

“TABERNACLE PINES”

The rest of the story

By William A. Patterson III and David R. Foster

July 1990 readers of the *JOURNAL* were entertained and informed by a reprinted article from *Harper's Magazine* that chronicled a roundtable discussion among five individuals who offered their views and solutions to some of today's pressing environmental problems. Moderated by Michael Pollan, executive editor of *Harper's*, the discussion focused on the panel's disparate views on solutions to specific "hypothetical" situations.

Pollan's first example dealt with the destruction of a magnificent stand of old-growth forest—Tabernacle Pines—and the dilemma over whether to salvage the timber for its economic value or to allow the land to recover "naturally." We immediately recognized the Tabernacle Pines of Pollan's example as a stand that we have visited several times and know well. *JOURNAL* readers might be interested in learning a bit about the *real* Tabernacle Pines. Questions posed by Pollan and responses by the panel address several of the difficult questions associated with conserving outstanding natural features, but these questions might take on added meaning when looking at the actual circumstances associated with one of New England's most destructive recent windstorms.

A National Landmark

Cathedral Pines is, or was, a forty-two-acre tract of majestic white pine and hemlock located in Cornwall in

the northwestern corner of Connecticut (*fig. 1*). Often visited by foresters, naturalists, and biology and ecology classes from throughout southern New England, the area was designated a National Natural Landmark in 1985. The property was acquired by

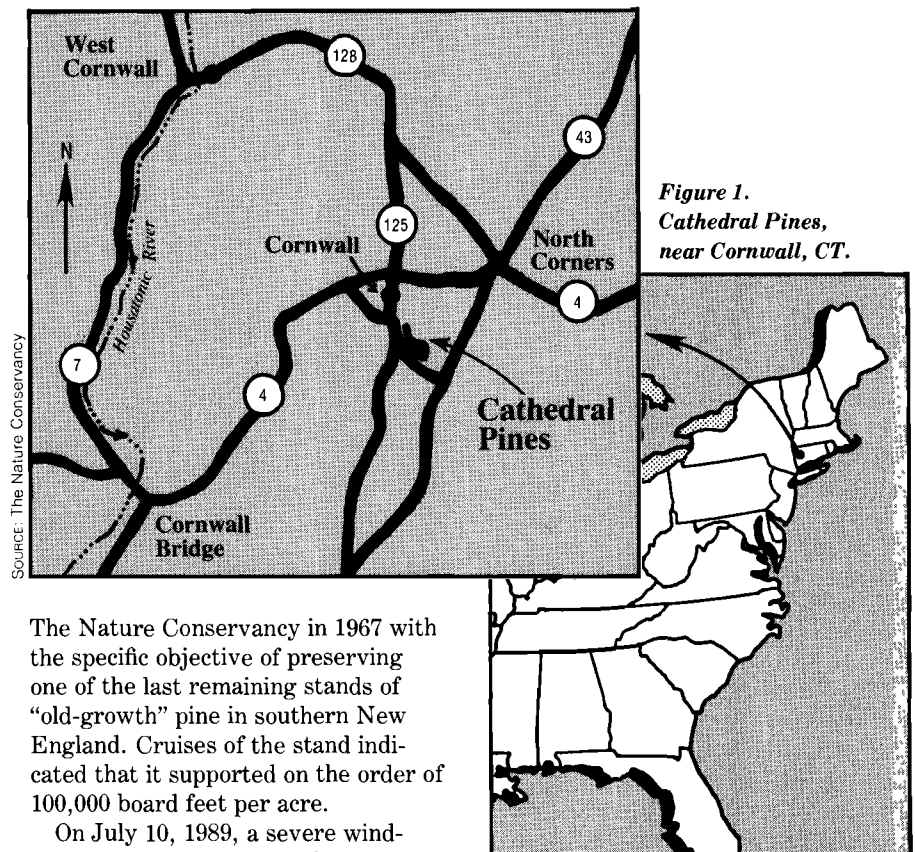


Figure 1. Cathedral Pines, near Cornwall, CT.

The Nature Conservancy in 1967 with the specific objective of preserving one of the last remaining stands of "old-growth" pine in southern New England. Cruises of the stand indicated that it supported on the order of 100,000 board feet per acre.

On July 10, 1989, a severe windstorm bisected the state of Connecticut, causing extensive damage in the Cornwall area and, coincidentally, to

the grounds of the Yale forestry school in New Haven. Cathedral Pines was devastated by the storm. Ninety percent or more of the trees on the portion of the tract containing the oldest and largest pines were snapped off or uprooted. Those familiar with the area before the storm would hardly recognize this as the same landscape that had been designated a National Natural Landmark. Other forested stands in the area also experienced extensive damage. Remarkably, there was relatively little damage to homes and structures in the area, even though the center of Cornwall is less than half a mile from the stand.

We visited Cathedral Pines on August 25, 1989, at the request of The Nature Conservancy, which was being pressured to salvage the timber for its economic value. It was also being asked to mitigate the site's fire potential on the one hand and to continue to preserve the area on the other. Observations in August and on subsequent visits to the site provided an objective historical basis on which future management decisions might be based.

Historical Background

Cornwall is an old New England town. Established in the 1670s, it was a thriving community at the time of the Revolutionary War 220 years ago. Subsistence farming and cutting for fuelwood resulted in the deforestation of much of southern New England by the early nineteenth century. Data collected by David R. Foster of the Harvard Forest as well as Thomas Siccama of Yale University indicated that although a few trees exceeded 300 years in age, the majority of the largest trees formed two age classes established around 1780 and 1840. Study of soil horizons by Scott Navitsky, a Harvard student, revealed charcoal below the organic layer at more than half the sites. These data suggest that much of the forty-two acres supporting old-growth forest at Cathedral Pines in 1989 had been cleared, perhaps for pasture, at the time of the Revolution. White pines commonly invade old fields when southern New England agricultural

fields are abandoned. The Cathedral Pines stand was purchased in 1883 by one of Connecticut's earliest state park commissioners to protect the forest from cutting, and it was subsequently preserved by his heirs. Salvaging blight-killed chestnut, the stumps of which remain from the 1920s, gave rise to a purer stand of pine and hemlock than was apparently



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Cathedral Pines six weeks after the August 1989 blowdown.

present in 1883. In recent decades the stand has begun to open up due to mortality of some overstory pines. In 1970, a windstorm uprooted and broke small groups of trees.

The Nature Conservancy was concerned about potential fire hazard following the 1989 blowdown. Historical studies at Harvard University's old-growth Pisgah Forest in southwestern New Hampshire showed that windstorms and fires are the most common disturbances, and that fire frequently follows extensive blowdowns (Cline and Spurr 1942, Henry and Swan 1974, Foster 1988a, Foster 1988b). The twenty-acre Pisgah Forest, which was windthrown in the great hurricane of 1938, was remarkably similar in structure and composition to Cathedral Pines, and its destruction in 1938 provoked concerns similar to those faced by The Nature Conservancy. The Harvard Forest, which managed Pisgah, was pressured by local, state, and federal authorities to salvage the tract in order to minimize the fire hazard.

A.C. Cline, then director of the Harvard Forest, held firm against the pressure, however, and the "destroyed" forest has become a fertile location for research, a major educational site for classes and field trips, and one of the central study sites for the Harvard Forest Long Term Ecological Research program. Interestingly, Cline based his decision to preserve the blowdown stand on historical studies that indicated the 300-year-old trees had been established after a windstorm and fire had destroyed an earlier forest in the early 1600s (Branch et al. 1930). Increasing evidence on the role of natural and anthropogenic disturbance in southern New England (see Patterson and Backman 1988, Patterson and Sassa-man 1988) thus suggests that stand survival for 200 or more years is rare, which makes the Cathedral Pines area distinctive.

No Simple Answers

But questions remain. How does one manage an area once the features for which it was set aside are no longer intact? How do we preserve

"natural" communities that clearly have their origin in the handiwork of our predecessors? Are areas like Cathedral Pines important ecological features where "natural" processes should be allowed to determine the subsequent fate of the land? Are they "museum pieces" that should be restored once damaged? Or are they natural "gardens," as one of the panelists suggested, where managers work with native species to create landscapes that society values, for whatever reason (majestic large trees or solitude in a rapidly urbanizing environment)?

The various responses of the panelists provided a useful point of departure for discussions leading to answers to the above questions, questions that clearly society as a whole must address. Our purpose is not to agree or disagree with individual panelists. Our experience on the area does suggest, however, answers to a few of the more specific questions.

Clearly the fire hazard is of concern. The history of fire following similar blowdowns elsewhere suggests that to ignore the potential for fire would be imprudent. Simply salvaging merchantable logs from the area would have little effect, however. Heavy fuels rarely dry to the point where they will sustain a fire in the mesic hills of northwestern Connecticut. It is for good reason that local foresters refer to them as "asbestos" forests! To reduce the fire hazard effectively slash would have to be removed, but this would expose steep (20+ percent) slopes, with shallow to bedrock soils, to erosion that might cause as much damage on the site and to surrounding roads and property as a fire. Actions to reduce fire hazard from residual slash and to limit erosion would rapidly deplete any financial gain that might be realized from salvaged timber, much of it on slopes that are unworkable with the logging machinery normally used in southern New England. The Nature Conservancy chose to construct a fifty-foot-wide fuelbreak and fire access route around the stand, post the area to discourage visitors, and increase vigilance during periods of high fire danger.

The question of whether to allow the stand at Cathedral Pines to restore itself to pine seems moot. Without fire to prepare a seedbed and discourage competition, northern hardwoods rather than pines will probably colonize the site in years to

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come. If New Englanders would like their grandchildren to walk in stands like the former Cathedral Pines, forest managers should select stands of maturing pine today and preserve those areas so that, if they survive a hurricane or two, they in turn might become "old-growth" stands in another 100 years. ■

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