

YAVAPAI Water Smart™ NEWS

UPPER VERDE RIVER
WATERSHED PROTECTION COALITION

MARCH 2017

Collaboration is working

The All Hands, All Lands conference sponsored by the Upper Verde River Watershed Protection Coalition (UVRWPC), Arizona Department of Forestry and Fire Management (DFFM) and Triangle and Chino Winds Natural Resource Conservation Districts on November 15 was a success.

People representing the private and public sectors from around the state and country packed the meeting room at Prescott's beautiful Chapel Rock. We strategized about our next steps to restore the Upper Verde River Watershed and improve forest health, discussed how to forward commercial uses for woody biomass, and identified and debated issues that are slowing progress. It was a very good day.

We were fortunate to attract keynote speakers addressing major issues impacting the watershed. Senator and Rancher Steve Pierce provided an overview of his experiences, sometimes frustrating, working with state and federal land management agencies. State Forester Jeff Whitney focused on the watershed, forest health, and northern Arizona's critical role in water supply security. Keith Watkins, Executive Vice President for Rural and Economic Development for the Arizona Commerce Authority (ACA), discussed the role ACA can

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JUNIPER SILT DAMS

Water protection fund supports erosion control project

The Arizona Water Protection Fund, an office of the Arizona Department of Water Resources, recently notified the Upper Verde River Watershed Protection Coalition (UVRWPC) that it had been awarded \$138,000 to support a project to alleviate erosion on forest lands in the watershed.

According to John Munderloh, chair of the UVRWPC Technical Advisory Committee (TAC), the project is a unique approach to



addressing the severe erosion that is caused by pinyon-juniper (PJ)

Erosion Control, page 5

UPDATE: PRESCOTT NATIONAL FOREST

Chino Restoration Project

The Prescott National Forest (PNF) is proposing to improve wildlife habitat and watershed conditions in the northern part of the forest in an area that spans both sides of the Chino Valley Ranger District. This project will be consistent with the goals and objectives described in the 2015 Land and Resource Management Plan for the Prescott National Forest (Forest Plan).

An environmental assessment (EA) will be prepared as part of the planning process for this project. Decisions resulting from the analysis will address actions needed to maintain or improve resource conditions in the project area. A thorough description of the proposal, alternatives, and analysis of the effects of each alternative will be documented in the EA. Project

information and documents can be reviewed online as they become available at <http://www.fs.usda.gov/project/?project=45619>.

BACKGROUND

The project area encompasses approximately 484,000 acres in the northern part of the Prescott National Forest (Prescott NF), and includes grasslands, chaparral, pinyon-juniper, and ponderosa pine vegetation types. It spans two ranger districts, with the majority of the area (approximately 481,200 acres) on the Chino Valley Ranger District and the remainder (approximately 2,800 acres) on the Verde District.

The PNF manages about 425,000 acres within the project area, which spans both sides of the forest. On the east side it includes most of the forest

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Prescott City Council selects contractor for Big Chino modeling project



The Prescott City Council, during its regularly scheduled meeting on Tuesday, February 28, unanimously approved a \$1.1 million contract with Golder Associates, Inc., Tucson, Arizona, to create a refined groundwater flow model for the Big Chino Sub-basin.

“Technical work will result in an assessment of the hydro-geologic connection with the Upper Verde River, and potential effects associated with future pumping of approximately 8,000 acre-feet annually of Big Chino Sub-basin groundwater,” said John Munderloh, Town of Prescott Valley Water Resources Manager. “The effort is a tri-party initiative of the City of Prescott, Town of Prescott, and Salt River Project (SRP), with its extensive surface water rights and the largest raw water provider to the Phoenix metro area.”

Prescott and Prescott Valley have invested in a plan to import the Big Chino water into the Prescott Active Management Area (PrAMA) for future municipal water supplies, and to contribute to achievement of safe-yield within the PrAMA. Safe-yield is a sustainable balance between natural replenishment and withdrawals from a groundwater aquifer.

According to Leslie Graser, City of Prescott Water Resources Manager, the municipalities entered into two agreements with SRP in 2010 and 2012, the first of their kind pertaining to the Verde River basin.

“These agreements demonstrate our commitment to developing a better scientific understanding of groundwater availability and flow processes oriented to preserving the long-term health of the river,” she said. “They are a cooperative approach to enhancing groundwater and surface water hydrologic monitoring, creating a new groundwater flow model, and conducting other investigations that may increase knowledge of the natural system.”

Graser added that Prescott believes the groundwater flow model, along with continuous monitoring of hydrologic conditions, will form the basis of a feasible plan to import water from its Big Chino property, while avoiding impacts to the Upper Verde River.

According to Munderloh, previous groundwater

modeling encompassing the Big Chino Sub-basin was included the US Geological Survey Northern Arizona Regional Groundwater Flow Model (NAGARFM) released in 2011. Due to its scale and area of coverage, approximately one-third of the state of Arizona, the model does not lend itself to detailed analysis and decision-making necessary at a more focused, individual project level such as water production and transport from the Big Chino Sub-basin.

“Experience has repeatedly shown that in the southwest, where both a water supply and developable land exist, development will occur. This is likewise the case with the Big Chino Sub-basin,” he said. “It is not a

question of if Big Chino groundwater will be pumped, but rather when and who will pump that water.”

According to Greg Kornrumpf, Manager of Water Rights for SRP, planned modeling work by Golder Associates, Inc., is aligned to provide a better understanding of the Big Chino Sub-basin and its hydrologic connections, how those functions may be affected by the pumping of groundwater, and a scientific basis for addressing mitigation of the groundwater withdrawal, should that be necessary.

“Additional hydrologic data collected over the past decade in preparation for development of the water resource and continuing into the future will be augmented by information from newly

“Technical work will result in an assessment of the hydro-geologic connection with the Upper Verde River, and potential effects associated with future pumping of approximately 8,000 acre-feet annually of Big Chino Sub-basin groundwater,”

– John Munderloh, Town of Prescott Valley Water Resources Manager

installed groundwater and surface water monitoring stations to provide new insights into the hydrology of the Big Chino Sub-basin,” he said

Kornrumpf cautioned that groundwater models should be supported

by a wide variety of meaningful hydrologic information.

“The purpose of a computerized groundwater model is to predict how groundwater moves through the underground system; as such, it relies upon many assumptions. The ongoing monitoring program is intended to equip modelers with more extensive actual information, in order to reduce the number of unknowns,” he said

Modeling work by Golder Associates, Inc. is scheduled to begin in March 2017, and be completed in 2020. Funding responsibilities for the monitoring and modeling programs are defined by Comprehensive Agreement No. 1, approved by the parties in 2012.

FOREST PRODUCTS INDUSTRY:

Private sector ready; regulations hamper implementation

Results of a labor market analysis to assess the workforce needs of a forest products industry indicate that the existing private workforce is “well situated to support the harvesting, transportation, and processing of pinyon and pinyon-juniper biomass in Yavapai County.”

According to the study, completed by GSH Education Consultants and funded with a grant from the Arizona Commerce Authority, there is a gap of personnel in the public sector to meet the needs of planned restoration activities on federal forest lands.

GSH estimated that the U.S. Forest Service will likely need to add 16 positions in the conservation and forestry areas to accomplish annual restoration activity of 25,000 acres.

“Any substantial expansion in the harvesting of juniper in Yavapai County will require a significant increase in public resources to address land management, sales, and environmental regulations.

“Overall, GSH judges the public labor market to represent a short to moderate term- challenge to increased

expansion of biomass harvesting due to political, bureaucratic and environmental requirements,” as written in the study.

Dr. Tom Hughes, principal with GSH Consulting, was the lead in completing the analysis and examined a number of key indicators, in addition to labor availability to provide a picture of the county’s likelihood of supporting a forest products industry

Positive attributes include a county workforce that has a higher education level when compared to other areas of the state, friendly business environment including forest industry tax credits, a favorable climate with 321 work days per year, availability of workforce training, and a quality of life that is 68 percent higher than the United States average.

Negative attributes include high cost of housing, median income that is lower than the national average, and a current forest products industry that is an insignificant portion of the economy.

AN INNOVATIVE TWIST ON RAINWATER HARVESTING

The Upper Verde River Watershed Protection Coalition (UVRWPC) is implementing a project with unique, more cost effective approach to traditional rainwater harvesting systems.

Rainwater harvesting for aquifer recharge was developed as part of the UVRWPC two-year planning effort culminating with completion of the Watershed Restoration and Management Project Plan in 2016.

According to the John Munderloh, chair of the UVRWPC Technical Advisory Committee, the approach is targeted to well owners and uses a French drain system to increase the amount of water harvested.

“This is similar to systems in the eastern part of the country that are designed to get rid of excess water,” he said. “We have revised the application to help increase the amount of water we retain for aquifer recharge.”

The pilot project will be implemented on Yavapai County owned land in the Town of Dewey-Humboldt.

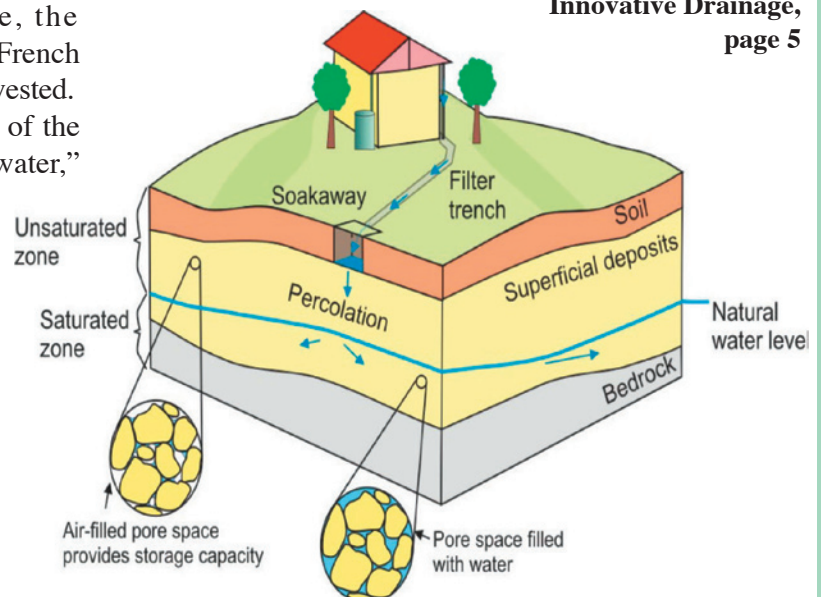
“Yield estimates indicate rainwater harvested will increase by 400 percent when compared to the traditional large cistern, and installation costs will be reduced by half.

“The subsurface French drain or ‘soak away

pit’ has the potential to benefit larger properties with private wells. Recharged water becomes a part of the drinking water system; there is no need for secondary, non-potable system for captured rainwater or expensive storage systems,” he said.

Project partners include the UVRWPC, county and Prescott Area Active Management Area Groundwater Users’ Advisory Council (GUAC), and costs will be shared among partners.

**Innovative Drainage,
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Local volunteer receives award for fire mitigation efforts

A key leader in the Yavapai County community receives recognition for his hard work and dedication to reducing wildfire threats in the Prescott area.

The Arizona Department of Forestry and Fire says Prescott Area Wildland Urban Interface Commission chairperson, Bob Betts, was recently recognized with the 2017 Mitigation Award for his leadership and proactive measures to help reduce fuels around the Prescott basin and for his continual outreach efforts to neighboring communities.

The award was given to Betts from a joint committee made up

from representatives the National Association of State Foresters, the International Association of Fire Chiefs, the National Fire Protection Association, and the U.S. Forest Service.

As PAWUIC chairperson, Betts increased community awareness about wildfire mitigation needs, developed fundraising plans to help with the mitigation costs, and increased the scope of the Firewise program by partnering with local, state, federal, and private land owners to coordinate activities to reduce wildfire threats.

“Bob Betts is the driving force behind

the Prescott Area Wildland Urban Interface Commission and has worked to ensure the safety of the Prescott-area and Yavapai County communities through wildfire mitigation efforts, the Firewise program, and his outreach accomplishments. Bob is an effective and instrumental leader within the wildland fire community and highly deserving of this award,” said State Forester Jeff Whitney.

The Yarnell Fire District also received the 2017 Mitigation Award for their proactive measures to reduce hazardous fuels within their community and outlying areas.

Chino Restoration

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north of the Woodchute Wilderness Area; on the west it runs from the southern boundary of the Chino Valley District north to the watershed boundary above Juniper Mesa Wilderness. It includes the Apache Creek and Juniper Mesa Wilderness Areas, their adjacent recommended wilderness areas, the Sycamore Canyon recommended wilderness area, and a Wild and Scenic River eligible segment of the upper Verde River. Please refer to the Chino Landscape Project Map for details.

Key to the implementation of this project is the Central Arizona Grasslands Conservation Strategy (CAGCS), a coordinated effort by the PNF, Tonto National Forest, Bureau of Land Management (BLM) Agua Fria National Monument, and Arizona Game and Fish Department to conserve and restore the grassland ecosystem mainly to benefit pronghorn.

As noted in the CAGS charter, the PNF is operating under the regionally-directed “Central Priority.” This direction emphasizes the restoration of fire adapted ecosystems, of which grasslands are a major component.

PURPOSE AND NEED FOR ACTION

Departure from the desired vegetation structure and fire regime in the project area has led to a decline in the quality of

wildlife habitat and the functionality of the watersheds. Current conditions, shaped by drought and a lack of fire, include encroachment by trees and shrubs onto grasslands, loss of perennial grass cover, and an increase in exposed soil surface. The PNF is proposing a series of actions to restore and maintain soil and watershed function, vegetation conditions, riparian and groundwater dependent systems, and natural fire regime. The goal is to move the landscape toward desired conditions described in the Forest Plan and improve wildlife and improve wildlife habitat for pronghorn antelope, migratory birds, native fish, and federally listed or regionally sensitive species.

Treatments will include vegetation thinning, prescribed burning, and fuels reduction. Other actions include erosion control and impact mitigation for forest system roads, unauthorized routes, and unmanaged recreation use. The expectation is an improvement in ecological function and an increased diversity in the structure and composition of the vegetation. Benefits will include increased soil moisture, reduced soil movement, and improved water quality. Treatments are also expected to increase the resilience of the ecosystem to respond to expected changes imposed by future climate trends.

PROJECT ACTIVITIES

Project activities will consist primarily of landscape scale treatment of vegetation

with an emphasis on the improvement of wildlife habitat and watershed function.

Vegetation types in which treatment will occur include grasslands, chaparral, pinyon-juniper, and ponderosa pine. Additionally, some roads within the project area may be closed or decommissioned if the risks to wildlife habitat or watershed function outweigh the benefits of leaving the roads open. The Forest Service will follow all guidelines and requirements of the Endangered Species Act and consult with the US Fish and Wildlife Service, as appropriate.

DECISION TO BE MADE

The Chino Valley District Ranger and the Verde District Ranger are the responsible officials for this project and will decide whether to implement project activities as described in the proposed action, provide alternatives to the proposed action, or to continue with current management. The responsible official will also determine if there may be significant impacts that would require the preparation of an environmental impact statement. Grazing and livestock management changes or decisions are outside the scope of this analysis.

Implementation of Chino Landscape Restoration Project could immediately follow the decision by the District Rangers after the close of the objection period.

Erosion Control

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overgrowth and encroachment onto historic grasslands.

“The two-year effort is an innovative, engineered process to stabilize soils and restore historic grasslands through a combination of PJ thinning, and design and installation of juniper silt dams on 240 acres

(3 square miles) of privately owned and leased state trust agricultural land,” he said.

Project implementation will occur in central Yavapai County in the Big Chino Sub-basin 13 miles west of the community of Paulden on the Kenson-York 1,920 acre ranch.

According to Lora Lee Nye, chair of the UVRWPC Executive Board, the project idea arose from a month long pilot PJ thinning project sponsored by the UVRWPC, and Arizona Department of Forestry and Fire Management (DFFM) in March 2016.

“This is an idea to use material that harmed the land to heal the land,” she said. “Using cut material in gullies to stem erosion is not a new concept, but the approach to engineer juniper silt dams specific to a site is innovative and greatly increases the opportunity for success.”

According to a feedstock analysis completed in 2016, the county has 962,101 acres of PJ woodlands. PJ



encroachment is a resource issue throughout the west exacerbated by the low-value of and limited uses for woody biomass generated from PJ treatment.

Munderloh will serve as project manager. The project implementation team will include the UVRWPC, USDA Natural Resource Conservation Service, DFFM, the agricultural producer, and civil engineer.

Resource management issues of concern directly related to the proposed project, in addition to severe erosion, include soil degradation and conversion of historic grasslands to woodlands. Other issues are decreased aquifer recharge, increased risk of wildfire, degraded wildlife habitat, risks to water quality, reduced ground cover, and decreased ability of the watershed to respond to climatic factors, specifically long-term drought.

Upland project benefits include improved soil conditions, decreased erosion; and improved water quality, grazing conditions and wildlife habitat. The downstream beneficiary is Williamson Valley Wash, one of only a handful of perennial streams in the Big Chino Sub-basin of the Upper Verde River Watershed.

“The resource management solution is to implement, planned, coordinated activities with an All Hands, All Lands approach to yield positive results for watershed and forest health,” Nye said.

Planned project activities including PJ thinning, remote sensing, contouring and flow channel mapping, engineering, construction of silt dams on 10 sites, and monitoring. In addition, to direct activities, the UVRWPC and DFFM will develop a user guide that will be available to other jurisdictions in the west grappling issues related to PJ overgrowth and encroachment.



Innovative Drainage

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- The Upper Verde Coalition - \$10,000
 - Monitoring Equipment & Long Term Monitoring
- Groundwater Users' Advisory Council - \$8,600
 - Site evaluation and Engineering
- Yavapai County - \$4,000
 - Construction of System
 - Plus use of the site for 2+ years
 - \$10,000 next year for outreach and education

Munderloh expects system installation to occur in early to mid summer.

Collaboration

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play in development of forest products industries.

Members of the business community working on the cutting edge of product development using woody biomass provided excitement as we realized, yes, with hard work, persistence and planning, we can do this.

Panels of landowners and public agency representatives brought to the forefront communication issues that exist, and regulations that are hampering work to restore and sustainably manage our watershed and its forested areas.

The environment was positive and the takeaway, despite some differences and frustrations between landowners and agencies, was everyone is willing to collaborate to accomplish the shared goal for a healthy watershed. And the time to act is now.

As a science-based workgroup, the UVRWPC will prioritize on-the-ground projects while simultaneously working collaboratively to address policy issues and regulations. We will continue to facilitate partnerships which make everything possible.

In 2016, we embarked on the process to obtain investment grade data to support re-invigoration of a forest products industry in Yavapai County. Over the last year, we partnered with DFFM and local landowners to conduct a large-scale juniper thinning equipment demonstration project; completed a wood supply study quantifying our wood resource, and finalized a labor market analysis. We solidified partnerships and formed new alliances.

A project implementing a unique approach to erosion control, designed in 2016, was recently funded with a grant award from the Arizona Water Protection Fund. It addresses severe erosion resulting from juniper encroachment on historic grasslands, and will be accomplished in partnership with the UVRWPC, Natural Resource Conservation Service, State Land Department, DFFM, and the York-Kenson Ranch.

CONFERENCE HIGHLIGHTS

1. Throughout the day, more than 120 individuals participated.
2. 20 landowners participated.
3. Industry representation included five industry presenters, and 15 additional representatives from the forest products industry and end users
4. State lawmakers including Senator Steve Pierce, representative-elects Noel Campbell and Dave Stringer
5. Local elected officials representing the City of Prescott, Town of Prescott Valley, Town of Chino Valley and Yavapai County.
6. Representation from Senators Jeff Flake and John McCain, and Representative Paul Gosar
7. Representation from state agencies and offices including the Office of the Governor, State Land Department, Department of Forestry and Fire Management, Arizona Game & Fish Department, and Arizona Department of Emergency and Military Affairs
8. Federal agency participation including US Forest Service Southwest Region; Prescott National Forest, USDA Rural Development, USDA Natural Resource Conservation Service, Agricultural Research Service
9. Non-profit participation including Northern Arizona Council of Governments, Salt River Project, Prescott Area Wildland Urban Interface Commission, National Wild Turkey Federation, Novo Power, Chino Winds and Triangle Natural Resource Conservation Districts, Arizona Cattle Feeder's Association
10. University participation including NAU Ecological Restoration Institute, ASU Cooperative Extension

Work is proceeding to pilot an innovative approach to rainwater harvesting for aquifer recharge. This is being accomplished in partnership with the UVRWPC, Prescott Active Management Area Groundwater Users Advisory Committee, and Yavapai County.

Planning has already begun for the 2017 All Hands, All Lands conference. It will again be held at Chapel Rock in the fall. More information and a save the date notice will be published in our June WaterSmart News.

The year 2016 was busy with many accomplishments; 2017 is shaping up to be even busier. We welcome the challenge.

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