



Longleaf pine cone production in the Southeastern U.S. could decline in 2013

Authors: [Dale Brockway](#) and Bill Boyer, Southern Research Station, USDA Forest Service and edited by Melissa Kreye, CFEOR Coordinator

The long leaf pine cone crop for the U.S. southeast region is predicted to be poor in 2013 based on binocular counts of conelet and flower counts in low density stands. Information about the change in the number of cones that long leaf pine trees produce annually may be used to inform management decisions in the restoration of longleaf pine ecosystems.

Conelet counts for 2012 failed at 4.5 cones per tree (below the 10 cone per tree “crop failure” threshold) and flower counts were poor for 2013 at 24.8 cones (Table 1.). 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 the first year and often fewer than half surviving flowers become conelets during the second year.

The 47-year regional cone production average for longleaf pine is 27.5 cones per tree. The best cone crop occurred in 1996 and averaged 115 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 is not known.

Field studies and observations of the natural variation in longleaf pine cone crops have been used to determine the minimum cone crop needed for successful natural regeneration in

Table 1. Estimated longleaf pine cone production for 2012 and 2013.

Cooperator	State and County	Estimated cones per tree from conelets for fall 2012	Estimated cones per tree from flowers for fall 2013
Kisatchie National Forest	Louisiana, Grant	5.8	5.8
Cedar Creek Company	Alabama, Escambia	7.2	17.2
Blackwater River State Forest	Florida, Santa Rosa	1	16.5
Eglin Air Force Base	Florida, Okaloosa	0.6	-0-
Apalachicola National Forest	Florida, Leon	1.8	36.6
Jones Ecological Research Center	Georgia, Baker	2.4	57.3
Tall Timbers Research Station	Florida, Leon	12.1	67.9
Fort Benning Military Base	Georgia, Chattahoochee	2.2	30.6
Sandhills State Forest	South Carolina, Chesterfield	8.1	4.7
Bladen Lakes State Forest	North Carolina, Bladen	3.3	11.3
Region Averages		4.5	24.8

stands. A classification of the quality of longleaf pine cone crops can be found in Table 2. 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. The timing of good cone crops may be useful for the manager of uneven-aged stands to be aware of from year to year when making management decisions. For more information about this report contact Dale Brockway at dbrockway@fs.fed.us.

Table 2. Classification of quality 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 (14 to 16 inches DBH) trees in low-density stands (< 40 feet²/acre basal area).

Recent Research

Organic soil combustion in cypress swamps: Moisture effects and landscape implications for carbon release

Adam Watts. (2012) *Forest Ecology and Management*. <http://dx.doi.org/10.1016/j.foreco.2012.07.032>.

Swamps, peatlands, and other wetland ecosystems can store vast amounts of carbon in organically derived peat soils. Wildfires during severe droughts can produce smoldering combustion in these soils, releasing large quantities of carbon to the atmosphere and causing dramatic changes at the local scale due to plant mortality and hydrologic effects. I studied variation in moisture content and carbon loss from smoldering combustion in soils from pondcypress (*Taxodium distichum var. imbricarium*) swamps in Florida USA. In a lab study, soil moisture content near the surface (upper 10 cm) did not predict vertical depth of soil combustion. Mass loss of organic carbon from soil profiles was, however, negatively related ($P < 0.01$). I also studied spatial variation in soil moisture, as a predictor of potential soil combustion, at a range of distances from edges of cypress-swamp patches. A weak, but significant ($P < 0.01$), positive relationship exists between distance from edges and upper-layer soil moisture, indicating that some inhibitive effect on smoldering may be present proceeding toward the centers of larger swamp patches. Conservative estimates of SOC content in cypress peats (approximately 41% by mass, compared to a figure of 50% sometimes used in such studies) indicate substantial potential for soil carbon loss (over 4 kg m²) from wildfires in cypress swamps. This initial study on smoldering of cypress peats also makes recommendations for future efforts to study ground fires in these regionally important ecosystems.

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Upcoming Events

- Florida Forestry Association 2012 Annual Meeting and Tradeshow, September 5-6, 2012** in Sandestin FL. For more information go to <http://www.floridaforest.org/conference.php>
- Inaugural Wings and Wildflowers Festival, September 28-30, 2012** in Lake county's Hickory Point Park in Tavares, FL. For more information go to www.lakecountyfl.gov/bird_watching/wings_and_wildflowers/
- Silviculture Best Management Practices Workshops, October 2, and November 13, 2012.** Free workshop for land owners/managers. For more information: http://www.sfrc.ufl.edu/Extension/florida_forestry_information/events_calendar/files/bmp_workshops2012_flyer.pdf
- Florida Society of American Forester's Fall Meeting "The 2012 Forestry Updates", October 12-13, 2012** at Hillsborough Community College, Plant City, FL. For more information go to www.floraf.org/
- Forest Stewardship Council U.S., Southeast Regional Meeting, October 24, 2012** in Atlanta GA. For more information please contact d.pendris@us.fsc.org or phone: 540-313-2243
- SAF National Convention, October 24-28, 2012** in Spokane, WA. To learn more and to register go to <http://www.safnet.org/natcon12/>

Upcoming Events

- **39th Annual Natural Areas Conference, October 9-12, 2012** in Norfolk, VA. This year's conference will address keeping natural areas programs relevant in today's world and natural areas resilient in the face of change. Learn more at www.naturalarea.org/12conference/
- **ACES and Ecosystem Services Markets 2012, December 10-14, 2012** in Ft Lauderdale, FL. A community on ecosystem services linking science, practice and decision making. Learn more at www.conference.ifas.ufl.edu/aces/

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Newsletter Contacts

Melissa Kreye, School of Forest Resources and Conservation, CFEOR Coordinator,
mkreye@ufl.edu

Nancy Peterson, School of Forest Resources and Conservation, CFEOR Executive Director,
njp@ufl.edu

Phone 352.846.0848 · Fax 352.846.1277 · PO Box 110410 · Gainesville, FL