

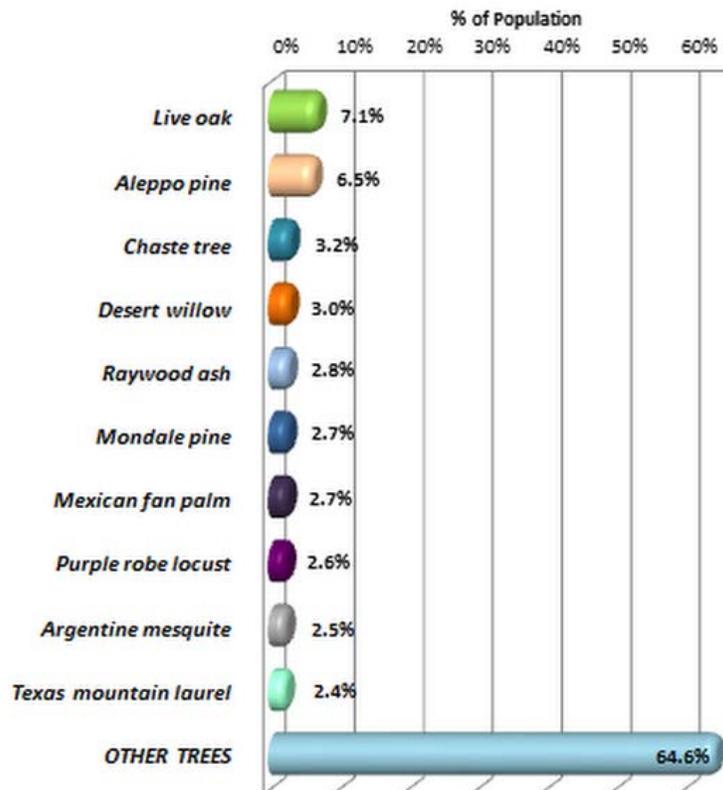
University of Nevada, Las Vegas



Tree Inventory Results

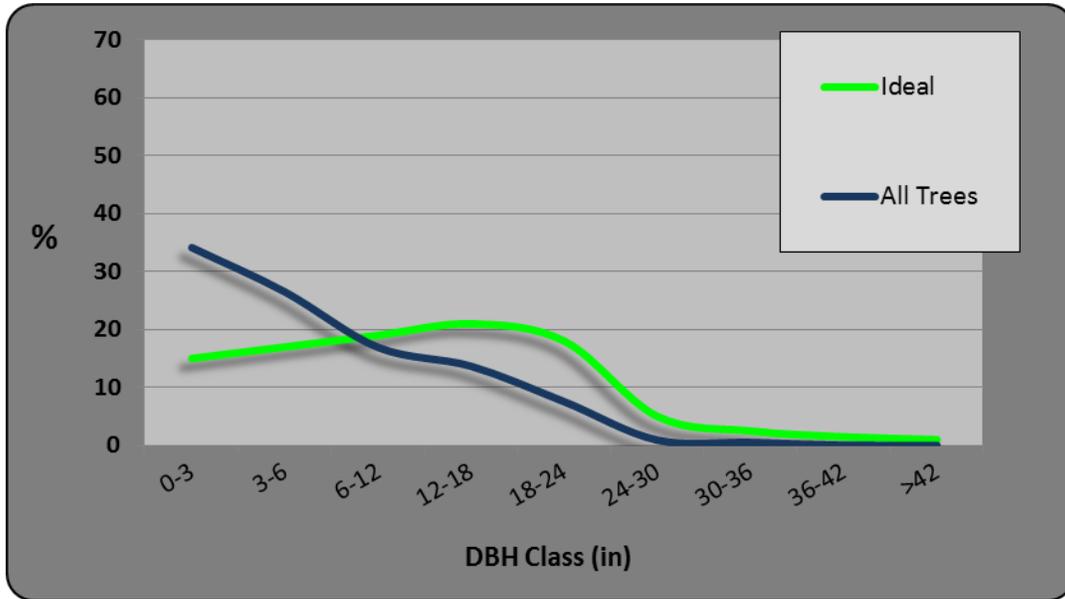
Tree Population – There were 3,220 trees inventoried on the UNLV campus as part of the Clark County Tree Inventory Project.

Tree Species - There were 185 unique tree species identified in the inventory. The predominant tree species are *Quercus virginiana* (Southern live oak, 7.1%), and *Pinus halepensis* (Aleppo pine, 6.5%). The chart below represents the population distribution of the top 10 species on the UNLV campus

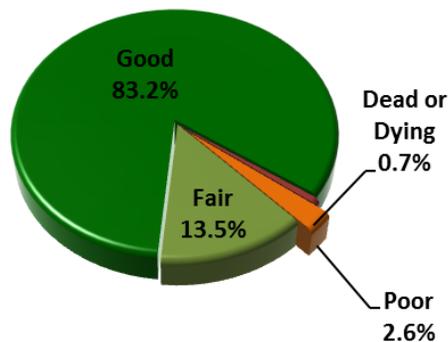


Tree Size and Age Class – The age of the urban forest can be approximated by considering the DBH* range of the overall tree population. On the UNLV Campus, 61% of trees measure between 0 to 6 inches DBH and 77% of the trees are less than 12 inches DBH. In comparison to what is considered an ideal population distribution, the campus tree population is young overall, with few large trees. It is important to recognize that this younger, smaller, population can be somewhat reflective of the climate and smaller stature of the trees that make up the UNLV campus tree population. The chart below compares the UNLV campus population distribution to an ideal distribution.

**DBH is diameter of the tree trunk at breast height, measured at 4'6" above the ground*



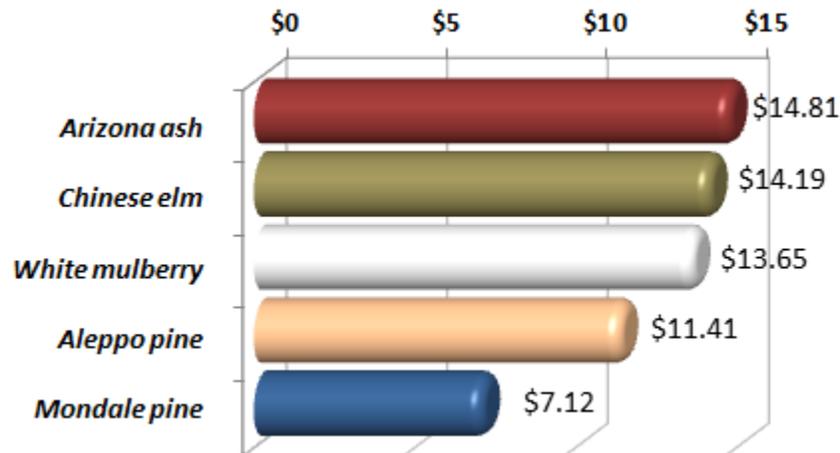
Tree condition - Each inventoried tree was rated for overall condition, including consideration for structure, foliage, and the root collar. When trees are performing at their peak, the benefits they provide are maximized. The inventory found 83% of UNLV's trees in good condition and less than 14% in fair condition. Just 3% of the population was determined to be in poor, dead, or dying condition.



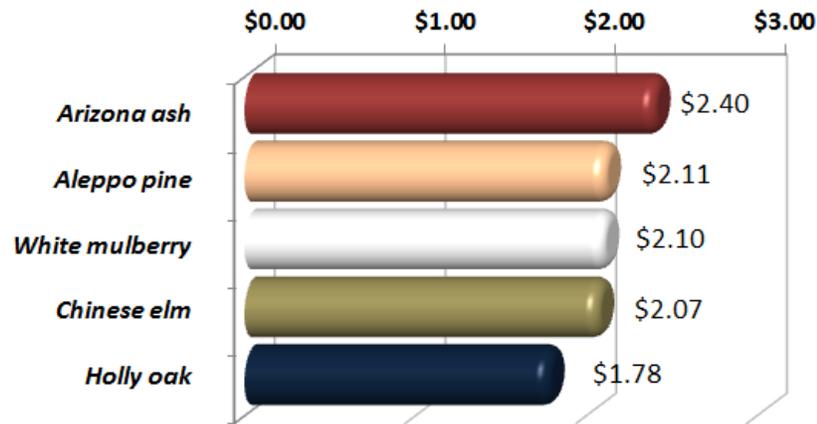
Replacement Value – The community forest is a public asset that, when properly cared for, has the potential to appreciate in value as the trees mature over time. Replacement value reflects the current population numbers, stature, placement and condition. To replace the UNLV campus' current inventoried tree population of 3,220 trees with trees of similar size, species, and condition would cost nearly **\$4.1 million**. The average replacement value per tree is \$3,986.

Urban Forest Benefits

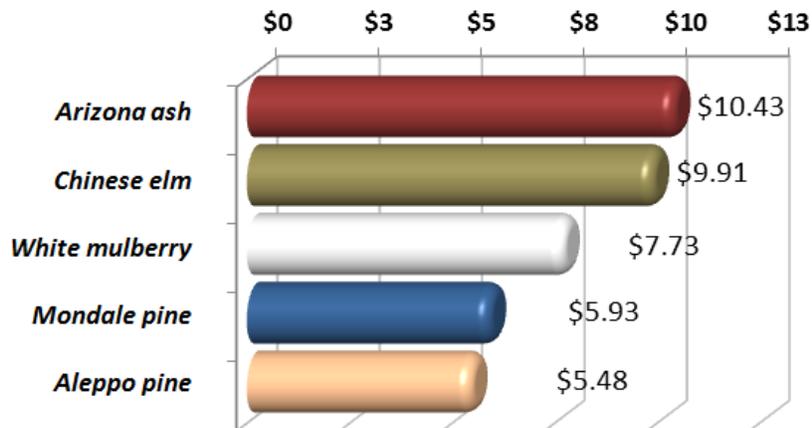
Electricity and Natural Gas Reduction - Electricity and natural gas saved annually on the UNLV campus from both the shading and climate effects of inventoried trees is equal to 182 MWh (valued at \$12,193) and 1,266 therms (\$817.41), for a total retail savings of approximately **\$13,011** and an **average of \$4.04 per tree**. The chart below shows the top five performing tree species in terms of energy savings on a per tree basis.



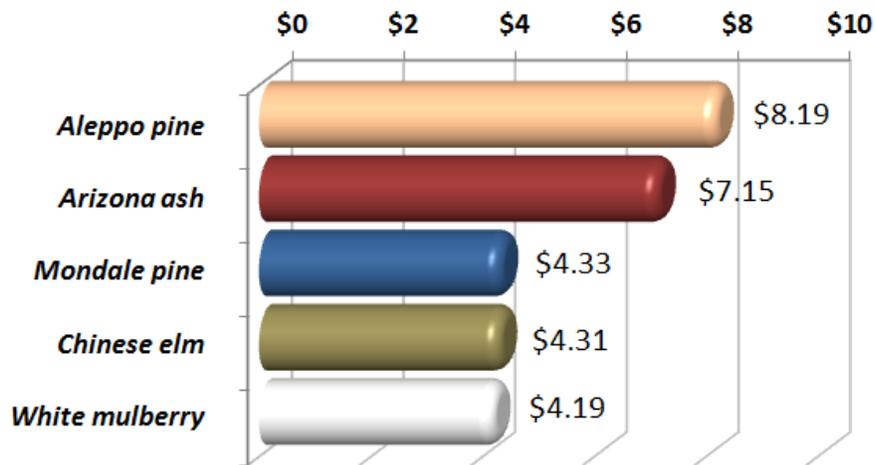
Sequestered Carbon Dioxide - To date, UNLV's urban forest has sequestered a total of 833 tons of carbon dioxide (CO₂) valued at \$12,494. Annually, this tree resource directly sequesters 73 tons of CO₂, valued at \$1,101, into woody and foliar biomass. When CO₂ emissions from tree decomposition and tree related maintenance activity along with the positive benefits of avoided CO₂ through a reduction in energy needs are considered, the campus trees provide an annual net reduction in atmospheric CO₂ of **156.7 tons, valued at \$2,350**, with an average of **\$0.73** per tree. The chart below shows the top five performing tree species in terms of CO₂ reduction on a per tree basis.



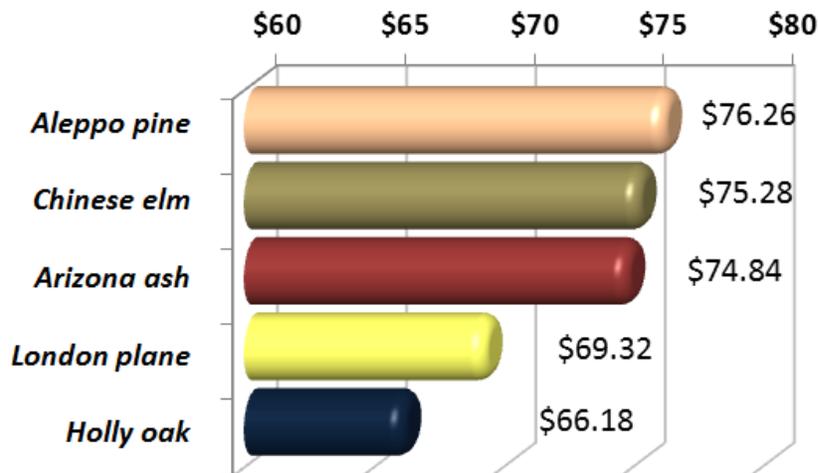
Net Air Quality Improvement - The net value of air pollutants removed, avoided, and released by UNLV's inventoried campus tree population is \$5,848 annually. The average net benefit per tree is \$1.82. The chart below shows the top five performing tree species in terms of net air quality improvements on a per tree basis.



Storm Water Runoff Reductions – UNLV's inventoried trees intercept 1,277,149 million gallons of stormwater annually for an average of 397 gallons per tree. The total annual value of this benefit to the University is \$6,130, an average of \$1.90 per tree. The chart below shows the top five performing tree species in terms of storm water benefits on a per tree basis.



Aesthetic, Property Value, and Socioeconomic Benefits - The total annual benefit associated with property value increases and socioeconomic benefits is \$88,695, an average of \$27.55 per tree. The chart below shows the top five performing tree species in terms of aesthetic and property value and socioeconomic benefits on a per tree basis.



Benefit Summary – The total estimated benefits provided by UNLV’s campus tree resource is \$116,035, a value of \$36.04 per tree and \$3.87 per student. These benefits are realized on an annual basis as follows:

- Electricity and Natural Gas Reduction - \$4.04 per tree
- Sequestered Carbon Dioxide - \$0.73 per tree
- Net Air Quality Improvements - \$1.82 per tree
- Storm Water Runoff Reduction - \$1.90 per tree
- Aesthetic, Property Value, and Socioeconomic Benefits - \$27.55 per tree
- Total Benefits - \$36.04 per tree

When the per tree values are calculated across the urban forest, UNLV receives the following in total annual benefits.

