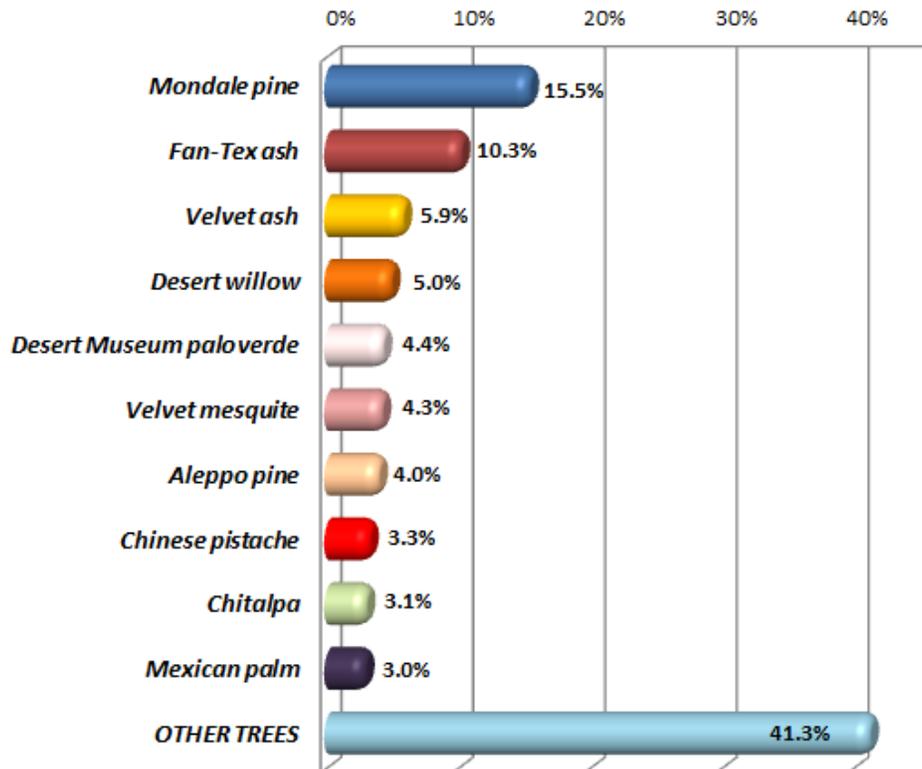# Clark County

Tree Inventory Results

Tree Population – There were 24,552 trees inventoried in Clark County parks as part of the Clark County Tree Inventory Project.

Tree Species - There were 119 unique tree species identified in the inventory. The predominant tree species are *Pinus eldarica* (Mondale pine, 15%), and *Fraxinus velutina* 'Fan-Tex' (Fan-Tex ash, 10%). The chart below represents the population distribution of the top 10 species in Clark County's urban forest.

| Species	Percentage
Mondale pine	15.5%
Fan-Tex ash	10.3%
Velvet ash	5.9%
Desert willow	5.0%
Desert Museum palo verde	4.4%
Velvet mesquite	4.3%
Aleppo pine	4.0%
Chinese pistache	3.3%
Chitalpa	3.1%
Mexican palm	3.0%
OTHER TREES	41.3%

Tree Size and Age Class – The age of the urban forest can by approximated by considering the DBH* range of the overall tree population. In Clark County, 60% of trees measure between 0 to 6 inches DBH and 88% of the trees are less than 12 inches DBH. In comparison to what is considered an ideal population distribution, the Clark County urban forest 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 Clark County urban forest. The chart below compares the Clark County population distribution to an ideal distribution.

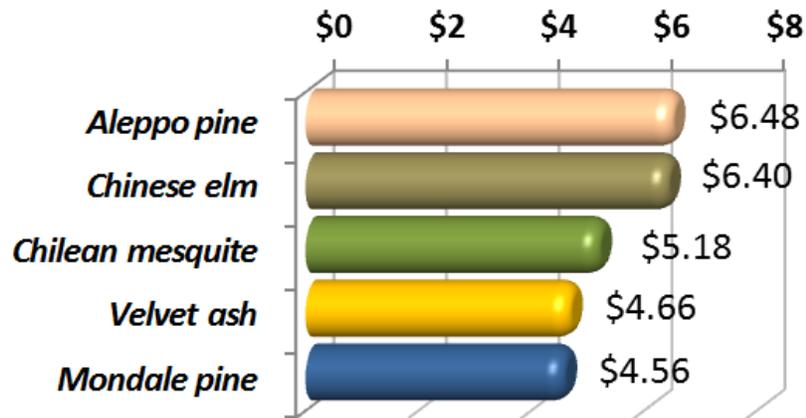*DBH is diameter of the tree trunk at breast height, measured at 4'6" above the ground*
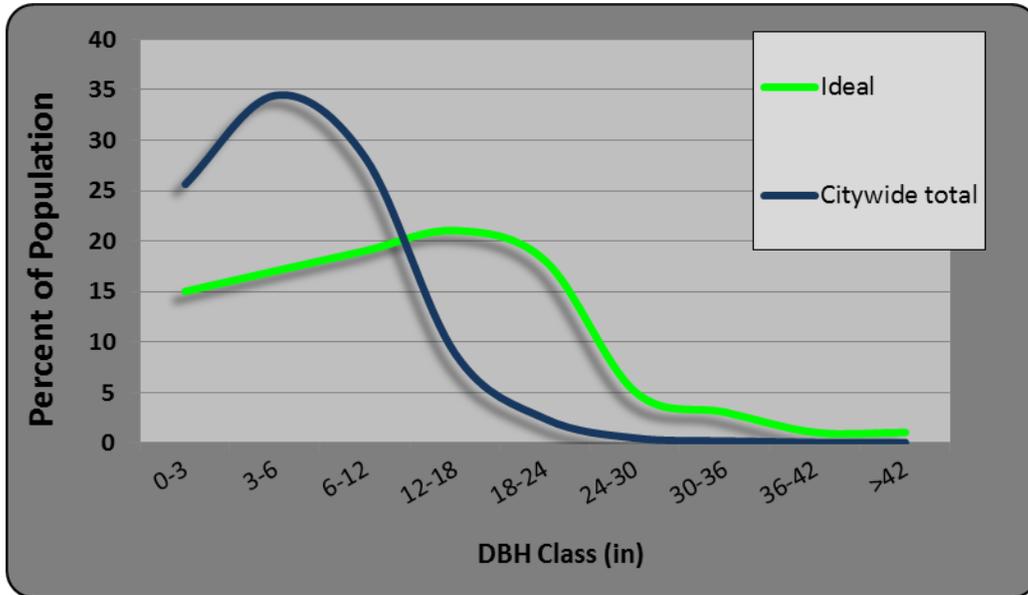
Tree condition - Each park tree was rated for overall condition, including consideration for structure, foliage, and the root collar. When trees are performing at their peak, the benefits they provide are maximized. The inventory found 39% of Clark County's trees in good condition and 50% in fair condition. Over 10% of the population was determined to be in poor condition or dead or dying.
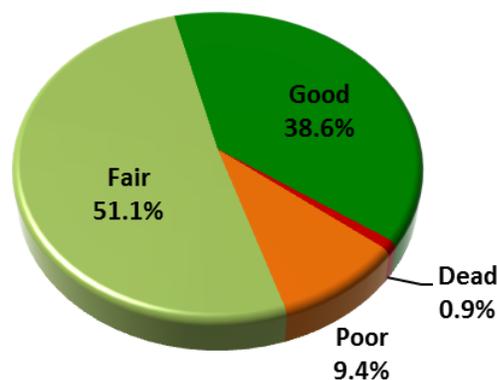
Replacement Value – The community forest is a public asset that, when properly cared for, has the potential to appreciate in value as the trees mature over time. Replacement value reflects the current population numbers, stature, placement and condition. To replace Clark County's current park tree population of 24,552 trees with trees of similar size, species, and condition would cost nearly **$61.2 million.** The average replacement value per tree is $2,491.
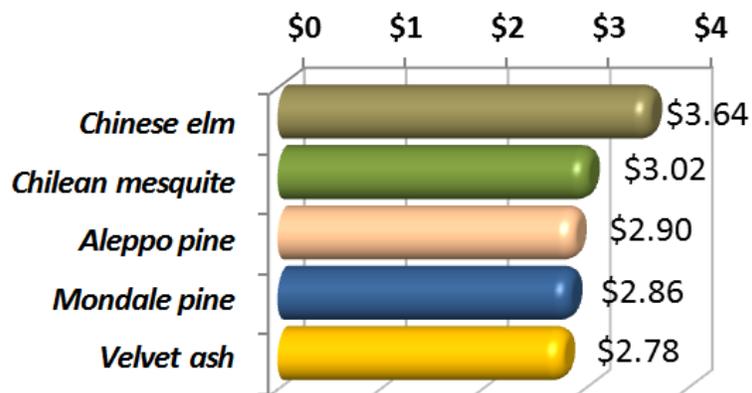
Urban Forest Benefits

Electricity and Natural Gas Reduction - Electricity and natural gas saved annually in Clark County from both the shading and climate effects of park trees is equal to 1,221 MWh (valued at $81,961) and 8,723 therms ($5,631), for a total retail savings of approximately **$87,592** and an **average of $3.57 per tree.** The chart below shows the top five performing tree species in terms of energy savings on a per tree basis.
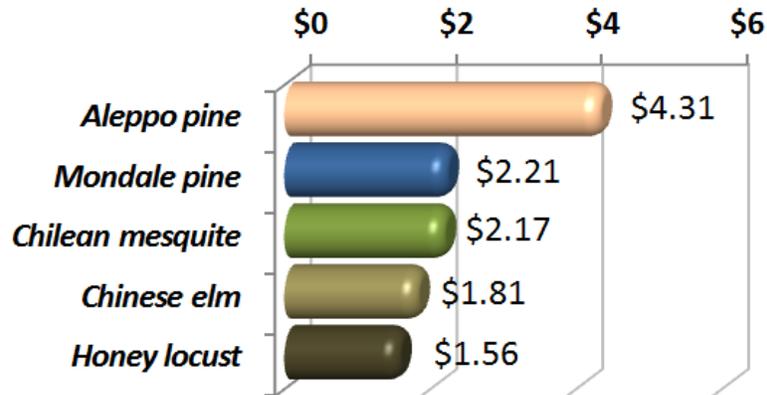
	$0	$2	$4	$6	$8
Aleppo pine					$6.48
Chinese elm					$6.40
Chilean mesquite				$5.18	
Velvet ash				$4.66	
Mondale pine				$4.56	

Sequestered Carbon Dioxide - To date, Clark County's park trees have sequestered a total of 3,804 tons of carbon dioxide (CO2) valued at $57,061. Annually, this tree resource directly sequesters 455 tons of CO2, valued at $6,828, into woody and foliar biomass. When CO_2 emissions from tree decomposition and tree related maintenance activity along with the positive benefits of avoided CO_2 through a reduction in energy needs are considered, Clark County's trees provide an annual net reduction in atmospheric CO_2 **1,029 tons, valued at $15,437** with an average of **$0.63** per tree. The chart below shows the top five performing tree species in terms of CO_2 reduction on a per tree basis.

	$0.00	$0.50	$1.00	$1.50

Aleppo pine $1.22
Chinese elm $0.94
Chilean mesquite $0.86
Velvet ash $0.85
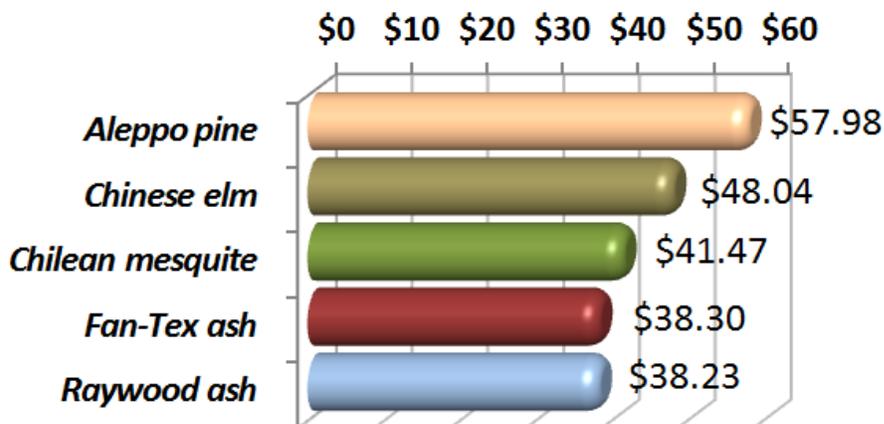**Chitalpa** $0.73

Net Air Quality Improvement - The net value of air pollutants removed, avoided, and released by Clark County's park tree population is $43,608 annually. The average net benefit per tree is $1.78. The chart below shows the top five performing tree species in terms of net air quality improvements on a per tree basis.

	$0	$1	$2	$3	$4

Chinese elm $3.64
Chilean mesquite $3.02
Aleppo pine $2.90
Mondale pine $2.86
Velvet ash $2.78

Storm Water Runoff Reductions - Clark County's park trees intercept 7,745,459 gallons of storm water annually for an average of 315 gallons per tree. The total value of this benefit to the County is $37,181, an average of $1.51 per tree. The chart below shows the top five performing tree species in terms of storm water benefits on a per tree basis.

	$0	$2	$4	$6
Aleppo pine			$4.31	
Mondale pine	$2.21			
Chilean mesquite	$2.17			
Chinese elm	$1.81			
Honey locust	$1.56			

Aesthetic, Property Value, and Socioeconomic Benefits - The total annual benefit associated with property value increases and socioeconomic benefits $650,791, an average of $26.51 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.

	$0	$10	$20	$30	$40	$50	$60
Aleppo pine							$57.98
Chinese elm						$48.04	
Chilean mesquite					$41.47		
Fan-Tex ash				$38.30			
Raywood ash				$38.23			

Benefit Summary – The total estimated benefits provided by Clark County's park tree resource is $834,609, a value of $33.99 per tree and $0.43 per capita. These benefits are realized on an annual basis as follows:

- Electricity and Natural Gas Reduction - $3.57 per tree
- Sequestered Carbon Dioxide - $0.63 per tree
- Net Air Quality Improvements - $1.78 per tree
- Storm Water Runoff Reduction - $1.51 per tree
- Aesthetic, Property Value, and Socioeconomic Benefits - $26.51 per tree
- Total Benefits - $33.99 per tree

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