

Socio-environmental analysis of landscape tree choices in Cache Valley, Utah



Emily Jorgensen, Brigham Young University

Research Mentors: Dr. Mark W. Brunson and Elisabeth York, Utah State University



Goals

- Determine whether trends in tree species choice exist and/or are related to home characteristics.
- Analyze existing trends between property ages, current property values, and tree species in order to better understand the water demand and conservation associated to each property.
- Conclude if existing trends are likely to influence the overall landscape water demand of a particular property and thereby affect water conservation efforts statewide.

Research Methods

- Randomly selected 30 blocks within Cache Valley cities of Logan, River Heights and Providence, Utah (Fig. 1).
- Surveyed each block, recording each street address, and identified species of every tree located in the front yards and park strips (between sidewalk and street).
- Accessed publicly available property age and current market value data from Cache County Assessor's office.
- Utilized statistical software in order to discern and analyze trends between sampled properties and associated tree species.

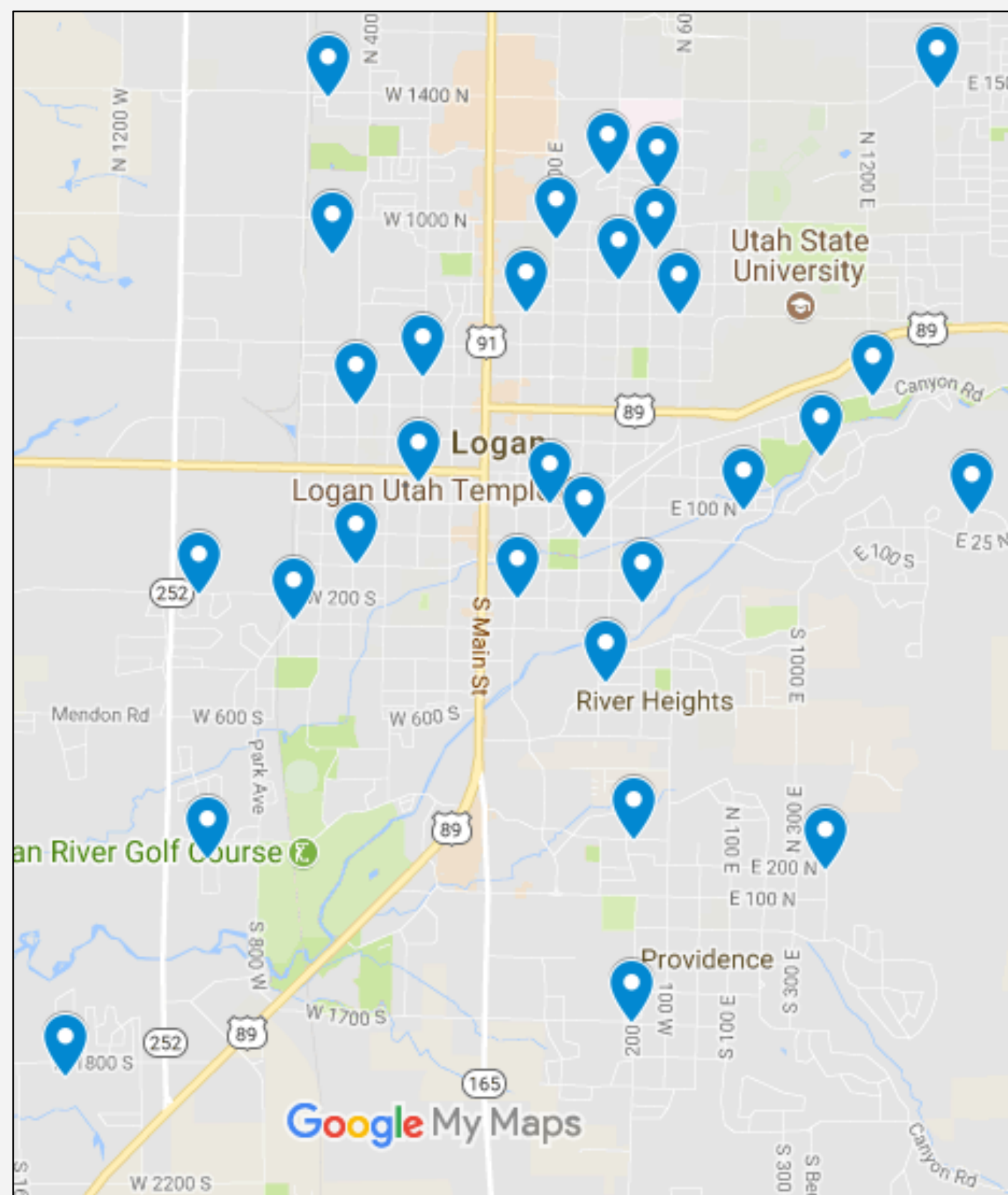


Figure 1. Map of the sampling blocks within Cache Valley

Results

Age Cohort 1:
<1920
N=118 homes
Age Cohort 2:
1921-1950
N=134 homes
Age Cohort 3:
1951-1990
N=196 homes
Age Cohort 4:
>1991
N=244 homes

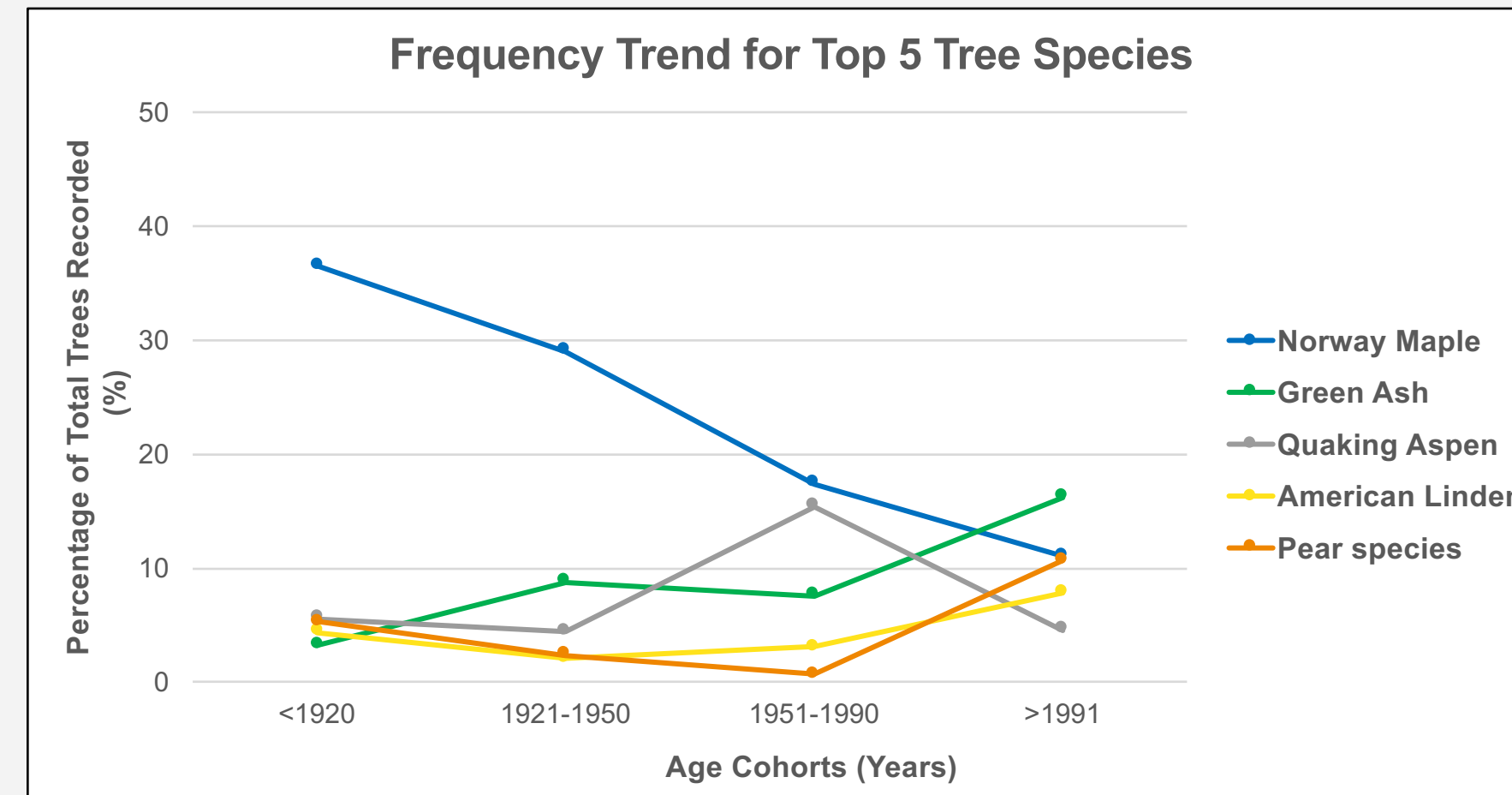


Figure 2. Top 5 most popular trees

- Age cohorts were determined by analyzing the distribution of housing development across the sampled areas of the collected data.
- The trend depicted in Figure 2 represented the predominant choice of Norway Maple in the past and more recent popularity of Green Ash.

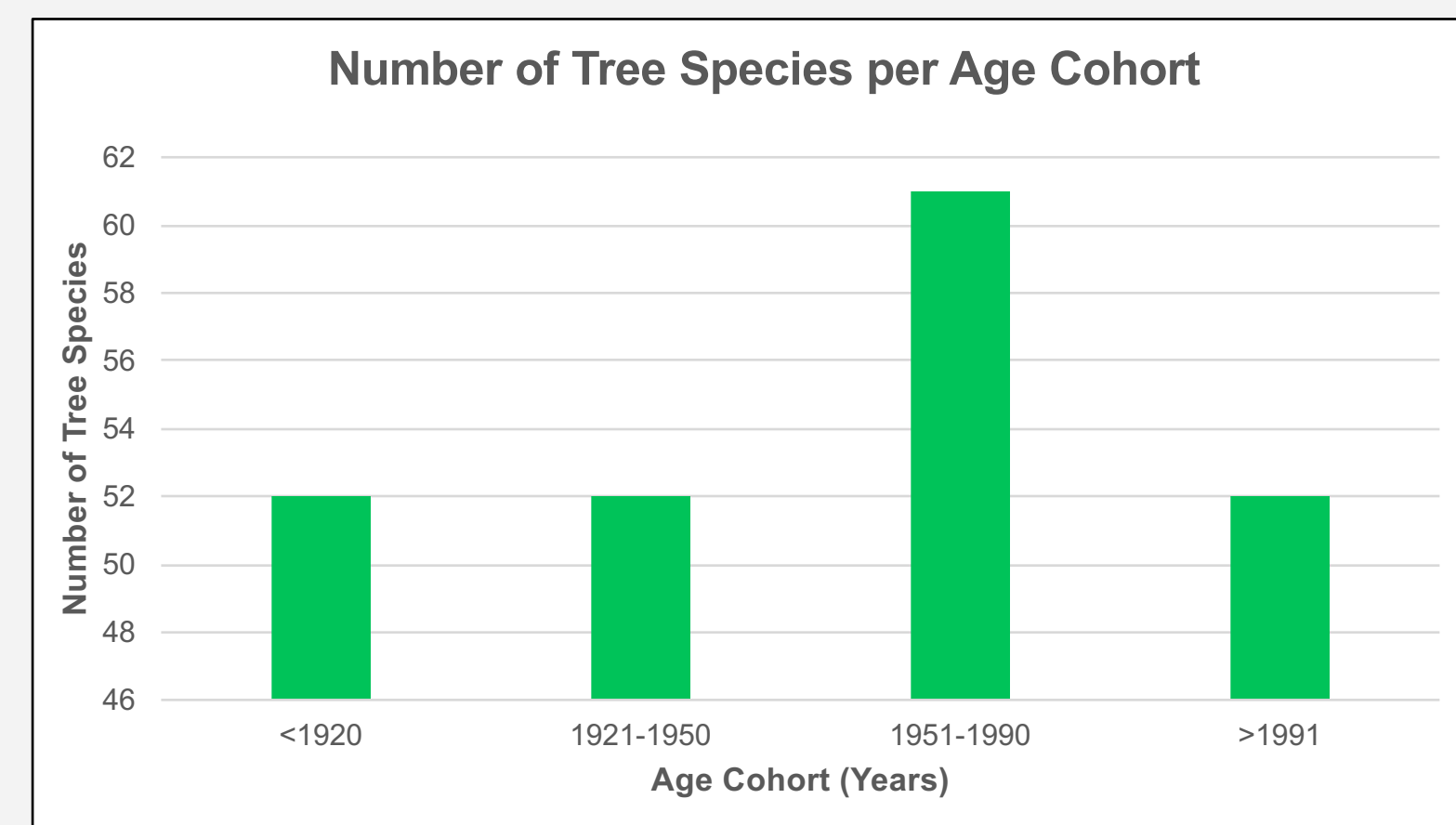


Figure 3. Tree Species per age cohort

- The number of trees sampled within each age cohort followed a similar pattern. The amount of trees recorded in age cohort 3 (n=593) experienced an increase, as shown in Figure 4.

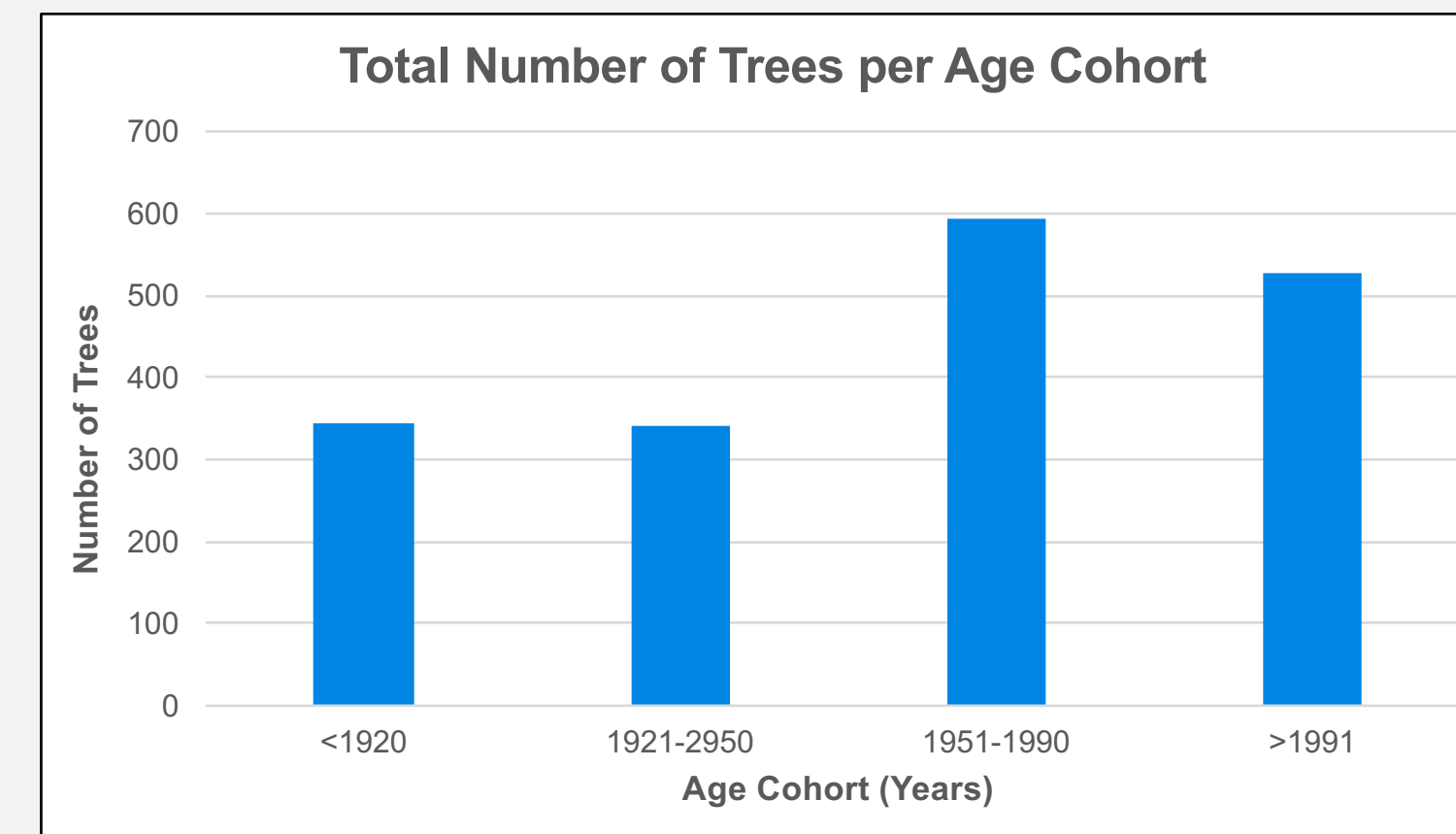


Figure 4. Total number of trees per age cohort

Discussion

- Trees species selection for properties and city landscaping have changed over time due to varying societal preferences.
- We had predicted that fewer trees would be present on older properties. However, the results suggest that trends are leading toward planting of fewer trees and species than 25-65 years ago.
- No statistically significant correlation between number of trees per yard and the current value of a property existed, $r=0.037$.



Figure 5. Water Implications



Small trees → low water demand for trees & high water demand for grass

VS

Large/Canopy trees → high water demand for trees & low water demand for grass

- Contrasting relationships between tree size and the associated water implications in Figure 5 explains that a trend toward smaller flowering fruit species (Fig. 2) may lead to increased landscape water use overall.
- By understanding the correlation between tree species and water demand, society can become aware of their property's water needs.



emjorgensen5@gmail.com

iFELLOWS UNDERGRADUATE RESEARCH PROGRAM



<http://iutahepscor.org>

