



Four Forest Restoration Initiative

Quarterly Stakeholder Newsletter



Mexican Spotted Owl Management Update

The Fish and Wildlife Service (FWS) and Forest Service (FS) developed a monitoring plan for Mexican spotted owls and their habitat within identified protected activity centers (PACs) as a component of the Biological Opinion for



Night ignitions in a PAC on the Roundup Gash Burn (US Fish & Wildlife Service)

the Four Forest Restoration Initiative's first analysis area. The plan includes evaluating the effects of thinning and prescribed fire on owl occupancy and reproduction, and retention of or movement toward desired habitat conditions within PACs, using Recovery Plan definitions. Four PACs were identified for thinning and prescribed fire, five for prescribed fire only, and as part of this management experiment, nine PACs were identified as reference

sites that would not be treated. We have monitored owl occupancy in all PACs (treatment and reference) for at least two or more years and collected vegetation data prior to treatment. All PACs in this experiment will continue to be monitored for at least two to three years following all treatments.

Hand thinning was initiated in the thin/burn PACs in September 2017. Mechanical thinning will commence in the fall of 2018, followed up with prescribed burns.

Flagstaff and Mogollon Rim Ranger District fire staff completed the prescribed burn treatments in the five burn-only



Hand-thinning in PAC (US Fish & Wildlife Service)

PACs this past in October and early November. October 2017 was the driest October since 1917, and conditions were not ideal for first entry burns in structurally complex habitat that had not experienced fire for many decades.

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Meetings

Natural Resources Working Group	Feb 20 Mar 20 Apr 17
Greater Flagstaff Forest Partnership	Feb 21 Mar 21 Apr 18
4FRI Stakeholders	Feb 28 Mar 28 Apr 25
Multi-Party Monitoring Board Bryce Esch	Feb 14 Mar 14 Apr 11
Comprehensive Implementation Work Group Travis Bruner	Feb 15 Mar 15 Apr 19
Communications Work Group Sue Sitko	Feb 12 Mar 12 Apr 9
Planning Work Group Pascal Berlioux	Feb 7 Feb 22 Mar 7

Stay Connected

4FRI Stakeholder website:
www.4fri.org

The Forest Service's 4FRI webpage:
www.fs.usda.gov/4fri includes all public documentation of the 4FRI project, including maps, contacts, and public input opportunities.

Mexican Spotted Owl Management Update, cont'd

To minimize effects to key habitat components such as large trees and snags, fire staff conducted night burns in these areas to take advantage of higher humidity and favorable winds. Prescriptions were met across most of the PACs, with some pockets of higher-severity fire effects. However, fire is an imprecise tool and we expected to kill trees and patches of trees, particularly on drier, south-facing slopes and in patches with high fuel loads. Vegetation will be monitored in the



Fire effects one day post-fire entry, Roundup Gash Burn (US Fish & Wildlife Service)



Example of higher-severity fire effects in a PAC, Coyote Burn Project. Note high density of stems in this area. The majority of effects within the PAC were much lower, but anticipated tree-kill was expected. (US Fish & Wildlife Service)

burn-only PACs following the 2018 monsoon to obtain data on forest structure as part of the larger monitoring plan.

We greatly appreciate fire staff going above and beyond their duties following a long fire season to implement these prescribed burns and further our collective understanding of how these important management actions may affect Mexican spotted owl recovery.

-- Shaula Hedwall, USFWS; Cary Thompson, USFS

Ecological Restoration Institute Hires Director of Forest Operations and Biomass Utilization

The Ecological Restoration Institute at Northern Arizona University is pleased to announce that Han-Sup Han, PhD, is joining its team as the new Director of Forest Operations and Biomass Utilization. In this new position, Dr. Han will coordinate and advance ERI's efforts to establish a forest operations and wood utilization research, development, and applications center in northern Arizona, helping accelerate the pace and scale of restoration in frequent-fire forests of the West.

Dr. Han comes to ERI from Humboldt State University as a top researcher with 20 years of experience evaluating the economics and operational efficiencies of various timber and biomass harvesting systems. At ERI, Dr. Han will work collaboratively with NAU forest scientists, private industry and land management agencies to improve the efficiency and economics of harvest operations and the utilization of wood for a wide range of forest products. His work will also focus on lessening the environmental impacts that potentially occur from thinning treatments aiming to reduce fire danger and improve forest health.

"I am very excited about my opportunity here at ERI and NAU," Dr. Han said. "In my experience working with forest ecologists, silviculturists, and policy makers, the challenge to improve forest health and achieve restoration is finding the right tools and setting up optimal logistics to get the work done that is environmentally acceptable and financially reasonable."



The Biomass Bottleneck: A Concern for All Arizona

Forest restoration treatments are ramping up across northern Arizona from Williams to the White Mountains. This is a testimony to the perseverance of a multitude of interests committed to forest restoration, including the 4FRI. Over the years of working together, the 4FRI Stakeholder Group discovered multiple “bottlenecks” to restoring forests, and found solutions. For example, to build trust, the group worked to embed collaboratively-driven agreements and an adaptive management plan within NEPA documents. Industry worked with the FS to pursue larger-scale, long-term contracts, leading towards the inclusion of 10-year contracts and million-acre environmental analyses in a suite of options to use to accomplish restoration treatments.

With these pieces in place, small-diameter log milling and marketing has the potential to grow to reach our restoration goal of treating 50,000 acres per year. However, disposing of logging slash and residue, or biomass, has emerged as a considerably more difficult and complex issue. Now, forest restoration faces perhaps one of its most critical challenges: what to do with the near-40% of material removed from the forest that is biomass. Without means to create some economical value from biomass, our restoration goals may not be realized.



Biomass at Novo Power, Snowflake, AZ (Patrick Sigl)



Biomass pile on Lakeside Ranger District, Apache-Sitgreaves National Forests (TNC)

The concept of a “biomass bottleneck” was a focus of multiple conversations over the past several months between the Arizona Corporation Commission (ACC) and the state’s key utilities, Arizona Public Service (APS) and Salt River Project (SRP); Eastern Arizona Counties (ECO); the Governor’s Office; and the predominant user of biomass as a power source, NovoBioPower. This issue also captured Arizona state legislator’s attention from ECO’s “Breaking the Biomass Bottleneck” field tour last October.

In August 2017, ACC Commissioner Boyd Dunn directed APS to study their potential to incorporate electricity produced by burning logging slash biomass into their power offerings. What would it take to make this happen? What would be the cost to their customers? What would be the benefits? What would be needed by both the suppliers (harvesters to power plants) and users to make this economically viable?

Last December, the Commission held a public workshop to receive the APS report and hear testimony from interested parties. A list of entities, many of them 4FRI stakeholders, took to the podium to add information and make a compelling case that disposing responsibly of up to 1.5 million tons of logging biomass annually is not only something we *could* do, but also something we *should* do, to restore forests, maintain healthy watersheds and clean water supplies, and provide clean, renewable energy.

This ACC hearing encapsulated challenges associated with the biomass bottleneck, and several points stood out:

1. Every speaker emphasized the value of restoring our forests. This was not simply solving an economic equation; a restored forest is recognized to be part of a healthy Arizona.
2. Investing in upfront costs now to support biomass utilization was emphasized as preferable to paying much more later, after inevitable wildfires take more than a toll on our pocketbooks.
3. This is a statewide issue deserving of support from all Arizonans, not just APS customers.
4. There are concrete actions ACC and the State of Arizona can take to support and encourage the use of biomass as an energy source.
5. Now is the time. Without concrete steps taken to assure biomass use soon, forest restoration will limp along and not mitigate the forces that enable large, catastrophic fires and the subsequent devastation to communities, human lives, water sources, and our quality of life.

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The Biomass Bottleneck, cont'd

All presenters spoke with passion and conviction that any path to making biomass a viable product is worth pursuing; that costs will be borne whether we do something or do nothing; and that doing something is much more desirable than the outcome of doing nothing. The broad swath of speakers represented multiple, and sometimes competing, industry; all levels of government; and conservation organizations. This hearing was a compelling portrayal of such obvious common ground and made clear that a movement has begun to push the state of Arizona to step up to the plate and hit a home run.

To watch the hearing in its entirety, click [here](#) or go to azcc.gov and click on Media / Live Broadcasts / Workshops / 2017 Archives.

4FRI Stakeholders providing testimony at this hearing included: Arizona Department of Forestry and Fire Management; Eastern Arizona Counties Organization; Grand Canyon Trust; NovoBioPower; Salt River Project; U.S. Department of Agriculture Forest Service. Other presenters included Arizona Public Service; Arizona Residential Utility Consumer Office; Arizona State Land Department; Engenuity; and Prescott Valley Water Resources.



Bicyclists (right) demonstrate size of biomass pile, Lakeside Ranger District, Apache-Sitgreaves National Forests (TNC)

Restoration Implementation Efficiencies Workshop



The Forest Service (FS) is under pressure to increase the pace and scale of forest restoration. Discussions are underway to improve National Environmental Policy Act (NEPA) efficiency, as well as treatment implementation efficiency from a signed Record of Decision to the processing gate. With more than 500,000 NEPA-approved acres, 4FRI provides a unique opportunity to identify, apply, and evaluate innovative approaches to accelerate restoration.

On November 29 and 30, 2017, the Ecological Restoration Institute (ERI) at Northern Arizona University coordinated and facilitated a meeting for the FS to explore ways to improve implementation efficiency for restoration. FS staff from the 4FRI team, 4FRI forests, Region 3, and Washington Office Modernization Team attended the workshop. Staff from The Nature Conservancy (TNC), Campbell Global, and NewLife Forest Products provided industry perspectives on implementation.

The goals for the workshop were to: 1) Understand current efforts to improve efficiency for projects designed to remove low value wood and biomass; 2) Identify specific business and implementation practices that should be changed to accelerate implementation efficiency and effectiveness; 3) Identify solutions that are implementable and testable as a part of the 4FRI project; and 4) Identify FS staff who will move identified solutions forward.

Next steps include: 1) FS Modernization webinar will mention workshop outcomes; 2) ERI will develop a workshop report and executive summary; 3) Action Item Teams will meet to determine metrics and action plans; 4) ERI will reconvene the group to assess progress; and 5) FS will share workshop report/ outcomes with 4FRI Industry Workgroup. Once the workshop report is complete, additional outreach will occur to broaden the conversation.

Greater Flagstaff Forests Partnership Awarded WFHF Grant

**Industry
Insider**



The Greater Flagstaff Forests Partnership (GFFP) recently received a \$200,000 Wildland Fire Hazardous Fuels grant from the AZ Dept. of Forestry & Fire Man-

agement (AZDFFM). The Greater Flagstaff Fuel Reduction Project is designed to reduce fuel loads and fire risk on 270 acres within key Wildland-Urban Interface (WUI) areas in and around Flagstaff. Vegetation within these areas is made up of high density forests averaging 1,000 trees per acre, up to 90% canopy cover, crown heights as low as 1 foot and dead and down fuel up to 40 tons per acre. Excess small trees will be thinned in these areas this year and prescribed fire treatments will occur at TNC's Hart Prairie Preserve.

The northern seven parcels are located within the footprint of the Hart Prairie Fuel Reduction and Forest Health Restoration Project in the Coconino National Forest. This area is located at the western foothills of the San Francisco Peaks, in Hart Prairie, and is comprised of five private parcels, Camp Colton (Flagstaff Unified School District (FUSD) land) and The Nature Conservancy's (TNC) Hart Prairie Preserve. Hart Prairie is a highly valued recreational and wilderness area. The Hart Prairie Preserve is a living laboratory that hosts a variety of environmental professionals and volunteers. Camp Colton is used as a weeklong residential camp and teaches environmental education to approximately 800 sixth grade students each year. The southern parcel is county land and is adjacent to the Flagstaff Watershed Protection Project (FWPP). This parcel is directly behind Sechrist Elementary School, located off of Highway 180, and is a highly used and visible byway to the Grand Canyon and Arizona Snowbowl. Creating defensible space that reduces wildfire risk for students, residents and forest users is paramount to preserving these diverse and highly valued areas.

This project is being led by GFFP and involves many of its partners, including private residents, Coconino County, FUSD, FWPP, TNC, Campbell Global, AZDFFM and the Forest Service. Treatments in these high-profile areas will demonstrate the importance of fire adaptation efforts to the community, visitors, and municipal and county leaders. Since 2004, GFFP's efforts to secure cost share funding has resulted in total funding of \$1.4 million that has been distributed to property owners to treat approximately 3,000 acres within the greater Flagstaff area. ~Anne Mottek and Ann Anderson

On October 18, Novo Biopower experienced a failure at its facility in Snowflake that took it completely offline for the last 3 months. Novo immediately began repair work on the boiler and baghouses, and hopes to be operational by February 2018.

"Although no company hopes to deal with major failures, Novo is fully invested in getting back online and doing the work we believe is so valuable to the forest, watershed, air quality, and local economy," said Brad Worsley, President of Novo Power. This has been difficult for the established industry on the east side of the state as there has been no avenue for the disposal of biomass during this outage. "We have worked with critical stakeholders to allow for some work to continue in the forest and to keep employees working during the extended down time," said Worsley. "Our objective is to continue to lead the profitable restoration of Arizona forests and we are hopeful for expansion opportunities associated with the 4FRI effort to increase implementation."

Novo hopes to be running at 50% capacity by February 1 and at full capacity by mid-February.



Novo BioPower biomass generating plant (Patrick Sigl)

Contact our 4FRI Stakeholder Group Co-Chairs: [Pascal Berlioux](#) [Travis Bruner](#) [Tommie Martin](#) [Allen Reidhead](#)
[Sue Sitko](#) [Greg Smith](#) [Paul Summerfelt](#) [Diane Vosick](#) [Paul Watson](#) [Jason Whiting](#) [Brad Worsley](#)

Arizona Daily Sun 2017 Organization of the Year: Forest “Friends” a Vital Helping Hand

Excerpt reprinted courtesy of Emery Cowan and Arizona Daily Sun, dated 12/30/17

They are the men and women who greet hikers at the start of Humphreys Trail, making sure they know the weather forecast and the supplies necessary to make the nearly 10-mile trip. They are the workers building fences to protect sensitive aspen groves on the Coconino National Forest. And they are the people who conveniently issue backcountry permits to hikers and skiers at Arizona Snowbowl on winter weekends.

All are volunteers and the common thread among them is their membership in the Friends of Northern Arizona Forests, or FoNAF. The 8-year-old organization works in partnership with the Coconino National Forest to accomplish work that the staff-and-budget-limited Forest Service doesn't have the time or resources to do on its own. In 2017 alone, FoNAF contributed more than 4,200 volunteer hours to Forest Service tasks.

For its dedication to this Forest Service support role, Friends of Northern Arizona Forests was chosen as the 2017 Arizona Daily Sun's Organization of the Year. The volunteer group's core focus is on building and maintaining enclosure fences around aspen stands in forests around the Flagstaff area. The 8-foot tall fences are designed to keep elk, deer and cattle from munching on young aspen, which prevents regeneration.

“FoNAF will be the reason tourists visiting the Flagstaff area will be able to see aspen in the forest now and into the future,” Dick Fleishman, a Forest Service coordinator on the Four Forest Restoration Initiative, wrote in a letter of support for the organization.

When it started in 2009, the organization spent nearly all of its time repairing aspen enclosure fences on the Flagstaff Ranger District, said Dave Downes, the group's treasurer. There are more than 60 enclosures on the district, and it took four or five years to repair and reconstruct the ones that had fallen into disrepair, he said. Now, each of the 20 or so members of FoNAF's aspen team is responsible for checking on a few enclosures each spring and reporting repairs that need to be made.

With that project mostly under control, the group has expanded to more projects on the Coconino as well as the Kaibab National Forest next door. In addition to building new aspen enclosures, volunteers modify old cattle fences to allow pronghorns to pass underneath and build fences to protect wet meadows, riparian areas and archaeological sites in the forest.

The group works with the Forest Service on everything it does. Every January, FoNAF members sit down with agency staff and hear about projects that could use volunteer assistance, then decide which they might have capacity to do. More recently, FoNAF has started suggesting its own projects on the forest as well.

The friends group is a special asset to the Forest Service, Flagstaff Ranger District wildlife biologist Cary Thompson wrote in support of the group's nomination.

“We have many partners and volunteers that help us accomplish our mission but FoNAF is unique in that they are a long-term partner. They have a consistent member base with the required Forest Service training and are well versed in our culture,” Thompson wrote. “They have an understanding of our challenges yet focus on solutions.”

The group has 43 members and they are always looking for new volunteers, Downes said. The organization provides an opportunity to get outdoors and do work that produces tangible results on the forest, said Bob Dyer, FoNAF's secretary.

Mackin echoed those thoughts. “It's very easy to see the problems with a lot of public lands and personally I view FoNAF as an opportunity to be part of the solution to correct those problems,” Mackin said.

Their volunteer projects may not be flashy, but they matter quite a bit to people passionate about pronghorns, for example, or visitors interested in the area's aspen trees, Belman said. “We've become a tremendous multiplier for Forest Service efforts,” he said.



L to R: Dave Downes, Bob Dyer, Bruce Belman, Tom Mackin