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Brian P. Oswald

*Stephen F Austin State University*, boswald@sfasu.edu

Ike McWhorter

*United States Forest Service*

Penny Whisenant

*Stephen F Austin State University*

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# INVOLVING THE PUBLIC IN RESTORING THE ROLE OF FIRE IN THE LONGLEAF PINE ECOSYSTEM OF UPLAND ISLAND WILDERNESS

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Brian P. Oswald, Hunt Professor of Forestry  
Arthur Temple College of Forestry and Agriculture  
Stephen F. Austin State University  
boswald@sfasu.edu

Ike McWhorter, Fire Ecologist  
United States Forest Service  
National Forest and Grasslands in Texas

Penny Whisenant  
Arthur Temple College of Forestry and Agriculture  
Stephen F. Austin State University

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**Abstract.**—The 13,250-acre Upland Island Wilderness (UIW) in Texas was established in 1984 and is managed by the United States Forest Service (USFS). Historically, portions of it consisted of open and diverse longleaf pine (*Pinus palustris*) ecosystems which depend on frequent, low-intensity surface fires. As in many other relatively small wilderness areas, the vegetation and fuel conditions in the UIW underwent extensive changes after wilderness designation. Lightning-caused wildfires were no longer allowed to burn with the frequency or intensity that characterized the natural fire regime. This has resulted in an increase of shade-tolerant trees and shrubs, heavy accumulations of duff and pine litter, and loss of suitable habitat for several rare species, including the red-cockaded woodpecker (*Picoides borealis*). In addition, the unnatural fuel accumulations have created a serious fire hazard that threatens the safety of firefighters, private citizens, adjacent properties, and the wilderness resource itself. The USFS recently developed a fire management plan and conducted an environmental analysis (EA) involving all interested stakeholders. The primary goal of this effort was to reduce hazardous fuels in the wilderness to acceptable levels while restoring the ecological role of fire.

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## 1.0 INTRODUCTION

Historic accounts of the dominant longleaf pine (*Pinus palustris*) communities of the southeastern United States describe an open, park-like stand structure maintained by frequent, low-intensity surface fires (Bray 1904, Harper 1920, Peet and Allard 1993). Ignited by lightning and native peoples, these fires limited hardwood encroachment and enhanced longleaf pine regeneration (Hiers et al. 2007). In recent decades, because of wildland fire suppression policies, lightning-caused wildfires have not been allowed to burn with the frequency or intensity that once characterized the natural fire regime.

Today, restoration of these degraded longleaf pine-dominated ecosystems is a regional priority (Gilliam and Platt 2006, Outcault 1997) and the reintroduction of fire is considered critical (Hanula and Wade 2003). In many cases, wilderness fire management includes allowing lightning-caused fire to play its natural role in the ecosystem. However, the natural lightning fire processes that once occurred at a landscape scale are no longer functional in many places. In addition, other present land management policies, land uses, and on-the-ground conditions complicate the reintroduction of fire.

## 1.1 The Upland Island Wilderness

The Upland Island Wilderness (UIW; Fig. 1), a United States Forest Service (USFS) site in Texas, has been managed with a policy of fire suppression since it was designated as a national wilderness area in 1984. At 13,250 acres, the UIW is too small to receive enough natural ignitions to approximate the fire frequency of the natural fire regime. Given existing conditions, lightning-ignited fires that do occur are not allowed to burn because they would threaten life and/or property within and outside of the UIW. At the same time, effective fire suppression programs and changes in the structure and continuity of wildland fuels have

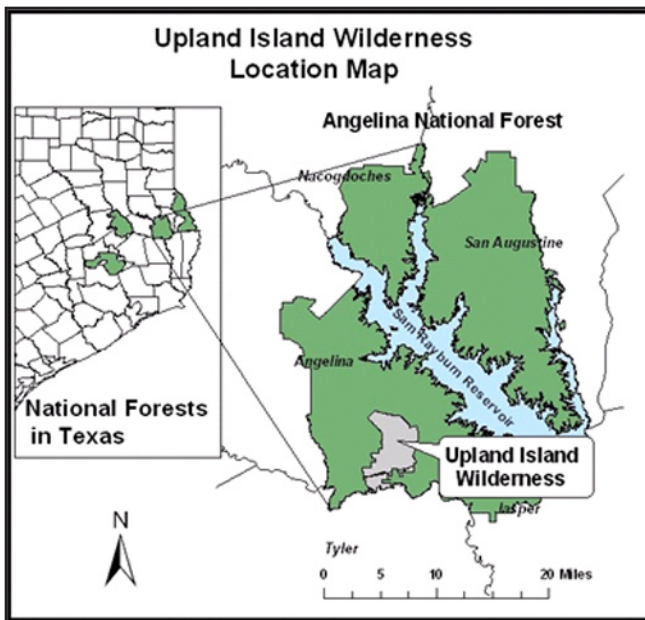


Figure 1.—Location of Upland Island Wilderness within the Angelina National Forest, USFS, in east Texas, USA.

reduced the potential for fire spreading *into* the UIW from surrounding areas. Fires originating outside the wilderness boundaries are either suppressed or contained by human-created fire barriers.

As a result of these changes in the fire regime over time, wilderness values and biological diversity are declining in the UIW, while hazard risks (like fuel, insects, and diseases) are increasing. Shade-tolerant trees and shrubs have increased, duff and pine litter have accumulated, and suitable habitat for several rare species, including the red-cockaded woodpecker (*Picoides borealis*), has been lost. In addition, unnatural fuel accumulations have created a serious fire hazard that threatens the safety of firefighters, private citizens, adjacent properties, and the wilderness resource itself.

## 2.0 RECENT CHANGES IN FIRE MANAGEMENT PLANNING AT THE UIW

The USFS has recently developed a fire management plan for the UIW and conducted an Environmental Analysis (EA) involving all interested stakeholders. In addition, an interdisciplinary team of private, state and federal agencies and organizations has evaluated and proposed the use of fire in UIW. The primary

goal of these efforts is to reduce hazardous fuels in the wilderness to acceptable levels while restoring the ecological role of fire. Fuel reduction is necessary to protect human life and adjacent private property, to increase the safety of wildland firefighters who would have to respond to wildfires within UIW, and to protect the ecosystems in UIW from possible wildfire conflagrations or high severity fires. A reduced fuel load will also make possible a wider range of options for responding to unplanned ignitions in the wilderness, including management of lightning-caused wildfires to achieve wilderness objectives.

## 2.1 Background on the UIW Fire Management Plan

Over the last 20 years, a number of collaborative milestones informed the current plan to reintroduce fire into the management scheme on the UIW. In 1994, Stephen F. Austin State University (SFASU) and The National Forests and Grasslands of Texas (NFGT, a management unit of the USFS) conducted a “Limits of Acceptable Change” (LAC) analysis for UIW. The LAC development process involved both public agencies like the Texas State Senate’s Committee on Natural Resources and private partners like the Sierra Club, The Nature Conservancy (TNC), and concerned citizens. The LAC report identified the important wilderness values threatened by human use, established standards for defining acceptable conditions, and developed strategies for addressing areas of concern. Recommendations included the use of prescribed fire to restore a safe and natural fuel structure that emulates the historic fire regime.

In 1996, the NFGT’s updated and revised forest plan for the UIW was approved. A cooperative project between TNC and SFASU developed an “Ecological Classification System for the National Forests and Adjacent Areas of the West Gulf Coastal Plain,” which provided the ecological framework for the proposed restoration effort at UIW. Between 2004 and 2006, SFASU and NFGT developed the first iteration of the Upland Island Wilderness Fire Management Plan, which identified human-ignited prescribed fire as the management option of choice to restore the longleaf pine portions of UIW.

In 2007, UIW managers, TNC, and SFASU engaged concerned citizens in the UIW fire management planning process via a public meeting, a field trip to UIW, presentations to Beaumont and Houston Sierra Club chapters, a scoping letter, a minimum requirement analysis, and numerous direct contacts with landowners. One of the many challenges in developing a burn plan for UIW was the lack of natural fuel breaks and the extent of private property (over 17 miles) adjoining the wilderness area (Fig. 2). The Sierra Club raised a number of concerns, many of which were addressed in the final plan. For example, the plan was amended to include the requirement that prescribed burning mimic the natural fire regime by replicating natural fire frequency, seasonality, rate, duration, start locations, and patchiness. In addition, preburning activities are required to include establishing fire lines outside of the UIW and all fire ignitions are to be done by hand. If natural lightning fires occur, they will be allowed to burn. Lastly, no one will be allowed to intentionally manipulate fire to favor any particular plant, animal, or community.

## 2.2 The 2010 UIW Fire Management Plan

The most recently proposed (2010) UIW Fire Management Plan has a number of updates and new features. It proposes conducting cool season prescribed burns on 12,000 acres in 6 units at 1-3 year intervals since the UIW is too large to burn in a single event while still maintaining burn objectives. In these cases, helicopter ignitions would be permitted because heavy fuel loads preclude safe hand ignitions, larger areas could be burned in single events, fewer interior fire lines would be required, and air quality effects would be reduced since smoke emissions would occur over a shorter time period.

The 2010 plan also proposes establishing approximately 17 miles of mechanically created fire lines on private property outside of UIW boundaries, with another 8 miles of line along adjacent USFS (Angelina National Forest) property (Fig. 3). Within the UIW, 6.3 miles of abandoned road beds and approximately 5 miles of creeks and wet areas will be used for fire lines. As part of the overall ecosystem approach to this project and reflecting the buy-in of

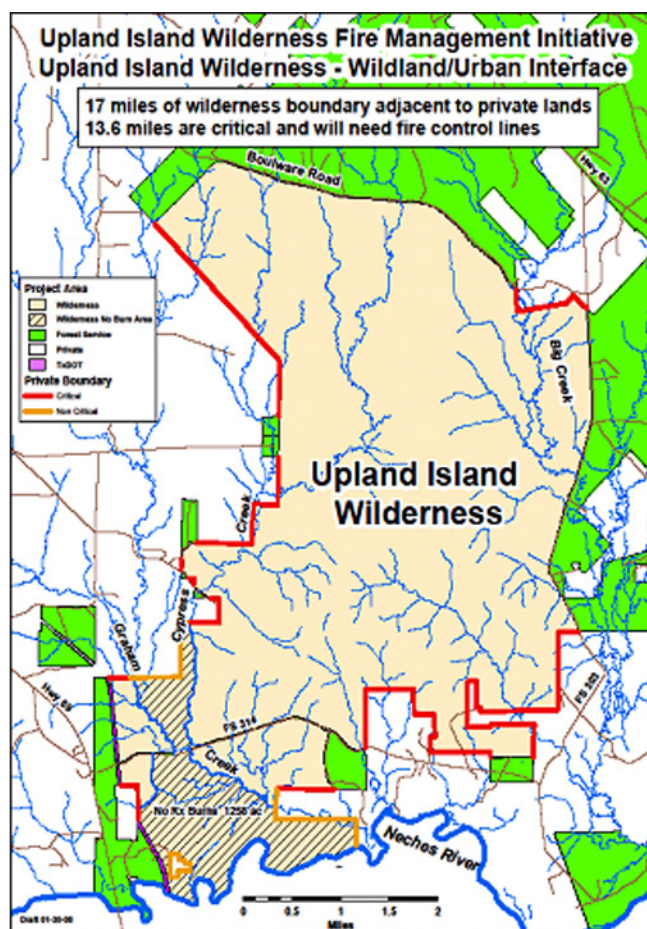


Figure 2.—Location of private property boundaries of Upland Island Wilderness, USFS, east Texas, USA.

some of the stakeholders, 566 acres may be burned on 13 private tracts within or adjacent to UIW boundaries. An additional 402 acres of Angelina National Forest will also be burned.

The environmental assessment (EA) associated with the 2010 plan also stipulated that chainsaws will only be used in emergency situations, leaf blowers will be allowed just prior to burn if time is critical to clear previously prepared firelines, and hose lays and pumps will be used only as needed. Post-burn assessments will be conducted to see if objectives have been met and to determine the timing of future burns.

The Regional Forester signed a Decision Notice and Finding of No Significant Impact on May 28, 2010. The Houston Chapter of the Sierra Club subsequently filed an appeal but withdrew it once the major issues described above were resolved. Negotiations with the



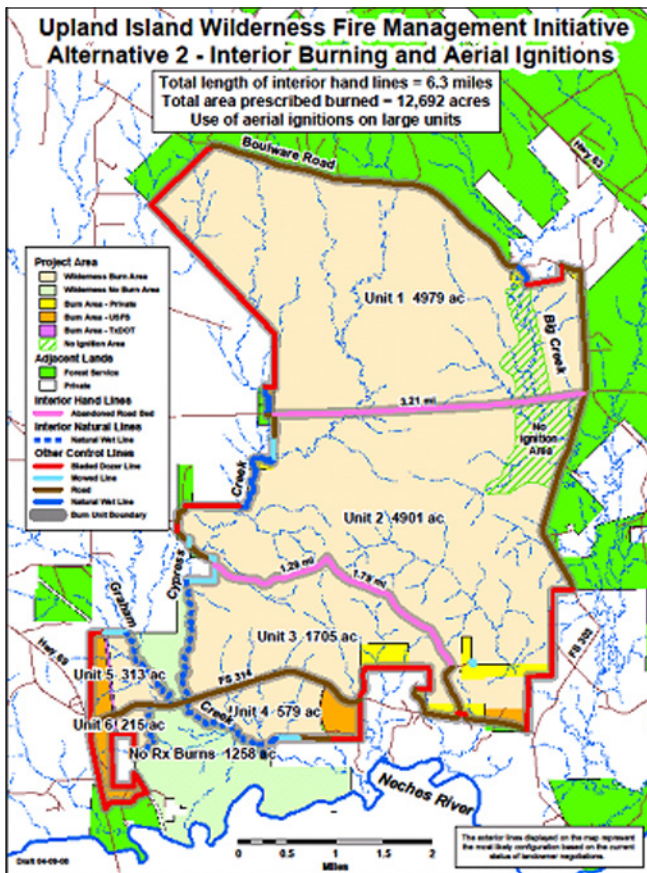


Figure 3.—Proposed burn units of Upland Island Wilderness, Angelina National Forest, east Texas, USA.

Sierra Club also led to agreements that leaf blowers would not be used in preparation of fire lines and that helicopter patrols after burns would be limited to one flight per day.

### 3.0 CONCLUSIONS

This collaborative process built on stakeholders' commonly held appreciation of wilderness values to reintroduce fire into the land management of the UIW, a small wilderness area. It became apparent during the plan development process that landowner cooperation was not only essential for success, but also resulted in an increased public understanding of the role of fire in this ecosystem. The current land management, fire, and burn plans address the critical ecological principles and a range of stakeholder concerns while making firefighter and public safety the top priorities.

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