Source Water Protection in Arizona

NEIWPCC – SRF for SWP Webinar

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SWP Activities Through Partnership with ADEQ

- ADEQ assists public water systems, local officials, and utilities in developing and implementing plans to protect source water

**Benefits of establishing a source water protection program:**
- Reducing the need to develop new drinking water sources
- Reducing the costs for treatment of the drinking water to meet acceptable quality standards
Partnerships for Land Conservation

Because these projects seldom have associated income streams, they’re usually paid for using a combination of funding mechanisms.

Partnerships through the SRF allow the borrower to access WIFA incentives like forgivable principal, affordable technical assistance, project development, and planning.

Potential repayment sources include:

- Recreational fees (licenses, entrance fees)
- Donations or dues to non-profit organizations
- Revenue from sustainable timber or other forest products
- Dedicated portions of local, county, or state taxes
Flagstaff’s Watershed Protection Project
Forest Thinning and Watershed Management

• Fires in heavily vegetated areas → catastrophic crown fires → flash flooding and mud flows

• Wildfires can lead to the devastating destruction of critical watersheds and drinking water supplies

• Preventative measures are crucial in protecting the health/integrity of Arizona’s communities and resources

• Forest thinning practices are an effective strategy for preventing the significant environmental, financial, and social impacts from wildfires

• These projects are large in scale and expensive to execute, making it challenging to find sufficient funding.
Northern Arizona’s forests have changed due to Fire Suppression
Management Action Point

Schultz Fire, 2010

15,000 acres, Total impacts exceed $140M

A Full Cost Accounting on the 2010 Shultz Fire

Ecological Restoration Institute, Northern Arizona University
Schultz Fire, Aftermath
Impacts of the Shultz Fire

Monsoon rainfall and the flooding
Flooding and Debris Flows Inundate Homes
Challenges with debt

**Debt aversion runs deep in Arizona, all the way to the state's constitution**

- The State can’t issue General Obligation
- Voter approval is needed for revenue pledge in communities with a population over 150,000
- Voter approval is needed for General Obligation in all communities

**The public regularly rejects all manner of essential service bond authorization**

- In the past election, many things did pass but there were several including, school, stormwater, roadway, and landfill projects rejected by Arizona communities
November 2012: Flagstaff voters approved a $10M bond to support the FWPP— a partnership effort between the State, City and Coconino National Forest.
Assessing the triple bottom line

- Twenty eight percent of Arizona’s natural landscape is comprised of thick pine forests and about 2.6 million people live within 50 miles of one of six National Forest areas in the state.

- Forest restoration/watershed protection projects cost money and do not put in place or directly enhance revenue generating assets (like a WWTP or new well)

- They are however essential, and must be paid for somehow...
WIFA provided a loan for $6M with $1M as forgivable principal to the City of Flagstaff to fund a portion of the forest thinning project.
NPS Pilot Project
Making the case Economically

Communities need to convince the public that forest management is worth paying for, and we need to help them.

Following much of the incredible work that Flagstaff and others have done in the wake of recent fires, we had Northbridge help us create a simplified methodology to highlight the economic relationship between cost of treatment and cost avoidance.

Ten metrics of the environmental, social, and financial costs:
1. Wildfire suppression and rehabilitation costs
2. Damage to structures and contents
3. Damage and replacement costs of utilities
4. Costs to wildlife habitat and timber
5. Treatment costs at drinking water facilities
6. Source water protection
7. Recreational value
8. Local income, business revenue
9. Job creation
10. Property value
Quantification, Implementation, and Valuation of Environmental Restoration (QUIVER)

- Triple bottom line approach to quantify the *environmental, financial and socioeconomic* impacts
- How do they benefit communities, businesses, utilities, individual households?
- Make the case for investing in ALL TYPES of nonpoint source project solutions by demonstrating economic value
- Use the data to create and customize powerful messaging and marketing collateral that resonates with stakeholders of any persuasion
- Scalable and capable of satisfying state-specific, regional, or national needs
How do healthy forests affect my water bill?

Healthy forests help protect drinking water sources like rivers and lakes from contamination. Wildfires destroy a forest's ability to:
- Stabilize soil
- Slow rain run-off
- Result in flash floods
- Mudslides
- Debris flows
- Clean up polluted waters
- 200 times more expensive than preventing pollution of drinking water sources

There is a direct link between drinking water treatment costs and damaged watersheds. The more treatments that are required to clean the water, the higher your water bill!

Forest thinning helps protect healthy soil and root systems, reduces erosion, and can save money. Healthy forests = clean waters!

"If we talk utility infrastructure and water – we need to look at the source as important as anything. The forest we don’t own is our infrastructure."

- Paul Summerbell, City of Flagstaff

WIFA's Forest Thinning & Restoration Program

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How can healthy forests save you money?

If your drinking water utility spends $250,000 a year on treatment, a forest with:

- 10% vegetative cover may reduce costs by $50,000
- 30% vegetative cover may reduce costs by $120,000
- 50% vegetative cover may reduce costs by $160,000

The damage caused by wildfire can persist for 5-10 years and can be more detrimental to water supplies than the fire itself.
Why should we fund forest thinning projects in Arizona?

It's good for the economy!

Here's what happened in Arizona's national forests in 2019...

- 6 million hikers generated: $541 Million
- 5.6 million hours of wildlife, birds, and nature viewing generated: $420 Million
- 1.2 million anglers generated: $124 Million
- 1 million campers generated: $110 Million
- 726,000 hunters generated: $98 Million

Healthy forests are a vital resource for Arizona's many outdoor recreation activities.

Arizona has six national forests that hosted more than 13 million visitors in 2019!

A large wildfire means the closure of forest lands, trails, and access to rivers and lakes.

Some facilities may be closed up to 10 years after a wildfire.

Closure as a result of wildfires could cost the Arizona economy BILLIONS of dollars in revenue.

How do Healthy Forests Support Arizona's Economy?

Arizona's forests support environmental biodiversity and abundant recreational opportunities for residents and visitors alike. They are also a vital source of income and tax revenues, create jobs, and support the livelihoods of millions of Arizona families. Taking proactive steps to ensure the future health and integrity of these lands through vegetative management and forest thinning practices is critical to protecting the environmental and economic resources they provide.

How are Arizona's forests supporting local economies?
What would happen if these forests were damaged by a large wildfire and had to be closed?

Recreational National Forest Area: Coconino

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WATER INFRASTRUCTURE FINANCE AUTHORITY OF ARIZONA

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How do wildfires impact local families?

It can take years for a community to recover from a wildfire and its aftermath.

Flooding in a burn scar area following a wildfire can cause more catastrophic damage than the fire itself.

Destruction in the wake of a fire takes an EMOTIONAL and PHYSICAL toll on families and businesses.

Local economies can be ravaged over months or even days and may take a decade to recover.

The quality of life in communities touched by wildfire can be significantly diminished.

Forest thinning is an investment in the health of local communities!

The Cost of Wildfire to Health and Economic Prosperity

Wildfire and post-fire flooding can wreak havoc on the economic health of communities at ground zero as well as many miles away. Some communities have lost millions in retail sales, tourism, and tax revenues without actually being directly impacted by fire and flood at all. Even though it was more than ten miles away, the Slide Fire cost the city of Sedona over $100 million in lost tourism revenue.

| SCHULTZ FIRE: CITY OF WILLIAMS RETAIL REVENUE AT RISK |
|-----------------|-----------------|-----------------|
| 1 DAY FIRE      | $1,200,000      | 5 DAYS FIRE      | $6,000,000      |
| 10 DAYS FIRE    | $19,900,000     | 10 DAYS FIRE     | $19,900,000     |

The Arizona Rural Policy Institute and Resource Center undertook a full-cost accounting to examine the post-wildfire economic impacts of the Schultz Fire. They surveyed local residents and found that about 10% of respondents reported a personal injury or accident, and 13% reported illness, mental stress, or psychological trauma. Though these impacts are more difficult to quantify in financial terms, they represent a significant cost that should be considered.

An Investment in forest thinning can prevent hundreds of millions in economic, health, and emotional costs.

"WE ARE STILL SICK OVER IT. OUR LIVES AND LIFESTYLE IS FOREVER CHANGED." - Resident, City of Flagstaff
How do wildfires impact our utilities and infrastructure?

Wildfire Damage to Utilities & Infrastructure

- **Drinking Water Supply**: Post-fire runoff can pollute reservoirs, rendering the water supply unusable.
- **Treatment & Distribution**: Up to $37 million to restore local drinking water infrastructure from post-fire runoff.
- **Emergency Response**: Disruptions to critical communication infrastructure impacts first responders.

**The Value of Utilities**: $84.224 million in communications assets on two vulnerable mountains.

Many communication towers are located on mountaintops, making them vulnerable to wildfires. Arizona's Mountain Mountain and Mount Eden each host numerous communication facilities used by:

- County Law Enforcement
- Cellular Phone Service Providers
- Internet Providers
- Telephone Providers
- Television Stations
- FM radio broadcasters

A fire would disrupt or destroy communications such as cell phone service, Internet, radio and public safety, including law enforcement, fire and emergency medical services. The impact would be disastrous for personal communications, businesses, and fire suppression efforts.

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The cost of wildfire property damage &

- **Property Values**: Homes within 3 miles of a wildfire experience a 31% decline in value.
- **Property Damage**: Damages from flash floods and mudslides average $152,000.
- **Wildfire Suppression and Rehabilitation**: Up to $243 in recovery costs for every acre burned.
- **High Risk Areas**: More than 74,000 properties in Arizona are in high and extreme wildfire risk areas.

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- **Cost Avoidance**: Forest thinning is all about cost avoidance.
- **Property Values**: Though it cannot completely eliminate wildfire risk, it can significantly reduce the severity of wildfire events.
- **Wildfire Suppression and Rehabilitation**: Mitigating the range, intensity, and velocity of wildfires is the best strategy to avoid substantial economic impacts to homeowners, businesses, and communities.

An ounce of prevention is worth a pound of cure.
What's our home worth?

Meet the Mexican Spotted Owl, a threatened species that calls Arizona's forests home...

- Arizona has Hundreds of
- Each PAC is worth between $100,000 and $4 Million
- Forests in the southwestern US have experienced more severe wildland fires since 1995
- Wildfire could destroy this critical habitat valued in total at more than $1 Billion

The federal government has established protected activity centers (PACs).

These are areas of at least 600 acres each that can breed and sustain the owls.

LOSS OF HABITAT for these threatened species is one of the biggest wildfire concerns.

Intensifying drought cycles and climate variability could result in ever larger fires in owl habitat.

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The Intersection of Habitat & Commerce

The value of forests can be measured in different ways: environmental, social, and economic. One method is to determine the value of endangered species like the Mexican Spotted Owl that make their homes in the forest. Wildfire can decimate hundreds of acres of critical habitat for these species. Another key cost of wildfire is the lost value of timber sales that keep local economies afloat. How can we quantify the environmental and economic impacts of wildfire on these resources?

If there are 120,000 acres at risk in the Tonto National Forest area, what's the value of Mexican Spotted Owl habitat in the at-risk forest?

- High Range: $800,000,000
- Low Range: $21,600,000

200 potential owl habitats may be impacted

How does wildfire impact timber sales?

The potential loss in revenue and impact on local economies depends on the amount of forest utilized for a typical harvest.

- 20% of the forest: $6,420,960 loss
- 40% of the forest: $12,841,920 loss
- 50% of the forest: $16,052,600 loss
- 75% of the forest: $24,078,600 loss

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YOU BENEFIT FROM MORE THAN JUST BELOW-MARKET INTEREST RATES

- Interest rate savings up to 30 percent
- Up to 20 percent loan forgiveness
- 30-year repayment term
- Funding for small and large projects
- Year-round applications
- No application fees or closing costs
- Most projects exempt from requirements (Davis-Bacon wage rates and American iron and steel)
- Planning grants may be available
- Personal service & dedicated project manager

FINANCING FOREST RESTORATION PROJECTS CAN BE CHALLENGING. WITH WIFA, IT DOESN'T HAVE TO BE.

Have a viable project but not on this list? WIFA can fund projects on state and federal forestland, as long as the project is sponsored by an eligible jurisdiction. Contact us to discuss your options.

PUBLIC JURISDICTIONS & TRIBAL ENTITIES ARE ELIGIBLE
- Cities
- Towns
- Special districts
- County improvement districts
- Sanitary districts
- Native American Tribes & Tribal Authorities

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