

Thicket Monitoring

National Park Service
U.S. Department of the Interior

Heartland Inventory and Monitoring Network



Results of the 2015 Woody Thicket Monitoring at Homestead National Monument of America, Nebraska

Homestead National Monument of America (HOME) is located in the southeast corner of Nebraska. In 1939 a portion of HOME was restored to tallgrass prairie, making it the second oldest prairie restoration in the United States.

In 2000, a woody thicket mapping project was started to help with management decisions for the tallgrass prairie. The objective of this monitoring is to determine the total amount of restored prairie occupied by woody shrub species (Figure 1). Currently the main shrubs of concern (grouped at the genus level) are *Cornus spp.*, *Prunus spp.*, and *Rhus spp.*

For more details see Haack (2012).

acre area (73 acre comparison area in Figures 3-6) where mapping has occurred consistently since 2000.

- In the core area of HOME, thickets are showing a strong decline within the last five years.
- The Vegetation Management Action Plan states that the HOME prairie should have no greater than 15% thickets present (NPS 2006). In 2015, 15.049% of the prairie (94.913 acres) was occupied with thickets.

Table 1. Yearly thicket values (acres) in 73 acre comparison area.



Figure 1. *Rhus spp.* thickets at HOME in June 2015.

Methods:

- Every fifth year mapped woody thickets using a GPS unit.
- Document genus and density for every thicket.
- Thicket polygons are labeled by the dominant genus. Other genera may be a part of the polygon.
- Density categories:
 - 1: Area of dense thicket (over 75%), with warm season grasses absent or nearly so.
 - 2: Area primarily of dense thickets with some space among thickets occupied by tallgrass prairie interspersed with woody stems.
 - 3: Area primarily of tallgrass prairie interspersed with woody stems with occasional patches of dense thickets.
 - 4: Area of typical tallgrass prairie grasses and forbs with woody stems interspersed. Dense patches of thickets absent, warm season grass cover greater than 75%.

Summary of Findings:

- In June of 2015 the total amount of thickets mapped was 16.046 acres. This value includes the 1.762 acres that was located in the heritage and managed area Figure 2).
- Table 1 only takes into account thickets in a 73.225

Species/ Density	Year			
	2000	2005	2010	2015
<i>Cornus spp.</i>	5.221	9.152	9.772	5.325
1	1.988	1.486	1.244	-
2	0.573	4.945	2.625	0.448
3	0.950	2.249	4.220	2.497
4	1.709	0.471	1.684	2.380
<i>Fraxinus spp.</i>	0.970	0.916	-	-
1	0.970	0.916	-	-
<i>Prunus spp.</i>	5.328	1.399	0.999	4.267
1	0.635	0.474	0.001	0.431
2	2.366	0.063	0.240	1.574
3	1.126	0.685	0.669	1.049
4	1.202	0.178	0.090	1.213
<i>Rhus spp.</i>	12.328	7.850	15.378	3.038
1	2.210	1.566	0.422	0.008
2	2.278	2.248	7.642	1.377
3	2.645	2.096	6.346	0.469
4	5.195	1.939	0.967	1.184
<i>Sambucus spp.</i>	0.075	0.290	-	-
1	0.075	0.057	-	-
2	-	0.196	-	-
3	-	0.036	-	-
Total	23.922	19.608	26.149	12.629

Additional Observations:

- Since 2011 the Exotic Plant Management Team (EPMT) has been helping with thicket removal (Figure 7).
- A number of possible seeps were observed in the prairie in 2015. We hypothesize that seeps may be increasing due to removal of thickets.

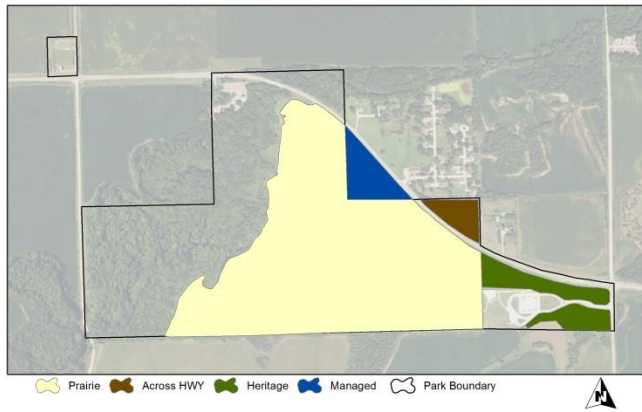


Figure 2. Areas where thicket mapping occurs.

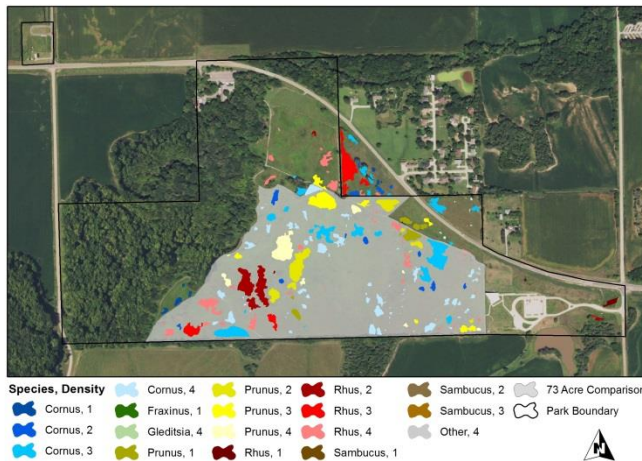


Figure 3. Map of 2015 thicket locations.

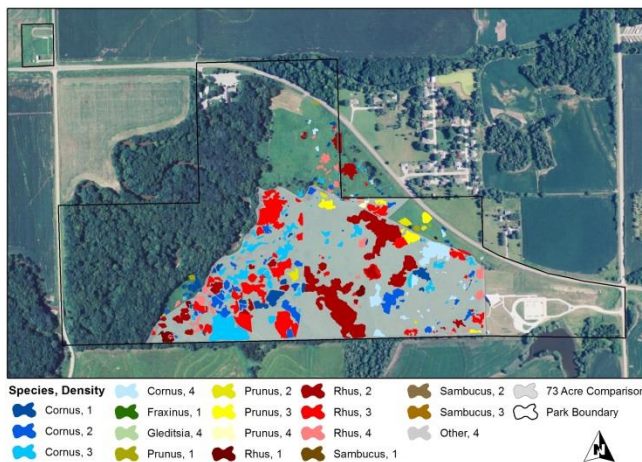


Figure 4. Map of 2010 thicket locations.

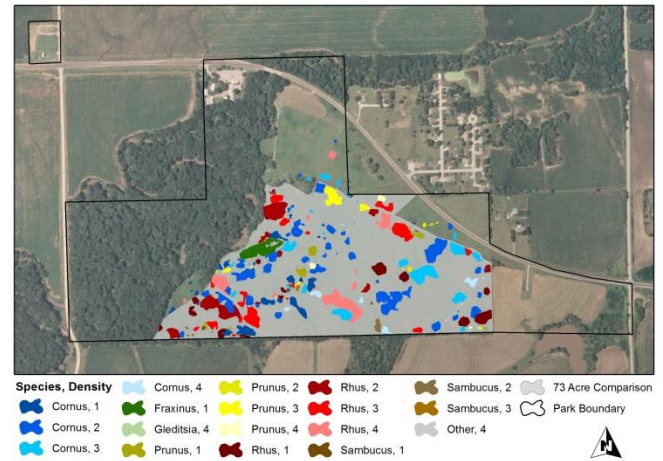


Figure 5. Map of 2005 thicket locations.

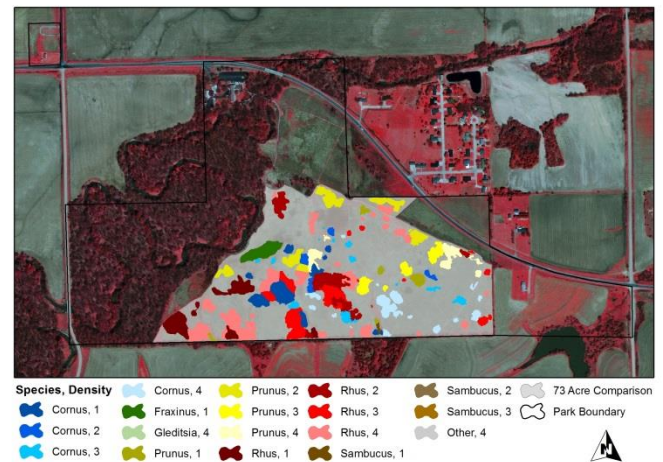


Figure 6. Map of 2000 thicket locations.

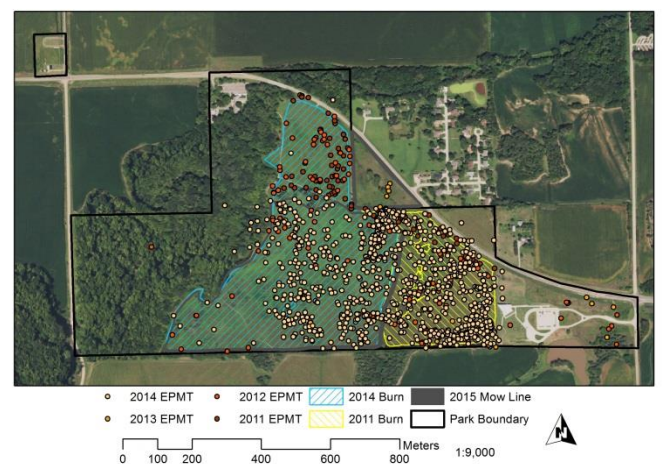


Figure 7. Map of 2011 to May 2015 management.

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Notes on data:

Values for 2000 – 2010 are slightly different than what was reported previously (Haack 2012). The causes for this were geometry errors and overlapping found in the spatial thicket polygons. These errors were fixed in July 2015. The updated and correct values for acres mapped during each year are as follows:

2000 = 23.923 acres

2005 = 20.221 acres

2010 = 28.982 acres

2015 = 16.046 acres

Citations:

Haack, J. L. 2012. Thicket Monitoring at Homestead National Monument of America of 2000 - 2010. Natural Resource Data Series NPS/HTLN/NRDS—2012/270. National Park Service, Fort Collins, Colorado.

National Park Service. 2006. Homestead National Monument of America Vegetation Management Action Plan 2004 – 2014. NPS