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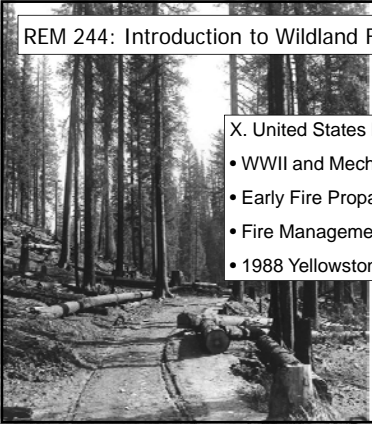
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REM 244: Introduction to Wildland Fire Management



X. United States Fires: 1950-1990

- WWII and Mechanization
- Early Fire Propaganda
- Fire Management Reform
- 1988 Yellowstone Fires

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REM 244: WWII and Mechanization

Although the start of WWII essentially ended the CCCs and devastated the status of operation fire management, during and the end of WWII signaled a new surplus of personnel and resources.

During WWII, Japan launched ~9300 "fire balloons" (風船爆弾, Fu-Go) against the US.

Although these attacks were fairly ineffective, the threat they posed enabled the forest service to acquire resources during WWII.

By the end of WWII the forest service was essentially in control of U.S. fire management operations.



A Japanese Fire Balloon  
Sources: Wikipedia, Pyne (1982)

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REM 244: WWII and Mechanization

By the end of WWII the problem of fire in the United States had changed from one of Backcountry fire to Mass fire; the events of WWII brought about Conflagration Control over hour control.

Conflagration control used firebreaks and over approaches to contain the fire.

Another development at the end of WWII was the surplus of military personnel and equipment. WWII had provided the US a new model for organization of large campaigns that was well suited to the problems of wildland fire management.



Plane dropping fire retardant (1958)  
Sources: NPS.gov, Pyne (1982)

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REM 244: WWII and Mechanization

By the end of WWII the problem of fire in the United States had changed from one of Backcountry fire to Mass fire; the events of WWII brought about Conflagration Control over hour control.

1954: Operation Firestop at Camp Pendleton, California, experimented with using helicopters for firefighting.

1954: Forest Service given national jurisdiction over rural fires.

To many, the era of the 10 AM policy had been at the cost of forestry. During this era the chief of the forest service was often called the "Nation's Fire Chief".



Military experiments in controlling fire  
Sources: foresthistory.org, Pyne (1982)

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REM 244: Early Fire Propaganda

1940: Before Smokey the Bear came out of the forest to help the Forest Service's crusade against wildfires, posters like "Death Rides in the Forest" provided stark messages to the public about fire.



Images from smokeybear.com / USFS

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REM 244: Early Fire Propaganda

In 1942 the world was introduced to Bambi and the bad perceived impacts of fire was shown on the big screen.



Fire images from the Disney movie Bambi (1942)

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REM 244: Early Fire Propaganda

1944 saw the arrival of Smokey the Bear

The early U.S. Forest Service fire propaganda via Smokey the Bear helped to establish fire as being a menace in the American physique. An image that arguably remained unchallenged until after the 1988 Yellowstone Fires.



Smokey the Bear Images from smokeybear.com / USFS

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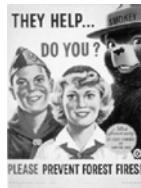
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REM 244: Early Fire Propaganda

1950s saw the more familiar face of Smokey The Bear.

This decade saw Smokey the Bear undertake a mass media campaign to educate the American public.



Smokey the Bear Images from smokeybear.com / USFS

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### REM 244: Fire Management Reform

In the 1940s and 1950s officials in the National Park Service had observed the increase fire hazard resulting from fire exclusion. These earlier concerns were often dismissed:

"You don't know enough to make sound decisions on this type of management, and stopping all fires is less expensive anyway."

Sequoia NP, *NPS.gov*

In 1955 the McGee fire burned > 13,000 acres of brush and forest. This fire also had threatened the Grant Grove sequoias.

This fire led to studies by Harold Biswell and others who highlighted the risk to these groves due to fire exclusion.



General Sherman Tree  
Source: NPS.gov; foresthistory.org;  
Arno and Allison-Bunnell (2002)

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### REM 244: Fire Management Reform

1963: The Leopold Report considerably re-orientated the National Park Service's policies on wildland fire management.

From The Leopold Report (1963):

The major policy change which we would recommend to the National Park Service is that it recognize the enormous complexity of ecologic communities and the diversity of management procedures required to preserve them. The traditional, simple formula of protection may be exactly what is needed to maintain such climax associations as arctic-alpine heath, the rain forests of Olympic peninsula, or the Joshua trees and saguaros of southwestern deserts. On the other hand, grasslands, savannas, aspen, and other successional shrub and tree associations may call for very different treatment. Reluctance to undertake biotic management can never lead to a realistic presentation of primitive America, much of which supported successional communities that were maintained by fires, floods, hurricanes, and other natural forces.



A. Starker Leopold (son of Aldo Leopold)  
Source: NPS.gov

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### REM 244: Fire Management Reform

The Leopold Report was widely adopted by the National Park Service and set the foundation for future policies.

From The Leopold Report (1963):

Of the various methods of manipulating vegetation, the controlled use of fire is the most "natural" and much the cheapest and easiest to apply.

Unfortunately, however, forest and chaparral areas that have been completely protected from fire for long periods may require careful advance treatment before even the first experimental blaze is set. Trees and mature brush may have to be cut, piled, and burned before a creeping ground fire can be risked. Once fuel is reduced, periodic burning can be conducted safely and at low expense.

On the other hand, some situations may call for a hot burn. On Isle Royale, moose range is created by periodic holocausts that open the forest canopy. Maintenance of the moose population is surely one goal of management on Isle Royale.



A. Starker Leopold  
Source: NPS.gov

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REM 244: Fire Management Reform

In late 1967 the National Park Service reformulated its policies to largely follow the Leopold Report.

The main changes included:

- End of the 10 AM policy
- To encourage fire: by using corrective burns where necessary and natural fire where possible.

This change led to the era of Wildland Fire Use Fires and Multiple Use Management. This change also led the National Park Service to stop using forest service crews to manage fires. These changes were not without problems: Smoldering 1975 fires in the Tetons smoked out Jackson Hole and angered local residents.



Fire smoldering in Kings Canyon National Park (1970)

Sources: Arno and Allison-Bunnell (2002); Pyne (1997), foresthistory.org; Pyne (2010: FHS)

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REM 244: Fire Management Reform

1970: Kings Canyon National Park

"A crowd was gathered around the information desk at Grant Grove visitor center when the young man arrived. He walked quickly across the room and with a determined effort edged his way to the counter. "Ranger," he interrupted, "I was just down at the Redwood Mountain overlook. We saw a lot of smoke coming out of that sequoia grove. There must be a fire."

Ranger Hefti glanced at his watch. A little after noon. "Pete's right on time," he thought to himself. But to the young tourist he said, "We appreciate your telling us about any fires you see in the parks, sir. But in this particular case, we know about the fire - you see, we started it."

Source: NPS.gov ; originally published in National Parks & Conservation Magazine, Vol. 44, No. 277, Oct. 1970: 16-22

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REM 244: Fire Management Reform

It took the U.S. Forest Service another ten years to come in line with the National Park Service's view of Rx fires. In 1978 the 10 AM policy was superseded by a new policy.

A major reason for this policy shift was insufficient resources. The end of the cold war removed the personnel and equipment alliance between the Forest Service and the Department of Defense.

The Forest Service also lost sole control of fire management. The Boise Interagency Fire Center (1965) and the National Wildfire Coordination Group (1970) both made the problem of fire the prevue of multiple agencies.



Sources: Wikipedia, Pyne (1982), foresthistory.org

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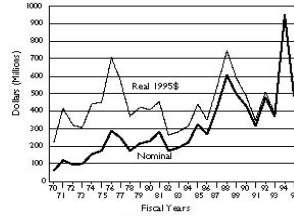
### REM 244: Fire Management Reform

Between 1971 and 1978 the entire wildland fire management policy of the United States was overhauled and updated.

1971: Denver Fire Policy Meeting led to 31 recommendations.

1974: Forest and Rangeland Renewable Resources Act led the Forest Service to spend ballooning amounts of money to try and meet the 10 Acre Policy.

Pre-suppression costs skyrocketed from \$6M in 1965 to over \$100M in 1976.



Sources: PSW-RP-230-Web (USFS), Pyne (1982)

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### REM 244: Fire Management Reform

In 1978 the National Forest Manual replaced both the 10 AM and the 10 Acre Policies. The policy allowed for alternatives to be considered once initial attack had failed on fires marked for suppression.

This was the start of the Prescribed Natural Fires era.

1975: The 5-minute step test and an alternative 1.5-mile run to screen candidates for wildland firefighting.

1977: USFS makes carrying fire shelters mandatory.

1981: Deanne Shulman went on to become the first woman smokejumper.



Deanne Shulman joined the Los Prietos Hotshots as the first woman hotshot in Region 5. Sources: NPS.gov

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### REM 244: The 1988 Yellowstone Fires



The Clover Leaf Fire, Yellowstone National Park. Source: NPS.gov

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REM 244: The 1988 Yellowstone Fires

In early summer 1988, lightning started a series of small fires had started in the greater Yellowstone area. At first the decision was made to monitor and allow the fires to burn themselves out.

The lightning fires were well within the acceptable conditions and were designated as "prescribed natural fires".

July 15<sup>th</sup>: 8,500 had burned with 11 of the 20 early-season fires self extinguished.

July 21<sup>st</sup>: Decision is made to suppress all fires in Yellowstone due to dry conditions.



Sources: NPS.gov, Pyne (2010), Arno and Allison-Bunnell (2002)

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REM 244: The 1988 Yellowstone Fires

In a similar manner to the 1910 firestorm, the Yellowstone fires were ultimately stopped by the arrival of cool and moist weather at the end of fall 1988.

July 28<sup>th</sup>: Fires had burned nearly 100,000 acres and by the end of July, a combination of dry fuels and high winds made the larger fires uncontrollable. All available resources had been deployed, but the fire still grew.

Aug 20<sup>th</sup>: High speed winds caused fire to burn 150,000 acres of the park. This day is often called "Black Saturday". Fire was spotting 1 mile in advance of the fire and ash was being deposited over 60 miles from the fire.



Firefighting at Norris on August 20<sup>th</sup> 1988. Sources: NPS.gov, Pyne (2010), Arno and Allison-Bunnell (2002), wikipedia

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REM 244: The 1988 Yellowstone Fires

In a similar manner to the 1910 firestorm, the Yellowstone fires were ultimately stopped by the arrival of cool and moist weather at the end of fall 1988.

Sept 8<sup>th</sup>: A dry front pushed the North Fork Fire towards the Old Faithful visitor complex. This caused the park to close to all non-emergency personnel.

The North Fork Fire was responsible for 60% of the area burned.

655 miles of fireline were created by hand and 137 miles by dozers.

Nov 18<sup>th</sup>: Fire declared as out.



Fire approaching the Old Faithful Tourist Area Sources: NPS.gov, Pyne (2010), Arno and Allison-Bunnell (2002), wikipedia

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### REM 244: The 1988 Yellowstone Fires

The total cost of the 1988 Yellowstone fires has been estimated at close to \$220M. The other cost was one of public opinion. The National Park Service was attacked by often sensational and inaccurate media coverage.

A notable success of the fires was one of Fire Line Safety. No fire fighting personnel were killed.

Of the 250 fires that started, 7 of them were responsible for 95% of the area burned. The 1988 Yellowstone fires burned a total of nearly 800,000 acres or 36% of the park.

9,000 fire fighters 4,000 military personnel were assigned to tackle the fires.



Firefighters on the 1988 Yellowstone Fires  
Sources: NPS.gov, Pyne (2010), Arno and Allison-Bunnell (2002), wikipedia

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### REM 244: The 1988 Yellowstone Fires



Snake	Storm Creek	Emerald
Mink	Hellroaring	North Fork
Huck	Red-Shoshone	Clover-Mist
Fan	Red	Clover
Falls	Shoshone	Mist

Progression of the 1988 Yellowstone Fires (NASA)

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### REM 244: The 1988 Yellowstone Fires

Unlike the media coverage, which often reported that the whole park had been destroyed, many areas had been untouched. In contrast to the media who reported that thousands of animals died in the fires the final count was ~400 (345 elk, 36 mule deer, and 6 bears).

A consequence of the Yellowstone fires was that it united the various aspects of fire management and research. They defended the need for fire in Yellowstone and other ecosystems.

In later months when the evidence and discussion of the fires being an essential natural process were demonstrated, the public did not listen as they had moved on to the next exciting news.



Yellowstone 8 years after the fires.  
Sources: Pyne (2010), Arno and Allison-Bunnell (2002), wikipedia

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