The Forest Resilience Bond - Financing Forest Restoration

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Crisis: Overgrown Forests

Sierra Nevada forests provide...

► 60% CA water supply\(^1\)
► 75% of CA’s in-state hydropower\(^2\)
► 420M tons of carbon storage\(^3\)

Today’s forests...

► Up to 10x more trees per acre\(^4\)
► 58M acres at risk of intense fire\(^5\)
► 2015 snowpack lowest level ever recorded\(^6\)

Photo credit: USFS - Viewing Forests Through a Historical Lens, Fall 2009.
Threats to Watersheds

DROUGHT

WILDFIRE

Threaten the **cost effectiveness**, **reliability**, and **efficiency** of our watersheds

Drought or “abnormally dry conditions” affecting all 11 Western states\(^7\)

Nine of the ten worst wildfire seasons have occurred since 2000\(^8\)
North Fork, Feather River circa 1890
North Fork, Feather River 1993
North Fork, Feather River 1890 - 1993
Forest Restoration Visualized

Overgrown

Restored
Forest Restoration as a Solution

In line with US Forest Service policies to address fire, climate change, and more\textsuperscript{10}

Prevents severe wildfires, infrastructure, and protects tree health\textsuperscript{11}

“Treatments in dense Sierra Nevada forests could potentially increase water yield\textsuperscript{12}”
Budgetary Limitations of the USFS

Vicious cycle in which USFS is forced to pay for today’s fires out of the funds designed to prevent tomorrow’s

Cost of Wildland Fire (% of USFS Annual Budget)
Preparedness, Suppression, FLAME, and related programs

FY 1995: 16%
FY 2015: 52%
FY 2025E: 67%
FRB Structure

Forest Resilience Bond

Debt Investors
- Interest
- Residual CF

Equity Investors
- Funds

Contracted cash flows as determined by evaluator

Water Benefits Accrue to Water and Electric Utilities

Evaluation Platform

Fire Suppression Benefits Accrue to USFS and State

Contracted cash flows as determined by evaluator
Illustrative Cash Flows

Could stack additional benefits with time
The Opportunity for Forest Restoration

US Need: $41 Billion (58M acres)

CA Need: $5.3 Billion

2014 USFS Restoration\textsuperscript{16}: $776M

Note: Dollar amounts based on restoration costs of $705/acre (average price paid by USFS in 2014 for Integrated Resources Restoration program).
Private Capital

• Potential to tap into billions of dollars
• Opportunity to influence policy by demonstrating that this work can be successful
• Preventative investments not prioritized in current funding structure
• Delays repayment by beneficiaries, allowing for cost sharing once benefits are proven

Vast, Underutilized Resources

Budget- Constrained Gov’t

Potential to Set Precedent

Shifts Risk & Enables Cost Sharing Ex-Post
Sources

4. Dick Fleishman of USDAFS Flagstaff Office in an [article](#) by Elizabeth Harball of E&E Publishing, LLC.
10. Increasing the Pace of Restoration and Job Creation on Our National Forests, US Forest Service.