATION

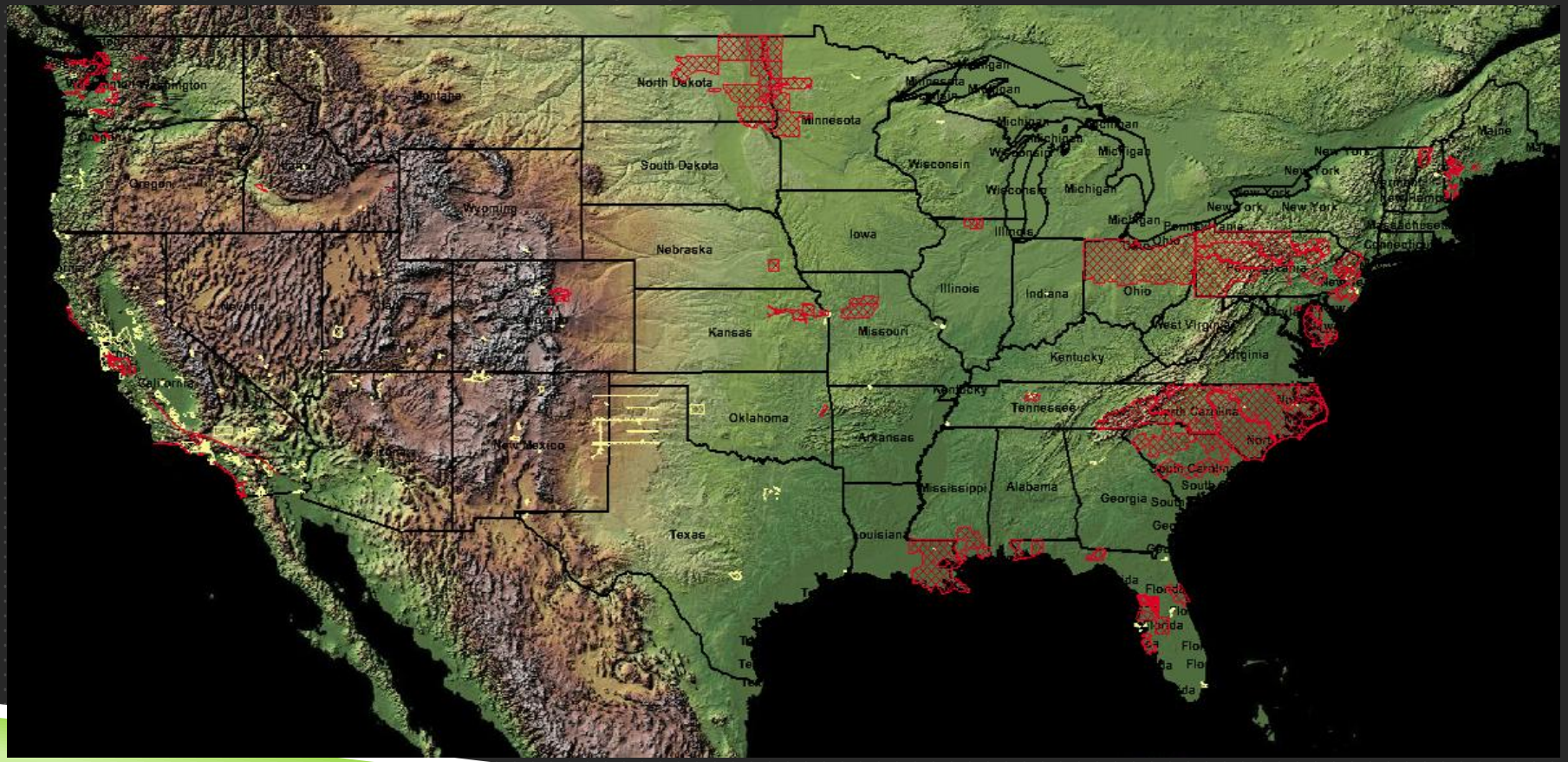
- Variables derived in a way that their interpretation matches that of the phenomenon they intend to describe
- For creating variables describing landscape around homes, proximity of these features may not be most appropriate, if aesthetic benefits are the primary concern
- Might be worth investigation
- How could view variables be incorporated?

VIEWSHED

- Viewshed- an area of land, water, or other environmental element that is visible to the human eye from a fixed vantage point.
- Viewshed is also the name of the GIS procedure for estimating these areas in view

LIDAR

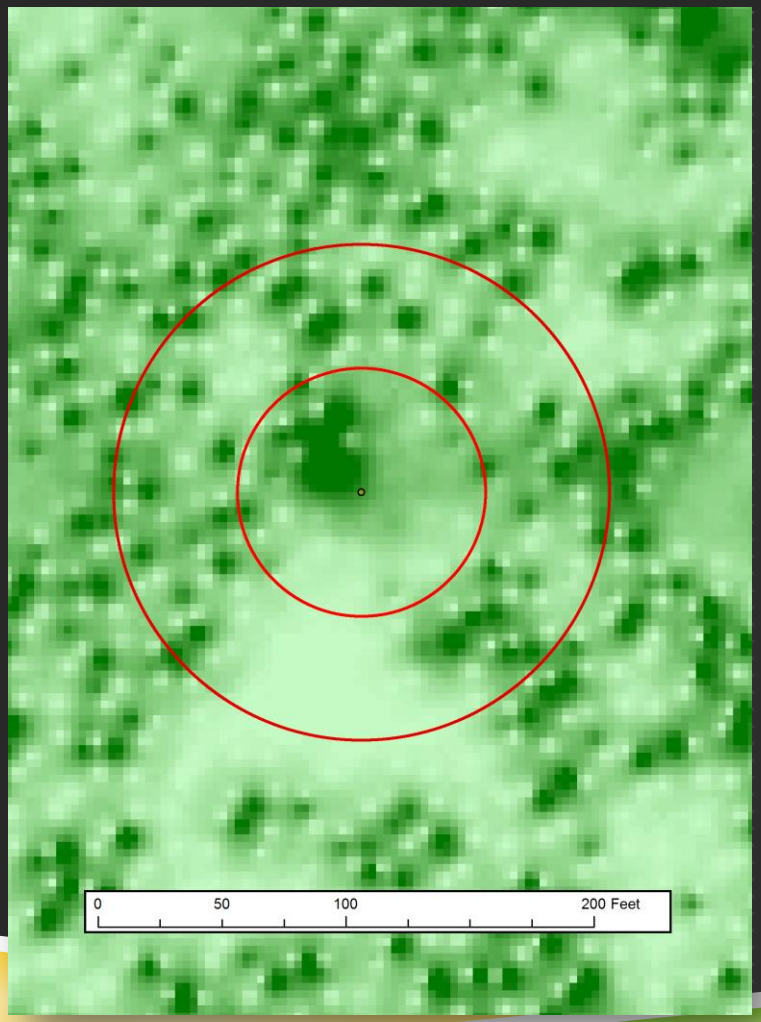
- Light Detection and Ranging- high resolution, laser-derived terrain data



Variable Construction

Orthographic Image

Vegetation and Structure Height



Case Study

- Wake County, NC, mostly Raleigh
- 16,000 observations
- Ordinary least-squares regression
- Variables: House Square-Footage, Property Size, Age, Number of Bathrooms, Distances to RTP and Downtown Raleigh
- Yearly time fixed effects

Variables

Ex: View Variables

Variable Name	Description
V_close_short	Vegetation in view shorter than 15 feet tall and within 50 feet of the home
V_med_short	Vegetation in view shorter than 15 feet tall, within 50 feet of the home
V_far_short	Vegetation in view shorter than 15 feet tall, farther than 100 feet from the home
V_close_med	Vegetation in view between 15 and 30 feet tall and within 50 feet of the home
V_med_med	Vegetation in view between 15 and 30 feet tall, between 50 and 100 feet of the home
V_far_med	Vegetation in view between 15 and 30 feet tall, farther than 100 feet from the home
V_Tall_0_10	Vegetation taller than 50 feet, in view and closer than 10 feet
V_Tall_10_25	Vegetation taller than 50 feet, in view and between 10 and 25 feet
V_Tall_25_50	Vegetation taller than 50 feet, in view and between 25 and 50 feet
V_Tall_50_100	Vegetation taller than 50 feet, in view and between 50 and 100 feet
Streets	Streets (Square Feet)
Buildings	Buildings (Square Feet)
Hydro	Hydrology (Square Feet)

Regression Results

The most immediate result:

- The sign, magnitude, and significance of the water features.
- The view of water for a typical home corresponds to a 0.86 % or a $2,420 increase in property value. (8 cells in view)
- Weakness of previous studies
- Also, for the same features, the absolute value of its betas decrease with distance

Results / Conclusion

Views of Vegetation:

- Generally (–) value for close vegetation, (+) for farther, especially, tall vegetation
  - One additional short tree within 50 feet of the home corresponds to between a $290 and $546 decrease in property value.
  - One additional tall tree greater than 100 feet from the home corresponds to between a $546 and $728 increase in property value.
  - Several corresponding terms distinct at the10% level
- View and proximity measures create variables that can be distinct, and view variables may be worth considering for capturing the aesthetic value of landscape features.

THANK YOU