

Longleaf Pine Cone Prospects

for 2014 and 2015

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During the spring of 2014, cone production data were collected from selected low-density (e.g., shelterwood) stands of mature longleaf pine, throughout its native range. Binocular counts of conelets and flowers were conducted on the crowns of sampled trees, as viewed from a single location on the ground. Visibility of conelets and flowers on each tree is enhanced when the observer stands with their back to the sun. A breeze that moves the flexible pine needles about also helps the relatively more rigid conelets and flowers stand out for the observer. The near-term regional averages and individual site averages for these counts are reported in Table 1.

Table 1. Estimated Longleaf Pine Cone Production.

Cooperator	State and County	Estimated cones per tree from conelets for fall 2014	Estimated cones per tree from flowers for fall 2015
Kisatchie National Forest	Louisiana, Grant	222.8	24.0
Cedar Creek Company	Alabama, Escambia	159.8	41.9
Blackwater River State Forest	Florida, Santa Rosa	149.0	18.9
Eglin Air Force Base	Florida, Okaloosa	74.9	37.7
Apalachicola National Forest	Florida, Leon	7.0	32.3
Jones Ecological Research Center	Georgia, Baker	134.4	38.9
Tall Timbers Research Station	Florida, Leon	13.6	113.9
Fort Benning Military Base	Georgia, Chattahoochee	138.5	76.1
Sandhills State Forest	South Carolina, Chesterfield	54.1	18.8
Bladen Lakes State Forest	North Carolina, Bladen	24.1	33.9
Region Averages		97.8	43.6

Regional Summary:

The regional cone crop, based on conelet counts, is **very good for 2014**, at 97.8 cones per tree. The natural variation typically seen throughout the longleaf pine range is evident in this year's data. Two sites in Leon County FL and one site in Bladen County NC produced fewer than 25 cones per tree. Two sites in Chesterfield County SC and Okaloosa County FL produced cone crops in the good range. Five sites in Grant County LA, Escambia County AL, Santa Rosa County FL, Baker County GA and Chattahoochee County GA produced bumper crops of longleaf pine cones.

The regional cone crop outlook, based on flower counts, is **fair for 2015**, at 43.6 cones per tree. The cone crop is forecasted to be bumper at one site, good at one site, fair at five sites and poor at three sites. However, keep in mind that cone crop estimates based on flower counts are less reliable than those based on conelet counts, because of flower losses during their first

year, with often fewer than half surviving to become conelets during their second year.

The 49-year regional cone production average for longleaf pine is 28 cones per tree. The single best cone crop occurred in 1996 and averaged 115 cones per tree. Good cone crops were observed in 1967 (65 cones per tree), 1973 (67 cones per tree), 1987 (65 cones per tree), 1993 (52 cones per tree) and 2014 (98 cones per tree). Fair or better cone crops have occurred during 51% of all years since 1966, with an increasing frequency since 1983. The reason for this increasing frequency might be related to genetic, environmental or management factors (or a combination of these). However, at this time, the specific cause is not known.

Evaluating Longleaf Pine Cone Data:

Observations, concerning the natural variation in longleaf pine cone crops, and field studies, determining of the amount of seed (i.e., number of productive cones per tree) required to successfully regenerate even-aged shelterwood stands, resulted in development of Table 2.

The minimum cone crop needed for successful natural regeneration, using an even-aged management technique like the uniform shelterwood method, is 750 cones per acre. This assumes 30 cones per tree, with 25 seed-bearing trees per acre. Thus, cone crops classified as “fair or better” represent regeneration opportunities, for which a receptive seedbed may be prepared through application of prescribed fire during the months prior to seed fall in October.

When uneven-aged management stand-reproduction methods such as single-tree selection and group selection are being used, then “seed rain” incident on a site every year, although of variable intensity from year to year, is often sufficient for successful natural regeneration. While using selection silviculture frees one from dependency on the timing of good cone crops, it may nonetheless be useful for the manager of uneven-aged stands to be aware of cone crop quality from year to year when making management decisions.

Table 2. Classification of Longleaf Pine Cone Crops*.

Crop Quality	Cones per Tree	Cones per Acre (on 25 trees per acre)
Bumper crop	≥ 100	≥ 2500
Good crop	50 to 99	1250 to 2475
Fair crop	25 to 49	625 to 1225
Poor crop	10 to 24	250 to 600
Failed crop	< 10	< 250

* Cones on mature trees (14-16 inches at dbh) in low-density stands (basal area < 40 feet²/acre).

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