

## Clarifying Details on a 1930s-era Pine–Hardwood Stand in Arkansas

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**Abstract** - Data from recently discovered daily-work logs of US Forest Service (USFS) researcher Russell R. Reynolds enabled me to clarify a study I published a decade ago on a 1930s-vintage unmanaged, second-growth *Pinus* (pine)–hardwood stand in southeastern Arkansas. Though still too vague to reveal every detail, Reynolds’ work logs confirmed a number of assumptions in the original paper and provided me with the background information to herein describe a more precise sampling framework for this 1930s-era study plot.

It is challenging to reconstruct historical forest conditions. Although a number of approaches for such work have been described (e.g., Egan and Howell 2001), rarely do these methods produce the desired detail regarding stand composition and structure. Quantitative descriptions of forests across much of the southeastern US prior to the mid-20<sup>th</sup> century are particularly uncommon and prove invaluable, when available. Approximately 10 y ago, I discovered records of a 100% inventory of a mature, second-growth unmanaged *Pinus* (pine)–hardwood “sample plot” in one of the earliest study files of Russell R. Reynolds (the original researcher and project leader of the USFS’s Crossett Experimental Forest, Crossett, AR). The data consisted of tree species, status (live or dead), diameter at breast height, pine-growth rate, and bark thickness, as well as a brief description of the dimensions of the plot (Bragg 2004).

*Assumptions.* While the stand structure and composition from these data provided a good description of the sample plot, there was little information about who, when, why, and where this sample plot was established. To address these shortcomings, I used information in Reynolds’ original study files to approximate when and where this plot was established, and by whom. The files did not state who had sampled the plot, but the handwriting was consistent with that of Reynolds and, given that he was the only US Forest Service (USFS) employee in the Crossett area at that time, it seemed highly likely that he had collected this data. It was more difficult to establish when Reynolds had conducted the sampling. Reynolds assisted the Crossett Lumber Company (now part of Georgia–Pacific, Crossett, AR) in the spring of 1933, a relationship that quickly developed and, in December 1933, the Crossett Experimental Forest was established on lands leased from the Crossett Lumber Company. After the formal opening of the Crossett Experimental Forest on 1 January 1934, Reynolds was fully occupied with its operation and had little time for fieldwork elsewhere. Hence, I assumed Reynolds likely installed and measured the sample plot between 1933 and 1935 (Bragg 2004:328).

It was even more challenging to determine the sample-plot location. Figure 1 is an adaptation of Bragg’s (2004) map showing the portion of the Crossett Lumber Company’s 10,400-ha East Block, their last major unit of uncut mature second-growth and virgin-pine timber, that most likely held this sample plot. The inventory data listed the species present on the site including: *Quercus phellos* L. (Willow Oak) and *Quercus nigra* L. (Water Oak) components coupled with an abundance of *Pinus taeda* L. (Loblolly Pine) and a relative

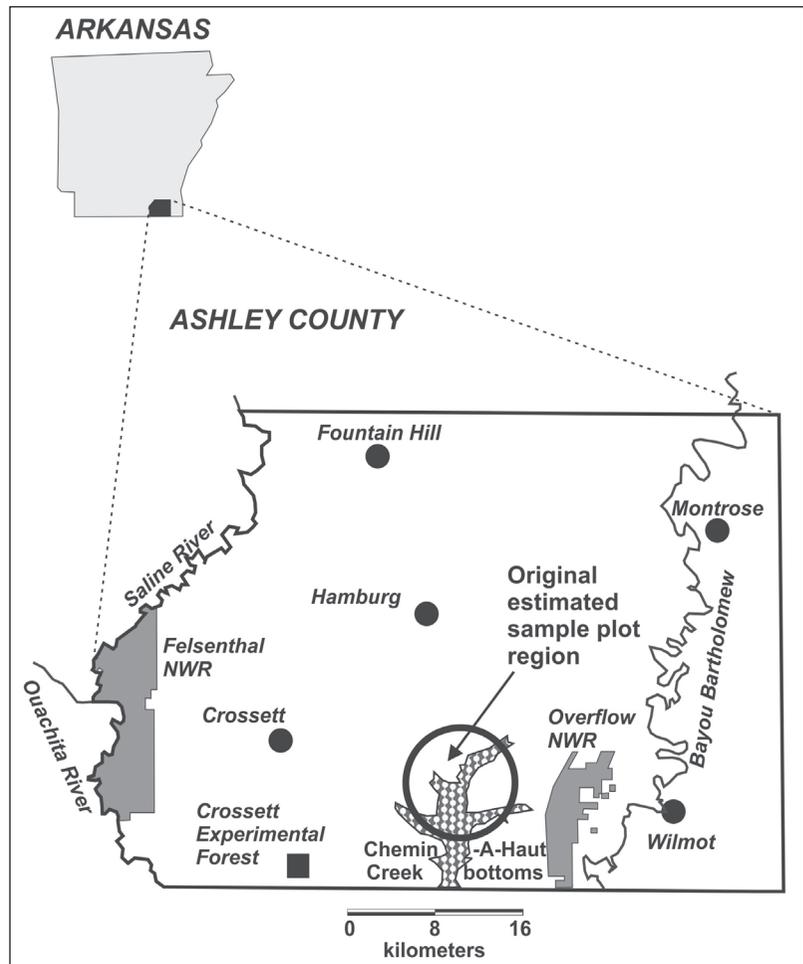
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rarity of *Pinus echinata* Mill. (Shortleaf Pine). Based on the species composition, Reynolds likely placed the plot on a minor stream terrace—a common, but narrow habitat across southern Arkansas. The terrace would have to have measured 220 m x 146 m, or 3.2 ha, to be large enough to contain this sample plot, suggesting that it had been established along one of the larger streams, the most likely candidate Chemin-A-Haut Creek (Fig. 1). My identification of Chemin-A-Haut Creek as the most-probable plot location did not narrow down the likely study area much because the terraces associated with that creek cover many hundreds of hectares.

*Findings.* A fortuitous discovery in the archives of the Crossett Experimental Forest helped me to clarify some of this uncertainty. Reynolds had kept a daily log of his work-related activities from when he started in July 1931 with the USFS’s Southern Forest Experiment Station until he retired in 1969, which included his work location and the primary task(s) (Fig. 2). A copy of this record was kept at the Crossett Experimental Forest from its formal opening on 1 January 1934, into the 1950s. Recently, I discovered Reynolds’ daily logs from 1931 to 1934 in some of his correspondence. According to his notes, on 13 August 1933, Reynolds drove to Crossett from his New Orleans duty station to begin his first major project in the area—marking the East Block for uneven-aged management (Reynolds 1980). Reynolds worked most of the rest of the months of August, September,

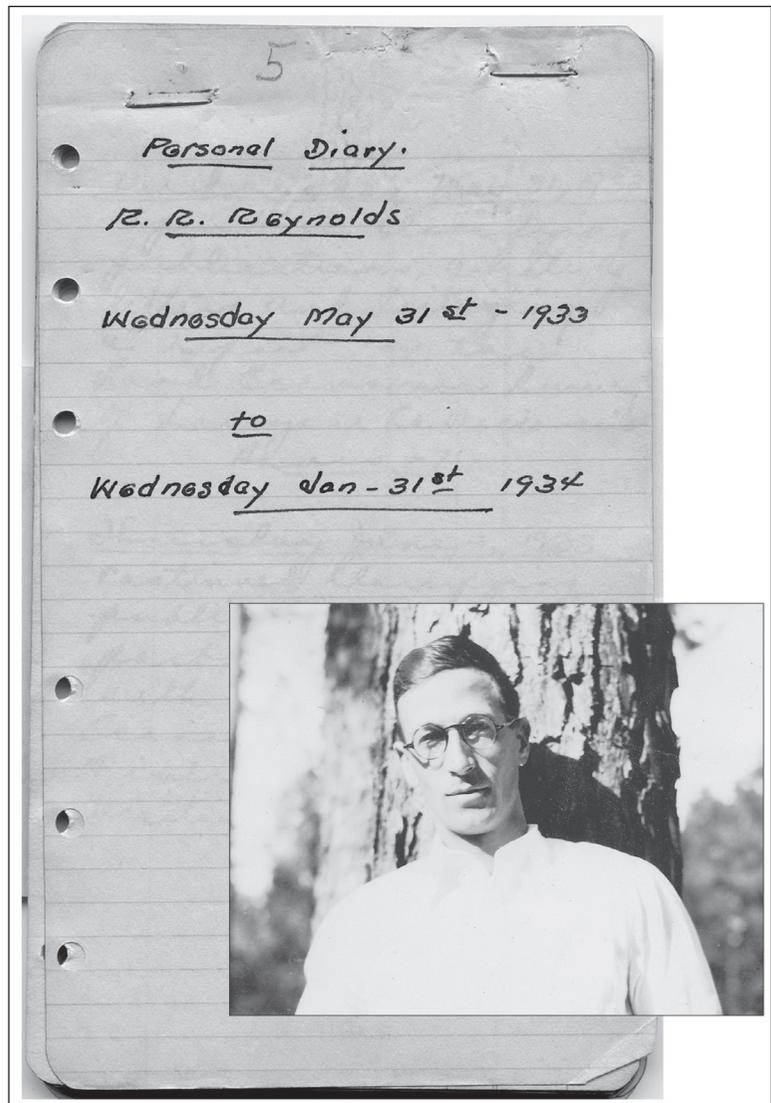
Figure 1. An adaptation of Figure 2 from Bragg (2004) showing the then-estimated location of the study plot (circled area).



October, and November in the East Block. His entry for Sunday, 17 September 1933, reads as follows: "Spent part of day (4 hours) laying out a sample plot of 8 acres [3.2 ha] upon which to collect growth and stand data." This is exactly the size of the plot found in the files, given in Bragg (2004), and that I was seeking to locate. There are no further entries related to this plot until 20 November, when Reynolds "[b]egan taking tree measurements and increment borings on a sample plot in the East Block"; he continued collecting data for 3 more days. It is now clear that Reynolds established the plot location in September 1933 and collected the data for this sample plot from 20 to 23 November 1933.

Why was this sample plot established? Given the location and some associated correspondence found in the USFS study files, Bragg (2004:329–330) assumed that information from the site was supposed to support the inventory work Reynolds was doing for the Crossett Lumber Company. These data may have contributed to regional timber assessments Reynolds worked on during this period. However, given when this plot was

Figure 2. Coversheet of the daily-work logs kept by Russell R. Reynolds (pictured in inset) during the period of the establishment and measurement of this study plot. Inset picture from USFS archives, circa 1930s.



established, the data were not part of the information Reynolds and fellow USFS forester A.E. Wackerman gathered for the Copeland Report (USFS 1933). Reynolds and Wackerman were uncredited contributors to the section of the Copeland Report that reviewed the state of private forestry in the early 1930s (Kirkland 1933). They provided brief size-class descriptions of what constituted average and well-stocked Shortleaf Pine–Loblolly Pine stands in northern Louisiana and southern Arkansas. Reynolds’ work logs in late 1932 and early 1933 showed that he spent a considerable amount of time preparing materials for this report. The Copeland Report was submitted to Congress in March of 1933, months before the East Block sample plot was laid out and measured. I found clarifying information in Reynolds’ work log. According to his 20 November 1933 entry, Reynolds specifically stated that this sample plot helped to determine pine growth for a selective logging study on the East Block for the Crossett Lumber Company.

Unfortunately, the entries related to this sample plot do not give its exact location; there appears to be no surviving study plan, if one ever existed. However, in the days immediately prior to and after this plot was laid out (mid-September 1933), Reynolds had been selectively marking timber for the Crossett Lumber Company in Sections 1 and 2 of Township 19 South Range 7 West (T19S R7W). Early on 20 November 1933, when Reynolds first collected data on this sample plot, he had worked a 10% cruise of the northern portion of Section 3 in T19S R7W. Sections 1, 2, and 3 of T19S R7W are located just west of the small community of Berlin, and they encompass some of the terraces along Chemin-A-Haut Creek and its tributaries (Fig. 3) ~18 km ESE of the city of Crossett, AR. In sections 1 and 2, the Chemin-A-Haut bottoms are over 1.5 km wide, and could easily contain the study plot. Hanks Creek, a major tributary of Chemin-A-Haut, has an ~1/3–1/2-km-wide bottomland

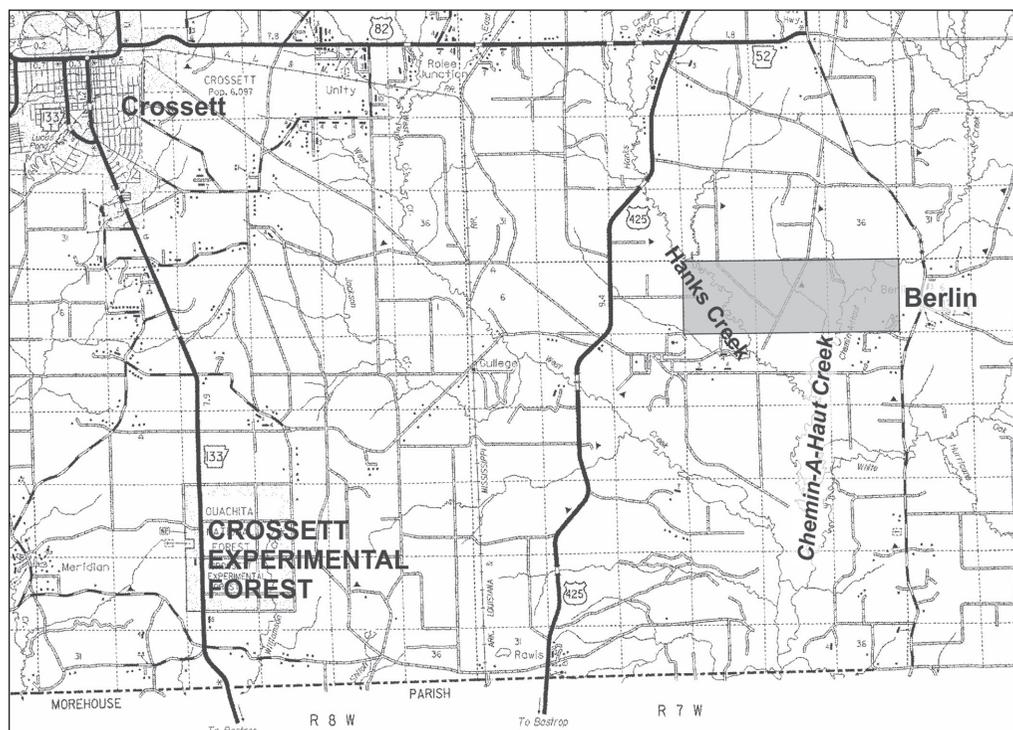


Figure 3. Ashley County highway map (from 1936) showing the most probable location of the study plot (Sections 1, 2, or 3 in T19S R7W; shaded area near the community of Berlin) as interpreted from daily-work logs of Reynolds.

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in Section 3, and thus also could have held this plot. Therefore, it is highly probable that Reynolds established this sample plot somewhere in immediate proximity to Berlin, considerably narrowing the possible location area suggested by Bragg (2004).

In summary, I confirmed that the previously described 1930s-era sample plot was established and measured by Russell R. Reynolds in late 1933 near Berlin, AR, probably in the Chemin-A-Haut Creek bottomlands. Historical study records and investigator notes are invaluable tools that can be used to improve the knowledge of past research and this information should be archived so that it remains accessible well after the original study has been closed.

*Acknowledgments.* First, I would like to recognize the foresight of Russ Reynolds to record his activities many decades ago, which made this paper and the previous one possible. I am also grateful to the following for their assistance on this effort: O.H. “Doogie” Darling, Mike Shelton, Jim Guldin, and 2 anonymous reviewers. This work was supported by the US Forest Service’s Southern Research Station.

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