MDC Resource Science

Missouri's 2010 Street Tree Inventory

Science Notes

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Information Need

MDC's Community Forestry Program advises, coordinates and facilitates efforts by many entities that own and affect the state's community-owned trees. Assistance targeted at local governments, arborists, non-profit organizations and planning councils. MDC urban foresters and staff need a clearer picture of what trees occur along streets and how they change over time. Better management will improve the environmental, social and economic well being of each community and ultimately the entire state of Missouri.

Plot Work

In 2010, a third statewide survey of trees along streets in 44 Missouri communities was conducted by MDC. This follows measurements in 1989 and in 1999. The objective was to depict whether and how Missouri's urban forests are changing over time. Communities were stratified into analysis classes by population and location with the number of randomly located plots in each community based on miles of road. Foresters inventoried only city-owned street trees. Condition classes were based on the Council of Tree and Landscape Appraisers (CLTA) guidelines.

Results

In 2010, foresters estimated 64.3 trees per mile of street (Table 1). The 1999 & 1989 surveys found 62.9 and 46.2 trees per mile respectively. The change from 1999 to 2010 was not statistically significant. In the last decade, Missouri's communities do not appear to have planted and grown more street trees. This mimics the trend in a forest population: fewer but larger trees as the population ages.

Analysis Class	Trees per Mile	Spac-es per Mile	% of Spaces Filled
Less than 5,000	45.7	37.2	55.1%
Between 5,001 and 10,000	42.6	57.8	42.4%
Between 10,001 and 20,000	33.8	52.6	39.1%
Between 20,001 and 50,000	120.3	42.1	74.1%
Between 50,001 and 150,000	64.5	83.3	43.6%
Between 150,001 and 250,000	25.7	64.3	28.5%
St. Louis suburbs	130.5	55.5	70.2%
Kansas City suburbs	21.9	32.7	40.2%
St. Louis	142.7	113.4	55.7%
Kansas City	54.9	42.0	56.7%

Table 1. 2010 estimated number of street trees & spaces per mile

The distribution of trees in each size class has changed between 2010 and 1999. In 2010, > 13% were in the largest size class of 24 dbh inches and above; in 1999 & 1989 there were 9% and 7% respectively of trees in this class. The increase is disquieting because older trees are less adaptable to changes in their growing environment and often develop decay due to treatment in urban areas. However, older, larger trees provide substantially greater environmental services, economic benefits and sense of neighborhood. They also increase public use along streets and parks with larger trees as they shade and cool pedestrians and bicyclists.

The average condition of Missouri's street trees has declined in the past twenty years. In the 2010 sample an estimated 19% of street trees were better than "fair" condition (Table 2); in 1999 & 1989 only 24% and 66% respectively of trees were rated excellent or good.

Analysis Class	Dead/ Dying	Poor	Fair	Good
Less than 5,000	2.6%	18.6%	32.9%	45.9%
Between 5,001 and 10,000	2.0%	22.3%	40.8%	34.9%
Between 10,001 and 20,000	6.2%	18.2%	44.8%	30.8%
Between 20,001 and 50,000	3.7%	9.2%	71.2%	15.9%
Between 50,001 and 150,000	4.0%	22.6%	45.5%	27.8%
Between 150,001 and 250,000	1.3%	15.6%	55.8%	27.3%
St. Louis suburbs	2.0%	5.8%	87.1%	5.1%
Kansas City suburbs	0.8%	22.4%	36.3%	40.4%
St. Louis	1.0%	15.9%	82.6%	0.6%
Kansas City	2.6%	27.9%	47.2%	22.4%

Table 2. 2010 condition of street trees

Using the Information

MDC's urban foresters and policy makers will be able to use these findings to improve community understanding of their urban forest resource and to design more effective outreach, education and grant programs to help Missouri's communities to conserve this valuable asset.

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