



Barrens to Bayous Fire Monitoring Network Fire Ecology Quick Report for Horseshoe Bend National Military Park – Longleaf Pine Density

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Summary

The data below is for our PIPA [FMH](#) vegetation plots which are stratified by the mixed longleaf pine - hardwood vegetation type. These numbers should only be used for the areas of the park that are classified as this monitoring type. For longleaf pine (*Pinus palustris*), we have sampled exactly zero seedlings (< 2.5cm DBH) since we began monitoring our five large monitoring plots in 2004 (table 1). Of course there are a few seedlings around, but they have only been located within trails, prescribed fire fuel breaks, or other areas that are fairly disturbed. In general, duff & litter depths are > 2.5 cm in depth. The overstory also remains closed as the density of loblolly pine (*P. taeda*) and other mesic hardwoods (E.g. *Fagus grandifolia*, *Acer rubrum*, & *Liquidambar styraciflua*) is likely greater today than it was prior to fire suppression, leading to a closed canopy forest of today. These two factors are likely precluding the germination and establishment of new seedlings in the understory. The overstory density is likely contributing to the lack of and loss of vigor in the longleaf saplings as well (table 2).

For the most part, the density of larger longleaf pine trees has remained constant over the last decade (table 3). However, without recruitment of younger generations the decline of this species within Horseshoe Bend NMP is inevitable (figure 1). Resource and fire management staff with the National Park Service are currently exploring different fire regimes and mechanical strategies in order to better manage the encroaching mesic tree species.

For additional information, please see our annual report. The 2015 Barrens to Bayous Annual Report can be found on the Integrated Resource Management Data Store: [2229410](#).

Table 1. Stem Density of Longleaf Pine Seedlings

Row Labels	Seedlings (DBH < 2.5 cm)		
	00Pre (2004-05)	01Fire (2007-10)	02Fires (2014-15)
PIPA 1	0	0	0
PIPA 2	0	0	0
PIPA 3	0	0	0
PIPA 4	0	0	0
PIPA 5	0	0	0
Mean Density (trees/ha)	0	0	0
Standard Error of Mean	0	0	0

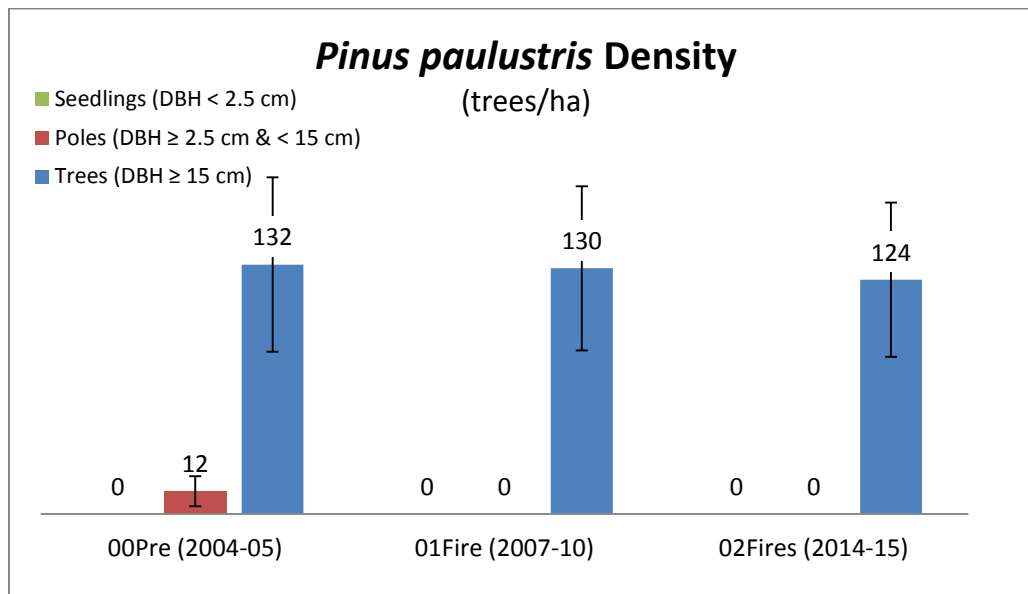
Table 2. Stem Density of Longleaf Pine Saplings

Row Labels	Poles (DBH ≥ 2.5 cm & < 15 cm)		
	00Pre (2004-05)	01Fire (2007-10)	02Fires (2014-15)
PIPA 1	0	0	0
PIPA 2	0	0	0
PIPA 3	40	0	0
PIPA 4	20	0	0
PIPA 5	0	0	0
Mean Density (trees/ha)	12	0	0
Standard Error of Mean	8	0	0

Table 3. Stem Density of Longleaf Pine Trees

Row Labels	Trees (DBH ≥ 15 cm)		
	00Pre (2004-05)	01Fire (2007-10)	02Fires (2014-15)
PIPA 1	10	10	10
PIPA 2	30	40	40
PIPA 3	190	190	180
PIPA 4	220	220	190
PIPA 5	210	190	200
Mean Density (trees/ha)	132	130	124
Standard Error of Mean	46.08687449	43.47413024	40.81666326

Figure 1. Mean Density of Longleaf Pine by Size Class w/Standard Error (N=5)



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<https://irma.nps.gov/DataStore/Reference/Profile/2230647>