

Over the 2011 Labor Day weekend, wildfire swept through the drought-stricken Lost Pines area of central Texas, burning 34,000 acres, or nearly half of this outlier forest of loblolly pines. Forest biologist Claire Williams and her students have studied this disjunct *Pinus taeda* population for more than a decade and she was finishing up a book on the Lost Pines when this fire took its toll on houses and forest trees alike outside of Bastrop, Texas.

REPLANTING THE (REALLY) LOST PINES OF TEXAS

When wildfire swept through Bastrop County in central Texas over the Labor Day weekend of 2011, the forestry community around the United States took note with calls, conferences, and commentary. Here was the Lost Pines, one of the best-documented forests in North

America, and a well-known case study used to teach generations of students about the importance of matching the right forest seed sources to the right site. And at its center was the Bastrop State Park, an abundant and dense stand of mature and century-old *Pinus taeda* (loblolly pine) trees.¹ As the Texas Parks and Wildlife Department reported, not one of these old centenarians in Bastrop State Park survived the fire's hot blaze.

Because replanting the Lost Pines area is already underway, my aim here is to offer three clues found within historical records that might bear on what to replant. *Replant*, not restore, is the operative word. Any forested landscape is so dynamic that change is its only real constant. This might be what Goethe had in mind when he wrote "[Nature] is ever shaping new forms: what is, has never yet been; what has been, comes not again."² Forests are not static—neither fixed nor permanent. This loss is deeply personal

for many, including myself, yet what happened illustrates the transient nature of the forest life cycle. Historical accounts confirm this ever-changing condition but also offer clues for enhancing survival rates of what is planted.

A REMARKABLE HISTORY

The Lost Pines forest, a disjunct *Pinus taeda* population, was first documented by Spanish explorers led by Don Domingo Tóran de los Ríos and Father Damián Massanet in 1691. This large pine island has since been claimed by New Spain, Mexico, the Republic of Texas, the United States, the Confederate States of America, and then the United States again. During these turbulent years, 19th-century travelers such as Zebulon Pike, Jean Berlandier, Frederick Law Olmsted, Samuel Botsford Buckley, and Charles Sprague Sargent all wrote about the unusual site of a pine island

BY CLAIRE G. WILLIAMS

rising unexpectedly out of the Texas prairie next to the Colorado River. The importance of this vital but isolated source of timber was recognized early on by the *empresario* of the “Little Colony,” Stephen F. Austin, who owned a portion of the same pine forest in what are now the boundaries of the Bastrop State Park.³

The Lost Pines area was completely cutover by 1880, as noted by Charles Sargent in the first forest inventory for the United States. But he also was confident that the Lost Pines forest was recovering on its own.⁴ No other complete cutover⁵ has been reported since, and many of the seedlings from this recovery grew into what ultimately formed the cradle for a mid-20th-century innovation: launching the largest reforestation program ever in the United States. Bruce Zobel and his Texas Forest Service colleagues selected from the oldest drought-hardy pines in Bastrop State Park and clipped branch tips, which they grafted onto pine rootstock in East Texas, thus providing a reliable seed source for decades.

Their success grew into the case study still taught today: that the Lost Pines area in central Texas proved to be the ready-made, drought-hardy seed source for those Texas landowners struggling to replant forests during the dry years of the 1950s. The impetus came from the Texas Forest Service, chiefly known for firefighting at that time, which then integrated the Lost Pines seed source into its full-scale drought-hardy reforestation program. As part of this program, the Texas Forest Service opened its first nursery at Indian Mound in 1940 and then another at Magnolia Springs in 1956. By 1961, these two nurseries had supplied more than 22 million forest tree seedlings annually to Texas landowners.⁶

Given this effort, it should come as no surprise that the state of Texas and the community of Bastrop already have plans for replanting the Lost Pines forest. To this lauded effort I draw on history to offer three clues that could improve chances of seedling survival for the newly replanted Lost Pines area:

Clue 1. The Lost Pines was the surviving island within a lost pine archipelago. The pine island known today as the Lost Pines may have once been part of a larger pine island archipelago in existence as late as 1850. The cool, moist climate conditions that characterized the Little Ice Age (1300–1850 AD) would have favored expansion of pine forests. Indeed, Spanish explorers who first

sighted the Lost Pines in 1691—midway through the Little Ice Age—might have seen larger expanses of pine forests. This is also consistent with reports over the next two centuries, when later explorers mention seeing pine forests in Texas counties that today have no naturally occurring pines. By 1850, the disappearance of this archipelago of scattered pine islands began as the climate

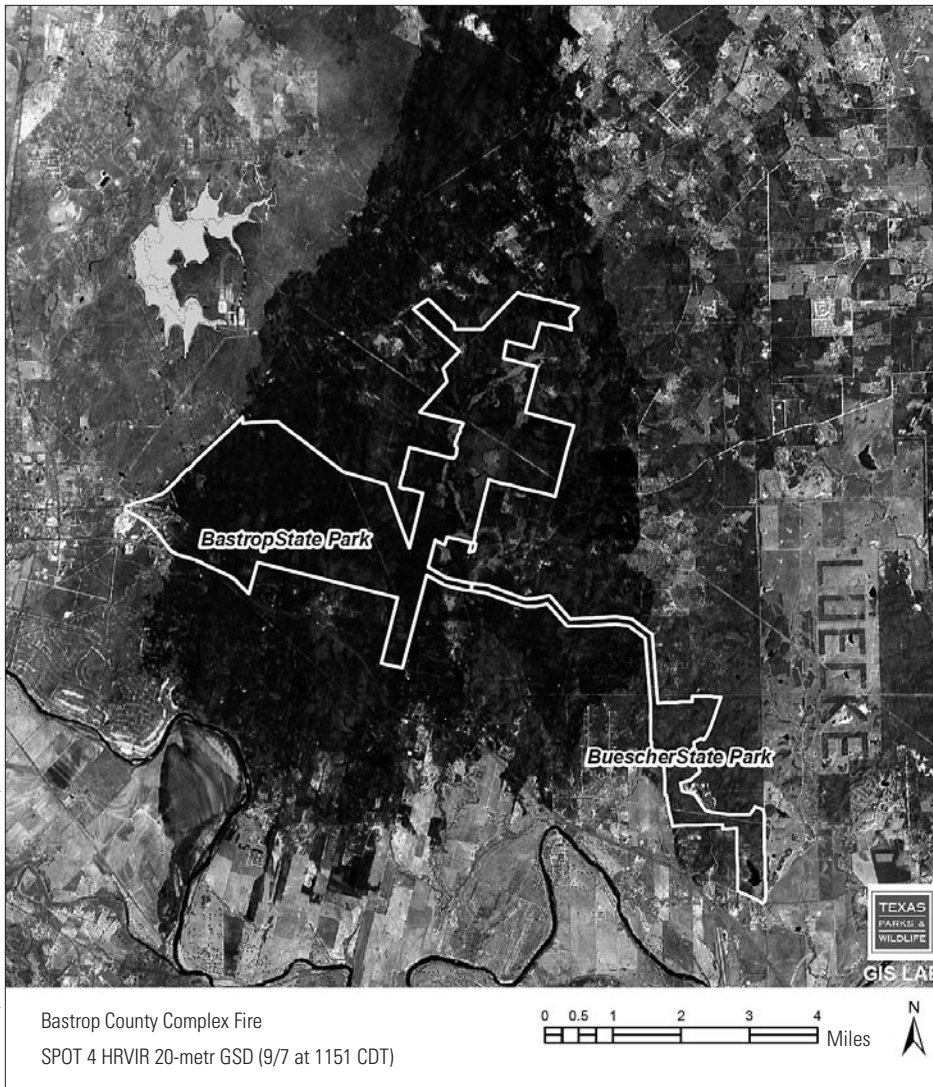


COURTESY OF LEOR PANTILAI; [HTTP://TINYURL.COM/7LC84XE](http://tinyurl.com/7LC84XE)

Above: The Lost Pines, shown two years before fires swept through the park. Below: On a trail in Bastrop State Park, photographed on December 17, 2011, oak seedlings can be seen growing on the left.



COURTESY OF ALEXI SERGEEV; [HTTP://TINYURL.COM/7YPSYPB](http://tinyurl.com/7YPSYPB)



The large dark area in the middle shows the area burned over by the Bastrop County Fire Complex of 2011.

warmed. Their disappearance would have been hastened by Stephen Austin's colonists cutting timber for settlement and agriculture. This clue suggests that planting of the Lost Pines area has to take into account the warming climate rather than simply replace what was there before. Planting more than one pine species would hedge bets against future drought-induced losses.

Clue 2. There were two pine species, not one. Given that the Lost Pines area was completely cutover by the time Sargent conducted his forest inventory, we know little about the primary forest in central Texas. Only a small fraction of it was still standing in 1857 when Frederick Law Olmsted rode through Bastrop as an investigative journalist. The only scientific account came nine years later, in 1866, when Samuel Botsford Buckley, a trained botanist, mentioned in his state-commissioned report that the prevalent species in the Lost Pines area was *Pinus mitis* (a taxonomic tangle which included *Pinus echinata*, or shortleaf pine, and several other pine species not indigenous to Texas or the south-central United States) mixed with some *Pinus taeda*. In fact, the Lost Pines population does have evidence of introgression between these two species, the drought-hardy *Pinus echinata* and moisture-loving *Pinus taeda*; moreover, Buckley's account gains

credence from a 20th-century report, this one from Bruce Zobel, who spotted *Pinus echinata* in the Lost Pines area more than seventy years after the 1880 cutover.⁷ This evidence of drought-hardy *Pinus echinata* and its close relative *Pinus taeda* and their naturally occurring hybrids in the Lost Pines area has not been widely accepted but it is worthy of additional research.

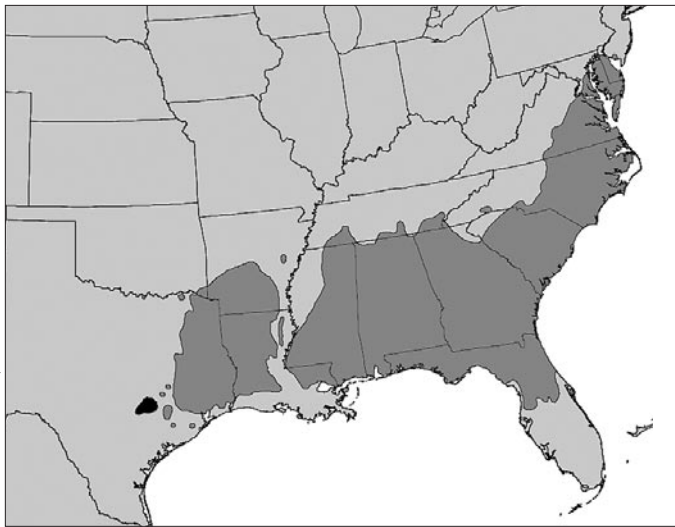
Today, U.S. Forest Service maps and Texas botanical collections show that only *Pinus taeda* is indigenous to the Lost Pines area. It is not clear whether the 2011 Labor Day fire was so extensive that this question of one species or two can still be resolved conclusively. The way forward, to my thinking, is to plant *Pinus taeda* sources from the Lost Pines area if available and also consider a few test plantings of *Pinus echinata*. More drought—not less—can be expected over the next several decades, and this will bear on both species, which have lifespans ranging from 300 to 400 years.

Clue 3. Central Texas droughts act as a sieve for natural selection. Replanted pine seedlings might thrive during years with higher-than-average rainfall, but they will be vulnerable to drought without the supplemental water from the Colorado River, as its upstream flow is managed by the Lower Colorado River Authority (LCRA). These pines also depend on aquifer-fed springs and seeps so numerous in Bastrop County. If seedlings die before they reach reproductive age, then this pine island will not return. If generation

after generation does survive, then this drought-prone area acts as a selective sieve, and seeding in from drought-tolerant pines on site can add to what is planted, eventually replenishing what was lost to the fire.

FURTHER THOUGHTS ON REPLANTING

This idea of pines surviving the sieve of drought has led several organizations in the Lost Pines area to propose autumn cone collections in seed production areas—a worthwhile idea because the Texas Forest Service has a limited supply of drought-hardy seeds available for planting and its East Texas nurseries are no longer open. One candidate is McKinney Roughs, west of Bastrop, which is managed by LCRA; another source would be a number of privately held mature pine stands in the Red Rock area. (Both *Pinus taeda* areas are located on the most drought-prone periphery and both were spared by the Labor Day blaze.) Discussion continues with Texas state agencies; these may or may not formalize operational cone collections, but planting can be designed properly as a foundation for later research verification. *Pinus taeda* is one of the best-studied forest species, so knowledge of its reproductive biology is already well-known.⁸ Activities such as cone collection, seed processing and handling, and sowing are managed routinely



The Lost Pines are separated by more than 100 miles from the natural range of *Pinus taeda* L. in the United States. The area is shaded in black.

by the Texas Forest Service's researchers in College Station.

In closing, the 2011 Labor Day fire was a scientific setback and a deeply visceral loss. Property losses for residents and business owners, many of whom depend upon recreational tourism, are steep. Residents and visitors alike would agree that the Lost Pines area is so culturally, historically, and even scientifically laden that replanting is compelling. Fortunately, the Lost Pines provides enough historical clues that a few can hedge replanting success. □

As a former student of Bruce Zobel, Claire Williams first learned about the Lost Pines as an undergraduate in 1976. She and her own graduate students have conducted original research on the Lost Pines for more than a decade. Now Distinguished Scholar at the Forest History Society, she has published journal articles, presented dozens of scientific and public lectures on the Lost Pines, and served as graduate adviser on a Texas A&M doctoral dissertation on the Lost Pines, written by Mohammad Al-Rababah.

NOTES

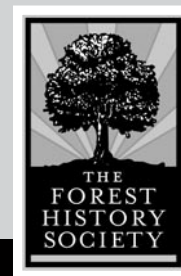
1. The plural is *loblolly pines*, not *loblollies*. A loblolly (singular) refers to a soupy slough or hog wallow.
2. T. H. Huxley, "Goethe: Aphorisms on Nature," *Nature* 1(4 November 1869): 9, accessed at <http://www.nature.com/nature/about/first/aphorisms.html>.
3. Pronounced ba-STROP, this area is named in honor of the Baron de Bastrop, who interceded with New Spain and later Mexico's governors on behalf of Moses Austin and later Stephen F. Austin regarding their Texas land grant. In 1827 Stephen F. Austin received permission to settle his "Little Colony," and in 1832 brought 100 pioneer families to central Texas.
4. Charles S. Sargent, *Report on the Forests of North America (exclusive of Mexico)* (Washington, DC: Government Printing Office, 1884), 542.
5. U.S. Forest Service Forest Inventory Assessment (FIA) data on tree ages in the Lost Pines forest can be accessed at <http://fiatools.fs.fed.us/fido/output.html>. More than 30 percent of the FIA inventory had trees older than 80 years. These age data are corroborated by tree ring data in Bastrop State Park and by archival sources kept by federal and state agencies.
6. See David L. Chapman, "An Administrative History of the Texas Forest Service" (PhD diss., Texas A&M University, 1981).
7. A. Brown, "The Lost Pines," *Gulf Coast Lumberman* 42 (August 1955): 28, 30.
8. Claire G. Williams, *Conifer Reproductive Biology* (Dordrecht, Netherlands: Springer Publishers, 2009).

Peeling Back the Bark *Exploring the collections, acquisitions, and treasures of the Forest History Society*



Peeling Back the Bark is the award-winning blog of the Forest History Society. Blog posts discuss new archive acquisitions, online exhibits, and photo galleries, as well as highlights from the rich resources held in the society's archives and photo collection. Other posts, such as one on illegal logging in China, explore forest history in the contemporary world. Guest bloggers have included leading scholars in environmental history, such as Stephen J. Pyne on wildfires in Australia; Char Miller on the Society of American Foresters; Nancy Langston on environmental health; and Curt Meine on the new Aldo Leopold documentary.

Peeling Back the Bark has received top awards from the Council for Advancement and Support of Education, the Center for Association Leadership, and ArchivesNext. You can subscribe to the blog by email or RSS feed by visiting www.PeelingBackTheBark.org.



www.ForestHistory.org