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FOREST FLOOR STRUCTURE AND COMPOSITION IN LONG-UNBURNED LONGLEAF PINE FORESTS: Implications for Re-introduction of Fire

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ABSTRACT: Reintroducing fire into southeastern pine stands after long periods of fire exclusion results in substantial pine mortality, likely the result of ground fire within the forest floor. Since southern pine forest floor is the result of fire-exclusion, we have a poor understanding of their composition, structure, and fuel behavior. To address these shortcomings, we studied the forest floor in a long-unburned longleaf pine (*Pinus palustris*) stands in northwestern Florida. Composition and structure of forest floor influence ignition, combustion, and extinction of ground fires. The forest floor was comprised of bark, needles, roots, cones, hardwood leaves, and coarse woody fragments; all with differing fuel characteristics. Composition changed with distance from tree, with bark comprising 67% of near tree samples, and only 16% at 2 m from the tree. Pine needle litter, conversely, comprised 16% and 63 % at 0.3 and 2 m from the stem, respectively. Pine roots, their death suggested to be the primary cause of tree mortality, were prolific in these surficial horizons, with little variation within the first 2 m away from the tree. As with composition, structure varied with distance from stem. Forest floor was mounded around tree bases, with declining depths as distance from tree increased. Particle size of the forest floor varied, generally decreasing with distance from stem. These data are preliminary, representing the early stages of a larger study to assist restorationists with re-introducing fire into southern pinelands.