Status and Trends of the Mid-south Forest Resource

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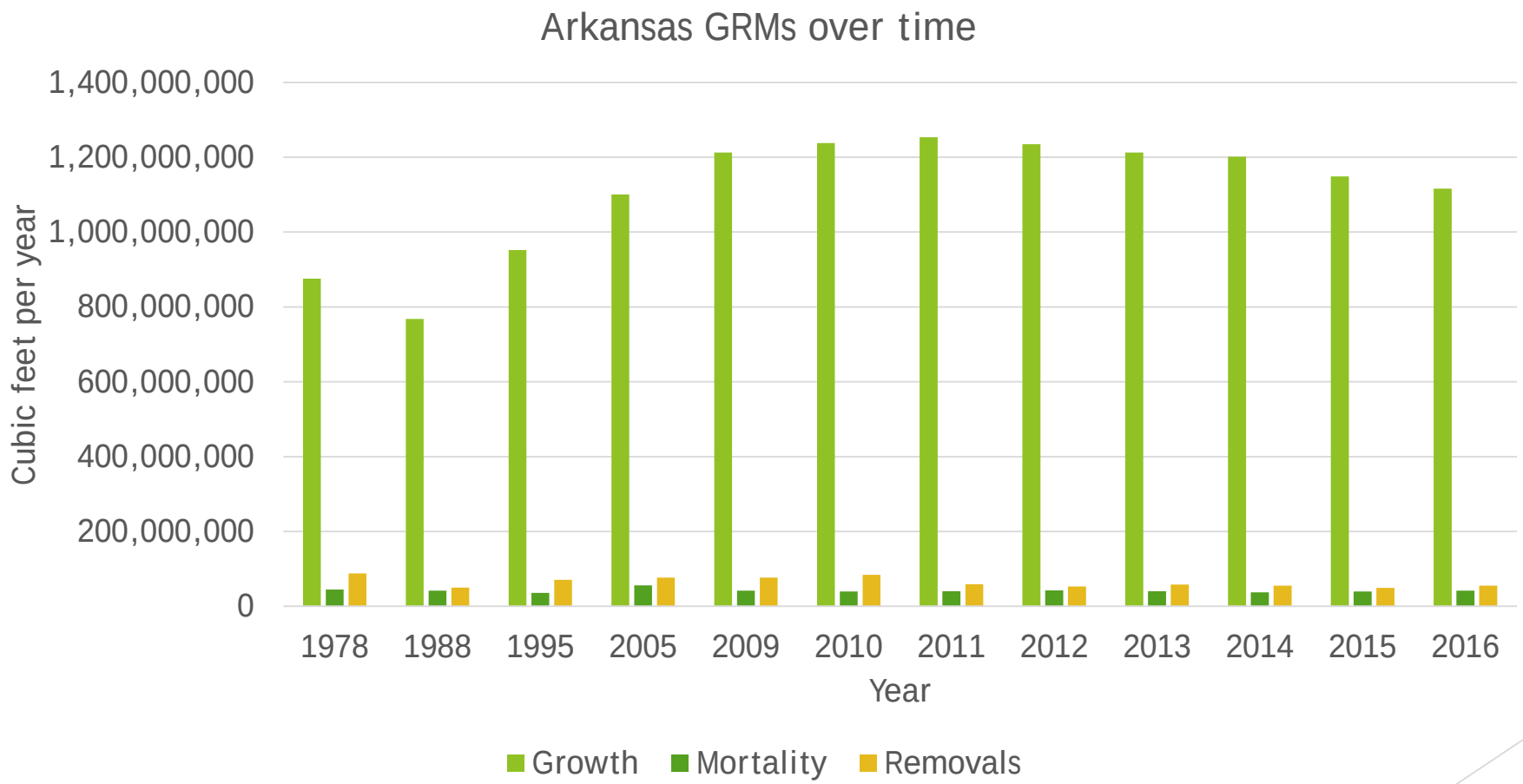
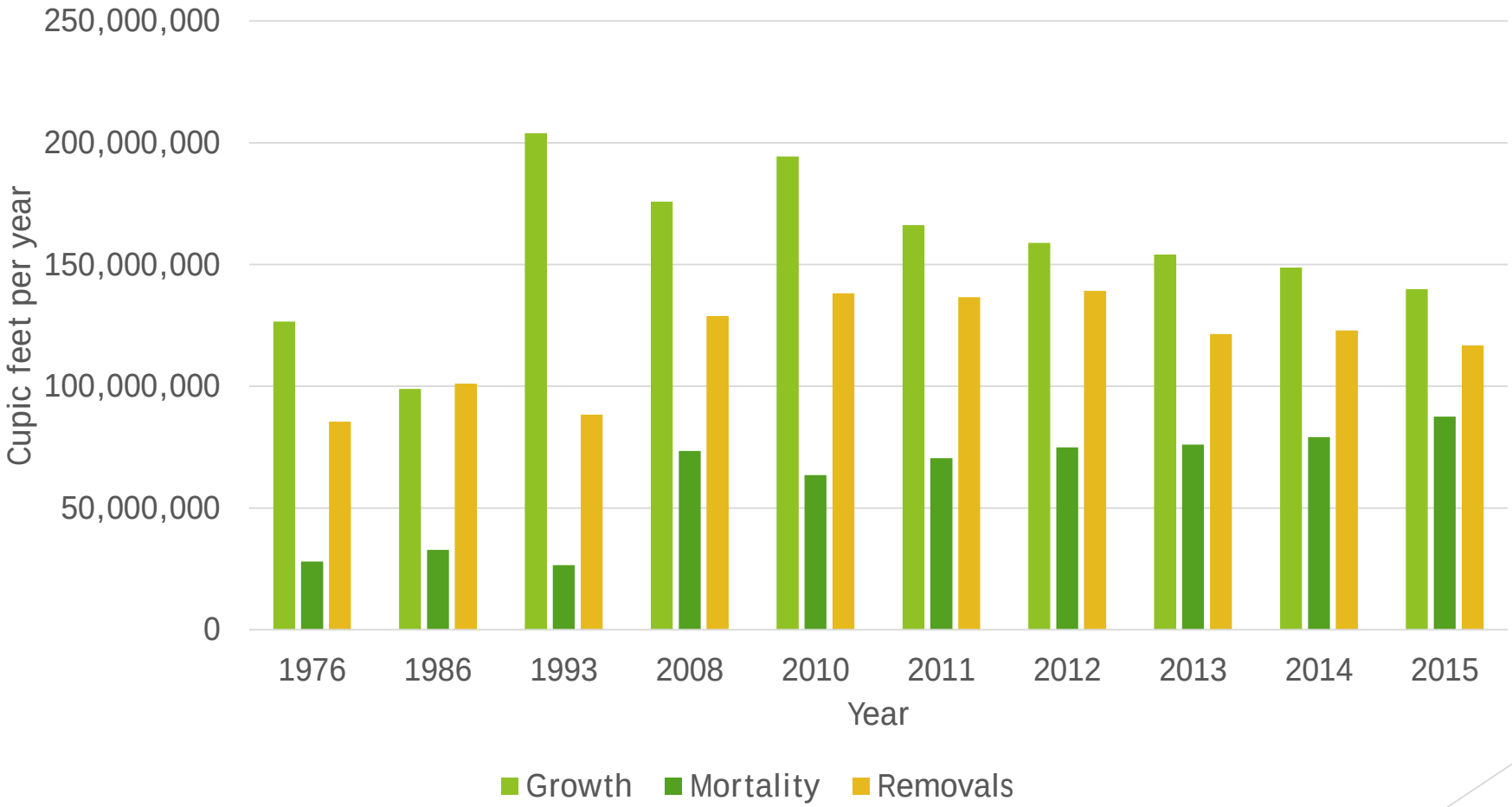
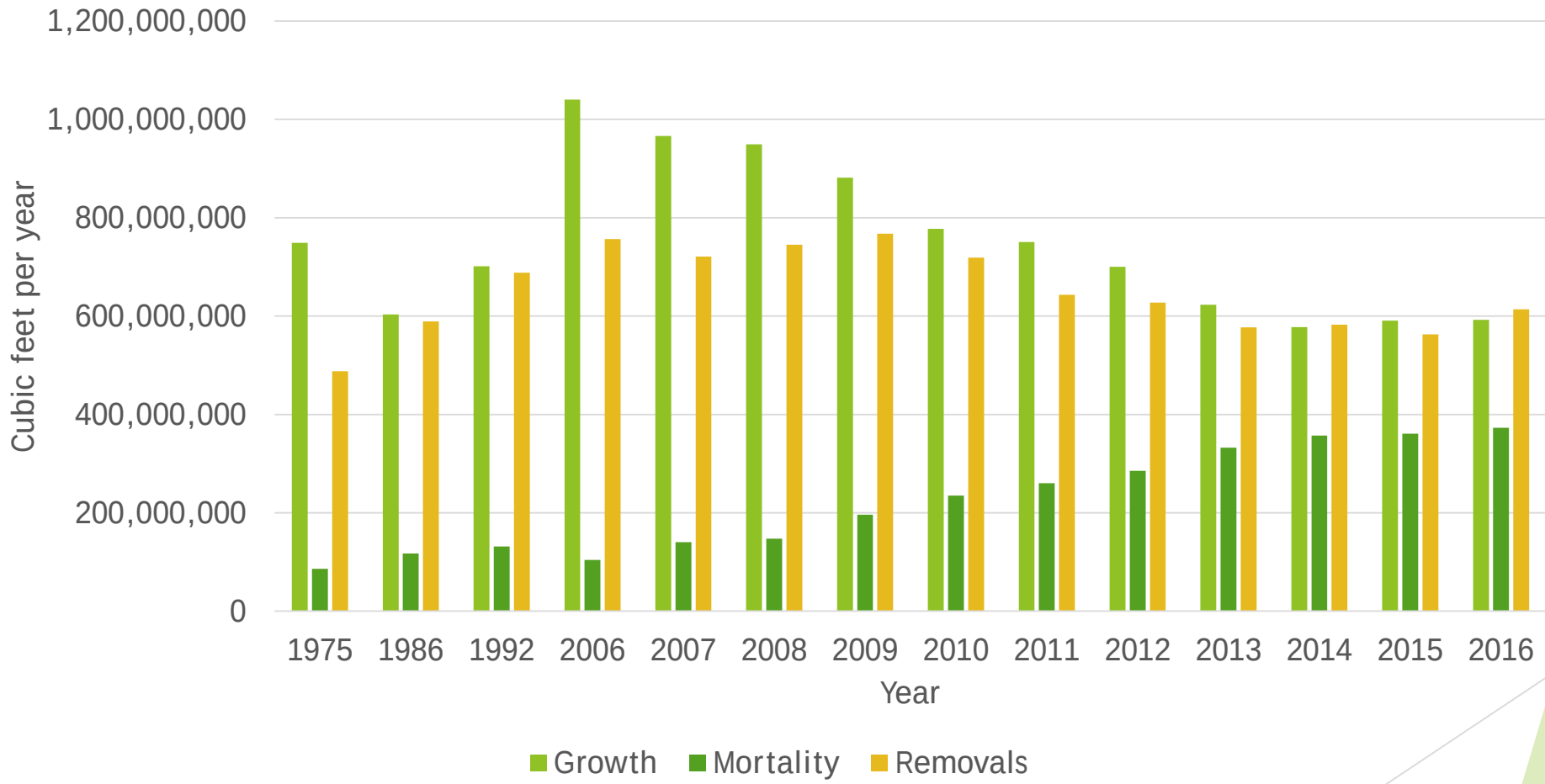
Arkansas GRMs over time



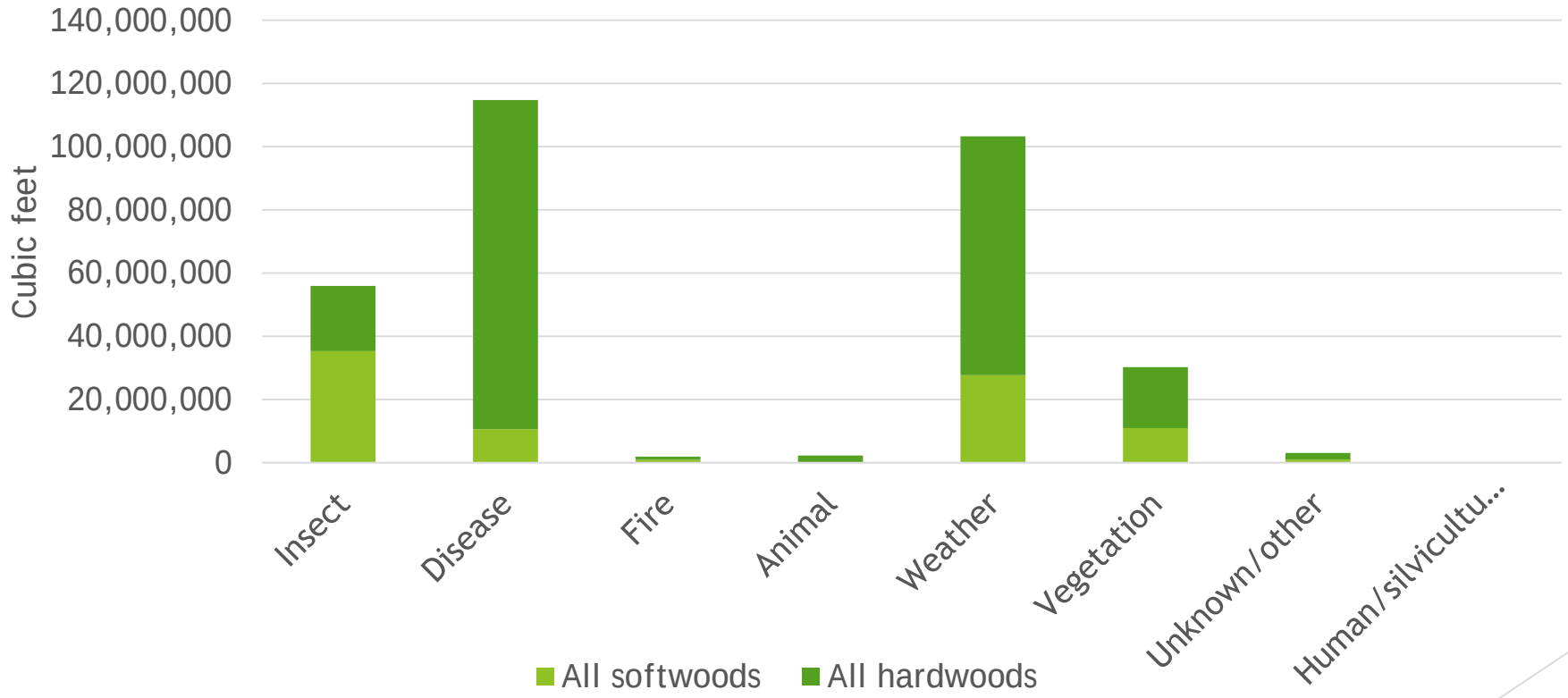
East Oklahoma GRMs over time



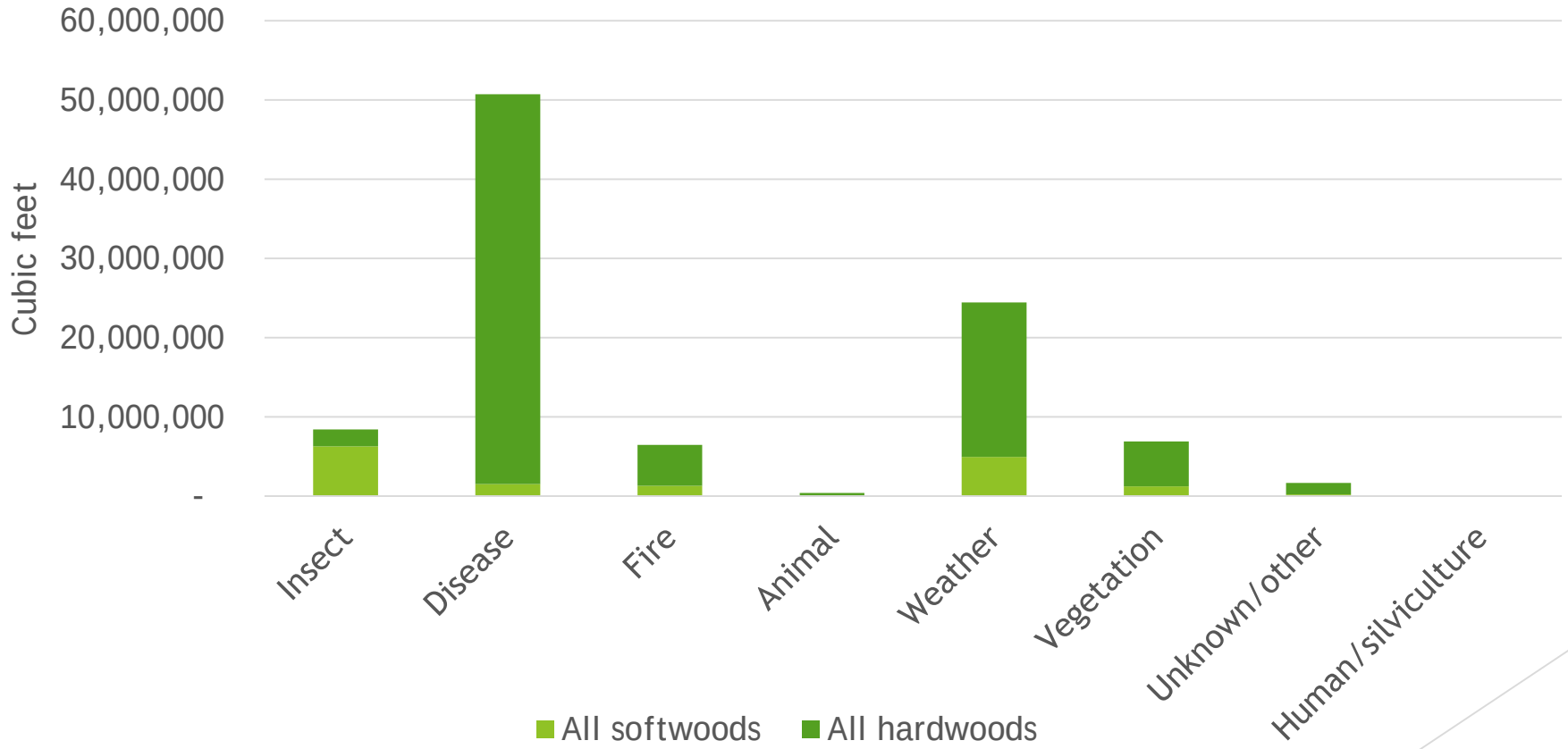
East Texas GRMs over time



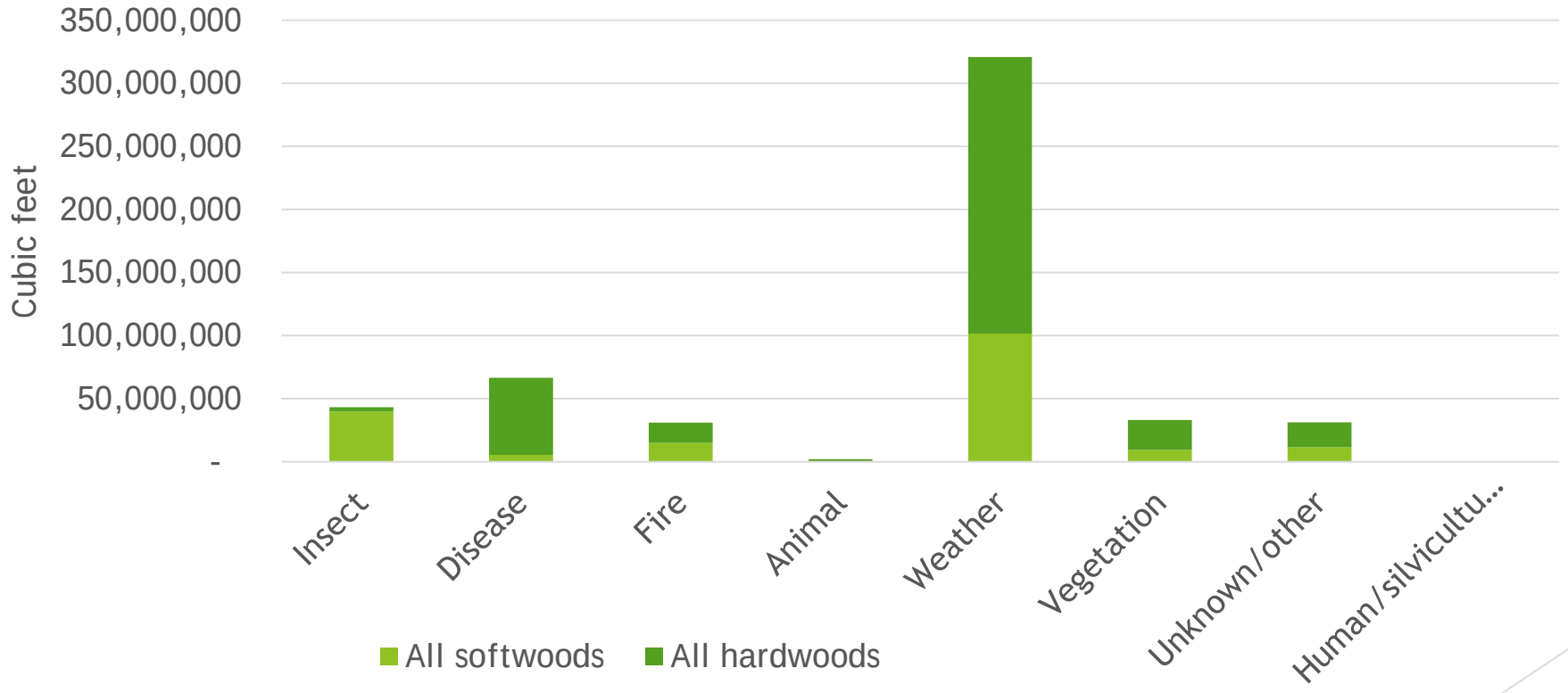
Arkansas volume loss by cause of death and major species group. Total 311.4 million cubic feet.



Oklahoma volume "loss" by cause of death and major species group. Total 99.1 million cubic feet.



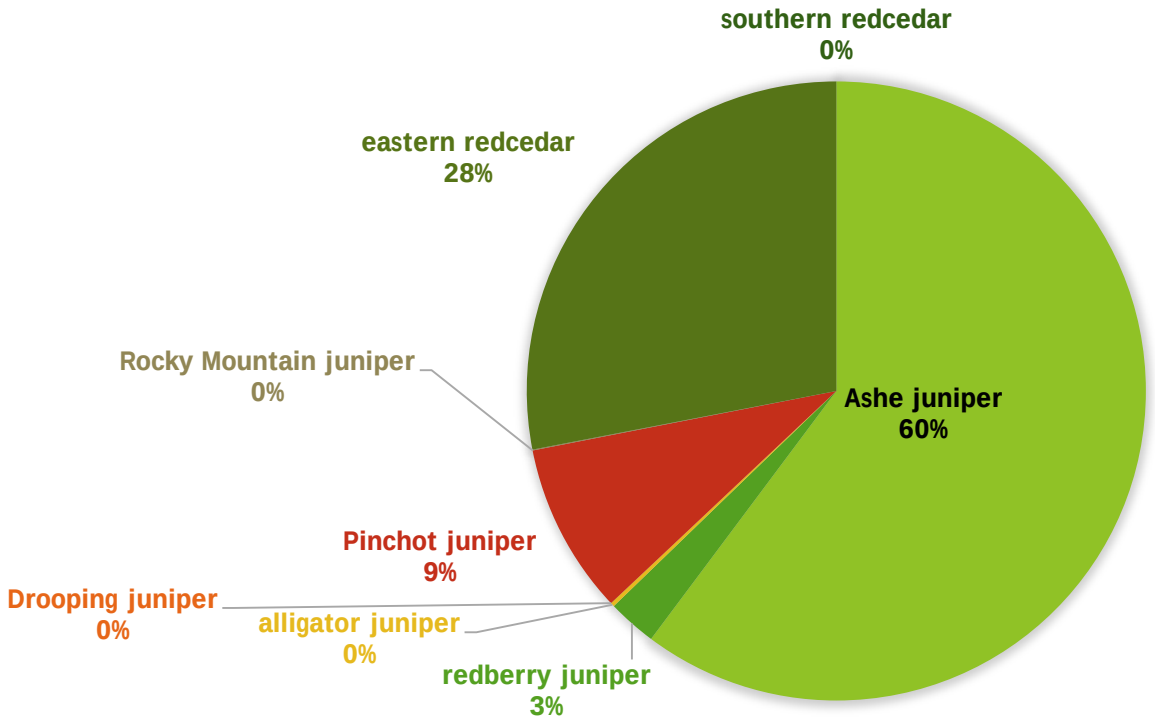
Texas volume "loss" by cause of death and major species group. Total 527.7 million cubic feet.



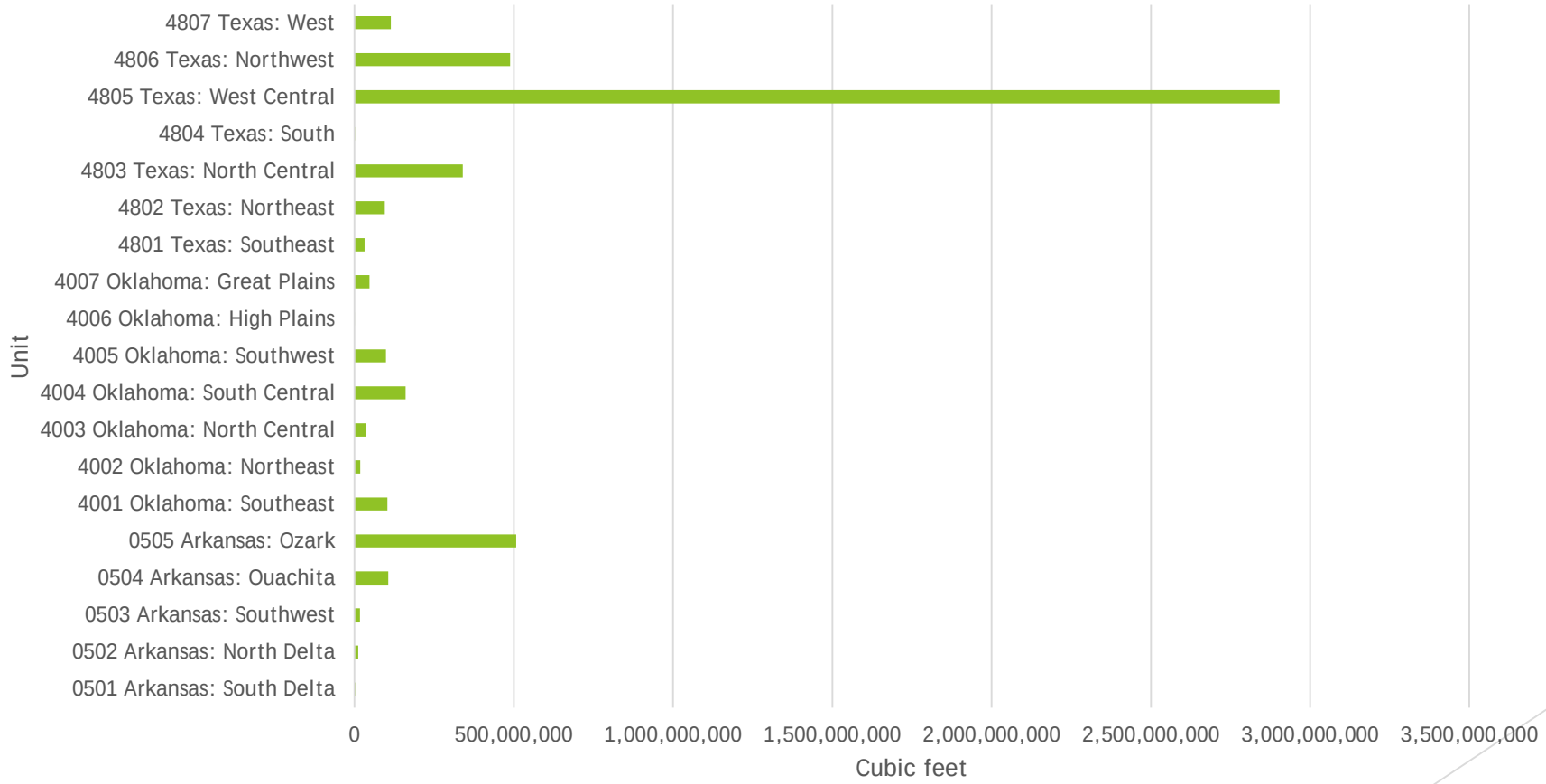
Net volume of Junipers on forest land, feet^3

	All juniper	Ashe juniper	redberry juniper	alligator juniper	Drooping juniper	Pinchot juniper	Rocky Mountain juniper	eastern redcedar	southern redcedar
Total	5,079,427,150	3,058,470,736	129,905,306	10,461,558	94,891	454,149,167	2,386,078	1,423,893,778	65,636
0501 Arkansas: South Delta	1,993,208	-	-	-	-	-	-	1,993,208	-
0502 Arkansas: North Delta	11,376,370	-	-	-	-	-	-	11,376,370	-
0503 Arkansas: Southwest	16,915,978	-	-	-	-	-	-	16,915,978	-
0504 Arkansas: Ouachita	105,598,113	-	-	-	-	-	-	105,598,113	-
0505 Arkansas: Ozark	507,616,511	38,665,023	-	-	-	-	-	468,951,488	-
4001 Oklahoma: Southeast	102,876,148	-	-	-	-	-	-	102,876,148	-
4002 Oklahoma: Northeast	17,580,214	-	-	-	-	-	-	17,580,214	-
4003 Oklahoma: North Central	36,179,575	-	-	-	-	-	-	36,179,575	-
4004 Oklahoma: South Central	159,957,182	46,424,045	-	-	-	-	-	113,533,137	-
4005 Oklahoma: Southwest	98,903,362	55,699	-	-	-	8,034,691	-	90,812,972	-
4006 Oklahoma: High Plains	86,191	-	-	-	-	-	-	86,191	-
4007 Oklahoma: Great Plains	47,207,586	-	-	-	-	-	-	47,207,586	-
4801 Texas: Southeast	30,978,140	-	-	-	-	-	-	30,978,140	-
4802 Texas: Northeast	94,819,444	-	-	-	-	-	-	94,819,444	-
4803 Texas: North Central	339,998,558	62,758,374	-	-	-	62,344	-	277,177,839	-
4804 Texas: South	1,076,663	-	-	-	-	-	-	1,076,663	-
4805 Texas: West Central	2,903,590,493	2,743,725,428	20,211,237	-	-	133,299,463	-	6,354,366	-
4806 Texas: Northwest	488,648,101	139,374,377	96,449,677	-	-	249,995,986	2,386,078	376,348	65,636
4807 Texas: West	114,025,313	27,467,790	13,244,392	10,461,558	94,891	62,756,682	-	-	-

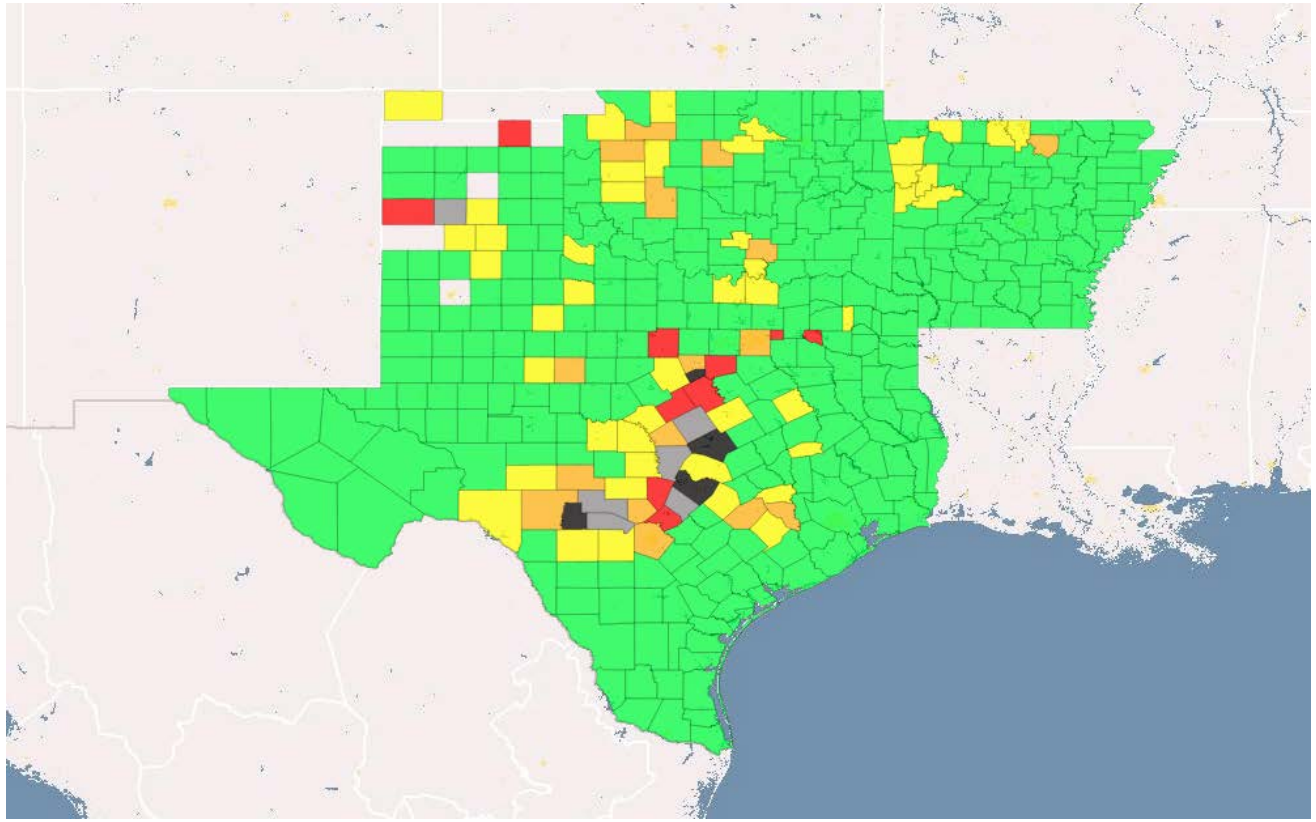
Across all units, Ashe Juniper was the most dominant of these species



With all Juniper species taken together, Texas' West Central unit had the most volume



Density of all Junipers by county



Trends in Occurrence of Shortleaf Pine in Arkansas

Over the last 30 years there have been concerns about the downward trends in shortleaf pine populations throughout its range across the eastern U.S. Declines in Arkansas became apparent in the late 1970's and were most noted in the 1988 forest survey when loblolly pine volume surpassed that of shortleaf pine for the first time, thus becoming the number one tree in the State. Since a lowest recorded volume of 3.5 billion cubic feet in the 2005 survey, no change was evident in the 2010 survey. However the 2015 survey showed an increase to 3.8 billion cubic feet (table 10). Even though there has been an increase in volume, the 2015 survey also shows a downward trend in the amount of acreage occupied by shortleaf pine., i.e., increasing volume but on fewer acres.

Analyzing volume fluctuations is one way to track changes over time but this may provide an incomplete picture of population trends. Tracking areal increases or decreases where shortleaf pine occurs is another method that can be used to assess trends. Since the 2010 survey, Arkansas has shown a decrease of 142,728 acres in forest land where shortleaf pine occurs (table 11). Note that if a sample unit had at least one shortleaf pine present then that qualified the data for inclusion in table 11. The largest decline was in the Southwest unit followed by the Ozark unit. Together, these two units accounted for 97 percent of the decline in the State. Much of this decline can be attributed to the preference of loblolly pine for artificial regeneration after harvesting of natural stands, primarily on private forest land.

Detailed changes in stand-structure elements may also provide insights into shortleaf pine population trends.

Table 11—Area of forest land and change, by survey unit, where shortleaf pine ≥1.0 inch in d.b.h. occurs, Arkansas, 2010 and 2015

Survey unit	2010	2015	Change
	thousand acres		
South Delta	22.3	19.1	-3.2
North Delta	38.8	41.0	2.2
Southwest	875.6	794.4	-81.2
Ouachita	1,980.7	1,977.3	-3.4
Ozark	1,589.5	1,532.2	-57.3
All units	4,506.8	4,364.0	-142.7

D.b.h. = diameter at breast height.

Between the 2010 and 2015 forest surveys Arkansas lost 198,616 acres of forest land where shortleaf pine had some degree of presence in the overstory (table 12). These lost stands were those where shortleaf pine made up somewhere between 20 to 80 percent of overstory basal area. There were actually slight increases in the area of forest land where shortleaf pine was a very minor component (0.01 to 20 percent) or a super dominant (≥80 percent) of the overstory (table 12). Also noteworthy, thirty-nine percent of the forests where shortleaf pine occurred were in stands where it was a very minor component, 1,629,000 acres.

As Arkansas's forests are cut, artificial regeneration (when applied) appears to overwhelmingly favor loblolly pine. The 2015 forest survey shows 3,302,034 acres have been planted in loblolly pine but only 80,547 acres in shortleaf pine. Loblolly pine is clearly the preferred plantation species in Arkansas, particularly in the Southwest unit where intense forest management practices are most prevalent. As natural stands containing shortleaf pine are cut, they will most likely be replaced with loblolly pine unless a shortleaf pine regeneration cut is implemented. This is an important factor that may further impact the occurrence of shortleaf pine over time, especially on the Coastal Plain.

Table 12—Area of forest land and change, by stand-proportion class, where shortleaf pine ≥5.0 inches in d.b.h. occurs, Arkansas, 2010 and 2015

Percent of overstory stand basal area in shortleaf pine	2010	2015	Change
	thousand acres		
0.1 - 19.9	1,611.8	1,629.0	17.2
20.0 - 39.9	900.4	813.3	-87.1
40.0 - 59.9	647.2	589.0	-58.2
60.0 - 79.9	611.3	530.8	-80.5
≥80.0	612.1	622.0	9.9
All stands	4,382.7	4,184.1	-198.6

D.b.h. = diameter at breast height.