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RESPONSE

## History of Silviculture on Public Lands

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**T**here are many instances in scholarly activity where the writing of a colleague is made more vivid when one knows him or her personally—and Eric Zenner’s essay is certainly no exception! I can see Eric at a podium of a forestry school in the United States or Europe, emphatically proclaiming that “Silviculture is the pen with which our profession writes, but too often silviculturists have writer’s block!” In this essay, he offers a compelling and entertaining development of the historical perspective of the evolu-

tion of silviculture in Europe and North America, especially in reference to the management of public forestlands.

Three elements of Zenner’s thesis don’t quite translate to the forests of the southern United States, where public ownership accounts for less than 15% of the region’s forestlands; another 30% is managed for industrial wood production, and the balance is in family-owned forests (Wear and Greis 2012). This mixed ownership confounds the question of “ownership” of silvicultural practices viewed by society. When critics of forest management practices see a silvicultural treatment they dislike on a hillside or along a highway, they often don’t know and generally don’t care whether the treat-

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ment was imposed on public, family, or industrial forestlands—it's the practice they don't like. As a result, public opinion about forestry and foresters in the South is the sum of practices across all ownerships. For example, public concerns over clearcutting on the Ouachita National Forest in the 1970s–1980s were partially fueled by views of recent clearcuts on industry land in the region (Wilson and Guldin 1991). At the time, most professional foresters believed the solution was simply to educate the public about the benefits of clearcutting, which are many (e.g., Fox et al. 2007).

But that technocratic approach didn't really work. It is not surprising that when federal land managers provided a venue where public complaints were heard in good faith, silvicultural activities evolved to a much more diverse array of practices for a much more diverse array of management objectives, as Zenner suggests. That has certainly been the experience on federal lands in the South—one of the outcomes of the Ouachita National Forest clearcutting controversy was much greater use of alternative silvicultural systems (Strausberg and Hough 1997). However, projections show that by the year 2050, 50 million acres or 25% of the South's private forestlands are likely to be clearcut and planted to pine on rotations of generally less than 30 years (Wear and Greis 2012). Practicing the most saintly silviculture on public lands is unlikely to temper the public's opinions about what they like and do not like about forestry and foresters—even in the “timber-friendly” South.

Another part of Zenner's essay that doesn't quite translate to the southern silvicultural dialect is his point that forestry practices through the middle of the 20th century were ineffective. That may be the case elsewhere in the United States but is certainly not in the South. For example, in the West Gulf region, the history of harvest of the virgin stands in the region left two kinds of stand conditions—completely denuded tracts covering large swaths of the lower West Gulf Coastal Plain and cutover stands with subsawtimber merchantable volume in the upper West Gulf Coastal Plain. On upper Coastal Plain sites, the story centers on the rehabilitation of cutover southern pine stands with manageable volume, which developed into the proof of concept for sustainable management of second-growth forests in the South. Stand dynamics and development (especially in southern Arkan-

sas and northern Louisiana) led early researchers to realize that second-growth stands of southern pines could be sustainably managed (e.g., Ashe 1910, 1929, Forbes and Stuart 1930, Wackerman 1931, Chapman 1942). Similarly, cutover moderately stocked southern pine stands could profitably recover to fully stocked conditions using the selection method (e.g., Garver and Miller 1933, Pomeroy 1950, Reynolds 1959). In short order, the seed tree method was shown to be effective for managing mixed loblolly-shortleaf pine stands (Wahlenberg 1960, Langdon 1981), and the shelterwood method was developed for natural regeneration of longleaf pine (Crocker 1956, Crocker and Boyer 1975).

On the lower Gulf Coastal Plain sites, new science in nursery propagation of pine seedlings and in the technology of planting was developed. That technology also gave rise to a better understanding of forest genetics, leading to the single most impressive silvicultural advance of the 20th century in the South—the development of genetically improved southern pine planting stock that underlies the science and practice of intensive silviculture for industrial wood and fiber production (Fox et al. 2007).

In some ways, 20th-century silviculture has been entirely too successful on private lands in the South. Data suggest that the increase in area of pine plantations in the South has occurred concurrently with a decline in area of natural pine stands (Wear and Greis 2012). Fully stocked sawtimber-sized stands of southern pines represent a valuable capital asset that is subject to liquidation when land transfers across generations within a family, when taxes come due on a late landowner's estate, or when forestlands are sold in a real estate transaction. Examples include the transfer of family-owned forest products companies to publicly traded, vertically integrated forest products industries through the latter half of the 20th century, and more recently, the acquisition of forest products company forestlands by real estate investment trusts and timber investment management organizations. In most of these transactions in the South, the silvicultural systems in place under previous owners have been modified to less complex stand structures, and standing volume has often been liquidated by clearcutting, followed by establishment of pine plantations.

Finally, Zenner argues for greater diversity and sustainability in silvicultural prac-

tice, a noble goal with which it is easy to agree while eating Mom's apple pie on the 4th of July! But silviculturists on public and private lands in the South are doing less with less these days. There are fewer people in company woodlands divisions, in state agencies, and in the federal forestry workforce, operating budgets are flat, and stumpage prices are only showing a hint of recovery from the recession in housing from 2009 to the present. Fewer people and fewer dollars for operations are not a formula on which to build a more complicated form of silvicultural practice. And it seems as if fewer forestry schools are meaningfully instructing students about “alternative” silvicultural systems that rely on natural regeneration, and there are fewer examples of such alternatives on the landscape.

The mixed forests and forest ownerships of the South are the real crucible to test Zenner's hypothesis that the salvation of forestry is sustainable silviculture. Moving to a silviculture of the 21st century requires looking at more than just federal lands—it must include private forestlands, including those managed for industrial wood and fiber production as well. And as Zenner points out, involving society is key. The real secret to the South's future in the 21st century is its people—increasingly numerous, increasingly diverse, and increasingly distant culturally from the rural land base where crops are raised and forests are managed. Whatever silviculture is practiced in the 21st century, it will have to configure forests to provide the wood, fiber, recreation, wildlife, and especially now the *water* craved by the South's rapidly growing urban populations.

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