

# Little Colorado Watershed Improvement Project

*Submitted by:*

*Arizona Department of Forestry and Fire Management*

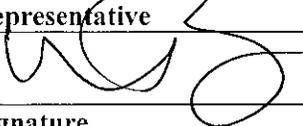
Contact: Kurt Schneider

Northeastern District Manager

Date: September 6, 2018

928-358-6019 [kschneider@dfm.az.gov](mailto:kschneider@dfm.az.gov)

**Arizona Water Protection Fund  
Application Cover Page  
FY 2019**

<b>Title of Project:</b> Little Colorado Watershed Improvement											
<b>Type of Project:</b> <input type="checkbox"/> Capital or Other <input checked="" type="checkbox"/> Water Conservation <input type="checkbox"/> Research	<b>Stream Type:</b> <input checked="" type="checkbox"/> Perennial <input type="checkbox"/> Intermittent <input type="checkbox"/> Ephemeral										
<b>Your level of commitment to maintenance of project benefits and capital improvements:</b> <input type="checkbox"/> < 5 years <input checked="" type="checkbox"/> 5-10 years <input type="checkbox"/> 11-15 years <input type="checkbox"/> 16-20 years											
<b>Applicant Information:</b> Name/Organization: Arizona Department of Forestry and Fire Management Address 1: 2922 W. White Mountain Blvd. Address 2: City: Lakeside State: Arizona ZIP Code: 85929 Phone: 928-358-6019 Fax: Tax ID No.:											
<b>Inside an AMA:</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <b>If yes, which AMA:</b> <input type="checkbox"/> Phoenix <input type="checkbox"/> Tucson <input type="checkbox"/> Prescott <input type="checkbox"/> Pinal <input type="checkbox"/> Santa Cruz											
<b>Contact Person:</b> Name: Kurt Schneider Title: District Manager Phone: 928-358-6019 Fax: e-mail:											
<b>Type of Application:</b> <input checked="" type="checkbox"/> New <input type="checkbox"/> Continuation											
<b>Any Previous AWPf Grants:</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <b>If yes, please provide Grant #(s):</b>											
<b>Arizona Water Protection Fund Grant Amount Requested:</b>  \$317,170  If the application is funded, will the Grantee intend to request an advance: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Matching Funds Obtained and Secured:</b> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align:left;"><u>Applicant/Agency/Organization:</u></th> <th style="text-align:right;"><u>Amount (\$):</u></th> </tr> </thead> <tbody> <tr> <td>1. DFFM ( HVR Fund)</td> <td style="text-align:right;">\$71,000</td> </tr> <tr> <td>2. AZDOC (Officer Wage)</td> <td style="text-align:right;">\$144,000</td> </tr> <tr> <td>3.</td> <td></td> </tr> <tr> <td align="right" colspan="2"><b>Total: \$215,000</b></td> </tr> </tbody> </table>	<u>Applicant/Agency/Organization:</u>	<u>Amount (\$):</u>	1. DFFM ( HVR Fund)	\$71,000	2. AZDOC (Officer Wage)	\$144,000	3.		<b>Total: \$215,000</b>	
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2. AZDOC (Officer Wage)	\$144,000										
3.											
<b>Total: \$215,000</b>											
Has your legal counsel or contracting authority reviewed and accepted the Grant Award Contract General Provisions? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A											
Signature of the undersigned certifies understanding and compliance with all terms, conditions and specifications in the attached application. Additionally, signature certifies that all information provided by the applicant is true and accurate. The undersigned acknowledges that intentional presentation of any false or fraudulent information, or knowingly concealing a material fact regarding this application is subject to criminal penalties as provided in A.R.S. Title 13. The Arizona Water Protection Fund Commission may approve Grant Awards with modifications to scope items, methodology, schedule, final products and/or budget.											
Jeffery C. Whitney	Agency Director 602-771-1400										
<b>Typed Name of Applicant or Applicant's Authorized Representative</b>	<b>Title and Telephone Number</b>										
	9/7/18										
<b>Signature</b>	<b>Date Signed</b>										

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## EXECUTIVE SUMMARY

### Little Colorado Watershed Improvement Project

The Arizona Department of Forestry and Fire Management (DFFM) seeks \$331,678 in funding from WPF for a multi-faceted, multi-resource management project, which will fund implementation of Phase 1 (400 acres) of the 2000 acre Little Colorado Watershed Improvement Project. The primary activity of this project will be hand thinning of encroaching Juniper. Once thinned the juniper will be piled for burning once all thinning has been completed on the project. This will help achieve the below listed primary multi - resource objectives of the project:

- Juniper encroachment mitigation
- Erosion control
- Sediment deposition mitigation
- Grassland restoration
- Forest and Rangeland health
- Fuels Reduction
- Wildlife habitat improvement

The proposed project is located on the Little Colorado River corridor to the southwest of Eager and Springerville. The area is within Apache Natural Resource Conservation District in Apache County, Arizona. This area consists of private and State Trust lands, and is directly adjacent to National Forest lands. The project area is at the headwaters of the Little Colorado watershed, and is directly adjacent to the south of the river.

Increased Juniper has reduced soil protection, decreased water availability, increased flood runoff, increased soil erosion and sediment production, and affected riparian vegetation. Effective management will improve the watershed condition and contribute to DFFM's goals of conserving resource productivity, enhancing wildlife, improving water quality, mitigating fire risk, and restoring riparian vegetation. Improving the health of directly adjacent rangeland, will in turn improve the headwaters of the Little Colorado, and everything downstream.

## **PROJECT OVERVIEW**

### **Background**

DFFM is a state government agency whose primary goals are to manage and reduce fire risk to protect Arizona's people, communities, and wildland areas and to champion the health of Arizona's natural resources. DFFM provides services through strategic implementation of cooperative natural resource and fire assistance programs, development and support of statewide fire policies, and coordination of resources across all-lands and jurisdictions.

In FY 2019, DFFM will allocate 2 million state Hazardous Vegetation Removal (HVR) dollars across the state, specifically for fuels reduction treatments on State Trust Land. The state also will allocate 2 million dollars in Wildland Fire Hazardous Fuel (WFHF) grant funds to several fire departments, and counties for implementation of fuels mitigation work. The State also has a Forest Stewardship Program, which assists private landowners in developing long-term management plans for their private lands, primarily working with the NRCS using EQIP funds to implement forestry work using sound forestry practices and management. DFFM also implements projects using Western Bark Beetle Initiative (WBBI) Grants, targeting areas specifically impacted by bark beetle outbreaks, State Fire Assistance (SFA) Grants, and Volunteer Fire Assistance (VFA) Grants, which provide assistance to area fire districts.

In FY 2019, in cooperation with Arizona State Land Department, Arizona Game and Fish Department, and U.S. Forest Service, DFFM with grant funds allocated, DFFM will be focusing in a few key rangeland areas implementing fuels reduction/restoration work. One of these project areas will be in White Mountain Lakes, on State Trust land, implementing 632 acres of Fuel Breaks to protect the community of White Mountain Lakes, and Silver lake Estates. The values at risk protect will namely be the Silver Creek Fish Hatchery, which is a very important resource to the state, not only as a fish hatchery, but also a sensitive watershed.

DFFM will also be cooperating with local Apache Natural Resource Conservation District and the NRCS to assist in implementation of the Brown Ranch Project using SFA grant funds to implement 500 acres of juniper encroachment control, and Watershed improvement. The Brown Ranch project is funded by the Water Protection Fund and NRCS EQIP funds.

### **Goals**

The goal of the Little Colorado Watershed Improvement Project, and the basis for this funding request from the AWPf, includes controlling the extensive Juniper invasion within this specified project area. The Little Colorado area is a project area of 2,000 acres in size, which is adjacent to the Little Colorado River and to the Southwest of the communities of Eager and Springerville. This initial project targets 400 acres in State Trust Land leased by AZGFD. Due to steep terrain and limited access, most of the treatment will be performed with hand thinning crews though there may be opportunities for mechanical thinning.

The proposed treatment will result in improved cover of perennial grasses and forbs, which will provide increased soil protection and reduced sediment yield. It will not only increase forage for livestock and wildlife, but also contribute to improved water quality and riparian vegetation. This project will also complement a fuels mitigation project previously implemented by DFFM on the east side of 261,

extending an area of reduced fuel loading 3 miles further to the west, thereby increasing the benefits of fire risk reduction to the community as well as improving the health of the Little Colorado Watershed. Furthermore, it will compliment work done on US Forest Service land directly south of the proposed project area.

To fully complete the 2,000 acres in the Little Colorado Project area it is expected there will be 3 other phases after this one. DFFM is pursuing funding for these phases from a few other sources (state and private forestry funds from the US Forest Service and other state funds). Being that some of these are federal grants requiring match it is DFFM's intention to leverage this grant as match for one or more of these grants.

### **Project Objectives**

The objective of this project is to reduce runoff and erosion by removing woody biomass (e.g. juniper), resulting in improved water quality and riparian conditions, as well as reduced fire risk to the watershed and communities of Eager and Springerville. To allow grasses and forbs to reestablish slash created from the thinning will be piled and burned to allow more direct sunlight.

Primary multi-resource objectives of the project include and are not limited to:

1. Juniper encroachment mitigation and Fuels reduction through the removal of juniper from site.
2. Erosion control and Sediment deposition mitigation by allowing native species and opportunity to be reestablish.
3. Forest and rangeland health along with grassland restoration by removing woody biomass.
4. Wildlife habitat improvement

### **Project Outcomes**

1. Reduced runoff and erosion due to more ground being covered by biomass.
2. Lower turbidity in the Little Colorado River since less soil will be eroded precipitation events.
3. Improved health of the Little Colorado Watershed due to higher water quality and quantity.
4. Reduced Fire risk by expanding an already existing firebreak.
5. Improved wildlife habitat.

### **Problem(s)/Cause(s)/Solution(s)**

Juniper has invaded large areas in northern Arizona over the last 100 years due mainly to aggressive fire suppression over that time. This has resulted in reduced effective ground cover, increased soil erosion, increased flooding, reduced water quality and quantity, and impaired riparian conditions.

The solution to this problem is to remove juniper, which will give grasses, forbs, and browse plants an opportunity to reestablish. Once these types of vegetation are in place the watershed and river will see higher water quantities and lower turbidity.

### **Years of Benefit**

Research indicates years of benefit for brush removal are dependent on method of removal, ground cover seed source, precipitation, and soil type. However, average number of years are estimated at 10-20 years.

## Project Location & Environmental Contaminant Information FY 2019

<b>Project Location Information</b>			
1. County: <u>Apache</u>	2. Section(s): <u>13,14,15</u>	3. Township: <u>8N</u>	4. Range: <u>28E</u>
<p>5. Watershed: <u>Little Colorado</u></p> <p>6. 8 or 10 Digit Hydrologic Unit Code (HUC): <u>15020001</u></p> <p>7. Name of USGS Topographic Map where project area is located: <u>Greer and Eager (2)</u></p> <p>8. State Legislative District: <u>7</u></p> <p>9. Land ownership of project area: <u>AZ State Land Department/Private</u></p> <p>10. Current land use of project area: <u>Grazing/Wildlife</u></p> <p>11. Size of project area (in acres): <u>2000 acres DIRECT</u></p> <p>12. Stream Name: <u>Little Colorado River</u></p> <p>13. Length of stream through project area: <u>5 miles</u></p> <p>14. Miles of stream benefited: <u>5 miles</u></p> <p>15. Acres of riparian habitat: (Phase 1) <u>400 acres</u> will be:</p> <div style="text-align: right; margin-top: 20px;"> <input checked="" type="checkbox"/> Enhanced  <input type="checkbox"/> Maintained  <input checked="" type="checkbox"/> Restored  <input type="checkbox"/> Created         </div>			
<p>16. General description and/or delineation for the area of impact of the project within the watershed.  <u>The project area is on a north-facing slope adjacent to the south of the Little Colorado River. It runs east to the 261 and West to the west side of section 16.</u></p>			
<p>17. Provide directions to the project site from the nearest city or town. List any special access requirements: ____  <u>Access to the site is limited. Heading west from Springerville 5 miles on Hwy 260 take county road 4124 to the south about 2 miles.</u></p>			
<b>Environmental Contaminant Location Information</b>			
<p>1. Does your project site contain known environmental contaminants?    <b>YES</b> <input checked="" type="checkbox"/> <b>NO</b> If yes, please identify the contaminant(s) and enclose data about the location and levels of contaminants: _____</p> <p>2. Are there known environmental contaminants in the project vicinity?    <b>YES</b> <input checked="" type="checkbox"/> <b>NO</b> If yes, please identify the contaminant(s) and enclose data about the location and levels of contaminants: _____</p> <p>3. Are you asking for Arizona Water Protection Fund monies to identify whether or not environmental contaminants are present?    <b>YES</b> <input checked="" type="checkbox"/> <b>NO</b></p>			

## ***Scope of Work***

### **Task 1: Finalize Authorizations**

**Task Description:** Complete landowner access agreement, SHPO clearance, and state land department permitting. Letters of support from ASLD and AZGFD (lessee) are attached. Formal agreements will be finalized after grant award.

**Task Purpose:** Must be completed and submitted to Project Manager to continue with Project implementation.

**Deliverable:** Landowner access agreement, SHPO clearance.

**Responsible Personnel:** Kurt Schneider

**Deliverable Due Date:** Within 90 days of finalization of grant agreement with the Water Protection Fund.

**Reimbursable Cost:** \$1,176

### **Task 2: Create Prescription**

**Task Description:** Prescriptions have been determined using fuel modification and treatment plan 3 and 4 specified in the Apache County Wildfire Protection Program (ACWPP) (page 45), "Target BA for conifers (Ponderosa Pine and Pinion Pine) is 40 to 60 Basal Area. Conifers greater than 16 inches will not be cut. Conifers less than 16 inches will be thinned. Conifers between 1.5 and 4.9" DBH will be spaced 15-20 feet from existing trees." "Pinion-Juniper woodlands will be thinned to a spacing of 25-75 feet between trees (varies with slope), as needed to promote fire-resilient stands. All trees >12 inches will be left unless it is necessary to remove some to achieve the desired spacing."

**Task Purpose:** To assure adequate amounts of juniper and pinion is removed and project area is not excessively impacted.

**Deliverable:** Project prescription.

**Responsible Personnel:** Kurt Schneider

**Deliverable Due Date:** Within 30 days of finalization of grant agreement with the Water Protection Fund.

**Reimbursable Cost:** \$4,778 – Part of the project labor.

### **Task 3: Juniper Treatment**

**Task Description:** Thin 400 acres comprised mainly of juniper with small amounts of Ponderosa and Pinyon pine. Between 30-50% of the live trees may be removed and the majority of dead and down and standing dead trees will also be removed. Slash will be piled to be burned once the treatment has been completed

**Task Purpose:** Reduce juniper overgrowth to improve project site quality.

**Deliverable:** 400 acres of juniper thinned to the above prescription.

**Responsible Personnel:** Kurt Schneider, contractor.

**Deliverable Due Date:** Within 18 months of finalization of grant agreement.

**Reimbursable Cost:** \$229,000

**Task 4: Burning Piles**

**Task Description:** Controlled pile burning of woody debris.

**Task Purpose:** Remove slash from the site.

**Deliverable:** Reduce biomass on site.

**Responsible Personnel:** Kurt Schneider

**Deliverable Due Date:** 120 days after completion of the thinning depending on burning conditions.

**Reimbursable Cost:** \$70,000

**Task 5: Project Management**

**Task Description:** Oversee and monitor project progress.

**Task Purpose:** Ensure adherence to timeline, budget, project plan, and best management practices.

**Deliverable:** Required grant project reports.

**Responsible Personnel:** Kurt Schneider.

**Deliverable Due Date:** Throughout the project period by established Arizona Water Protection Fund reporting deadlines.

**Reimbursable Cost:** \$9,338

Project Timeline

It is expected that if awarded the grant agreement will be finalized by March 2019, and the project will begin after Arizona Fire Season. With an estimated start date of July 2019, phase one the project will take roughly 150 working days to complete over a total grant term of 2-3 years.

## DETAILED BUDGET BREAKDOWN

Task	Qty	Rate	Grant \$	Match \$	Total Cost \$
<b>1) Authorizations</b>					
Direct Labor	32 hrs	\$36.75/hr	\$ 1,176		\$ 1,176
<b>2) Prescriptions</b>					
Direct Labor	130 hrs	\$36.75/hr	\$ 4,778		\$ 4,778
<b>3) Treatments</b>					
Enterprise Services	400 acres	\$750/acre	\$ 229,000	\$ 71,000	\$ 300,000
DOC Contribution		\$360/acre		\$ 144,000	\$ 144,000
<b>4) Pile Burning</b>					
Enterprise Services	400 acres	\$175/acre	\$ 70,000		\$ 70,000
<b>5) Project Management</b>					
Direct Labor	160 hrs	\$36.75/hr	\$ 5,880		\$ 5,880
Travel			\$ 1,458		\$ 1,458
Supplies			\$ 2,000		\$ 2,000
<b>PROJECT SUBTOTAL</b>			<b>\$ 314,292</b>	<b>\$ 215,000</b>	<b>\$ 529,292</b>
Indirect/Admin Costs	\$15,292	x 34%	\$ 5,199		\$ 5,199
<b>TOTAL COSTS</b>			<b>\$ 319,491</b>	<b>\$ 215,000</b>	<b>\$ 534,491</b>

**Direct Labor Costs:** Are based on hourly salary of \$25/hour plus 47% Fringe Benefits = \$36.75/hour.

**Enterprise Services:** Includes established costs for operation of DFFM/DOC Enterprise Forestry Crews. Costs are tracked on a daily basis and include DOC crew costs, transportation, equipment usage, and personal protective gear.

**Travel Costs:** Based on an estimate of 30 round trips for management personnel from Pinetop office to project site. (30 trips x 90 miles round trip x .54/mile = \$1,458)

**Supplies:** includes purchase and maintenance of forestry tools, project flagging, maps, etc.

**Administrative/Indirect Costs:** DFFM has an established Indirect Cost Rate of approximately 34% that is applied to a cost base including expenses excluding contractual and Enterprise Services. (In this proposed budget, the Indirect Rate is applied to Personnel, Fringe, Travel, and Supplies. It is not applied to the Enterprise Service/DOC Crew Costs.)

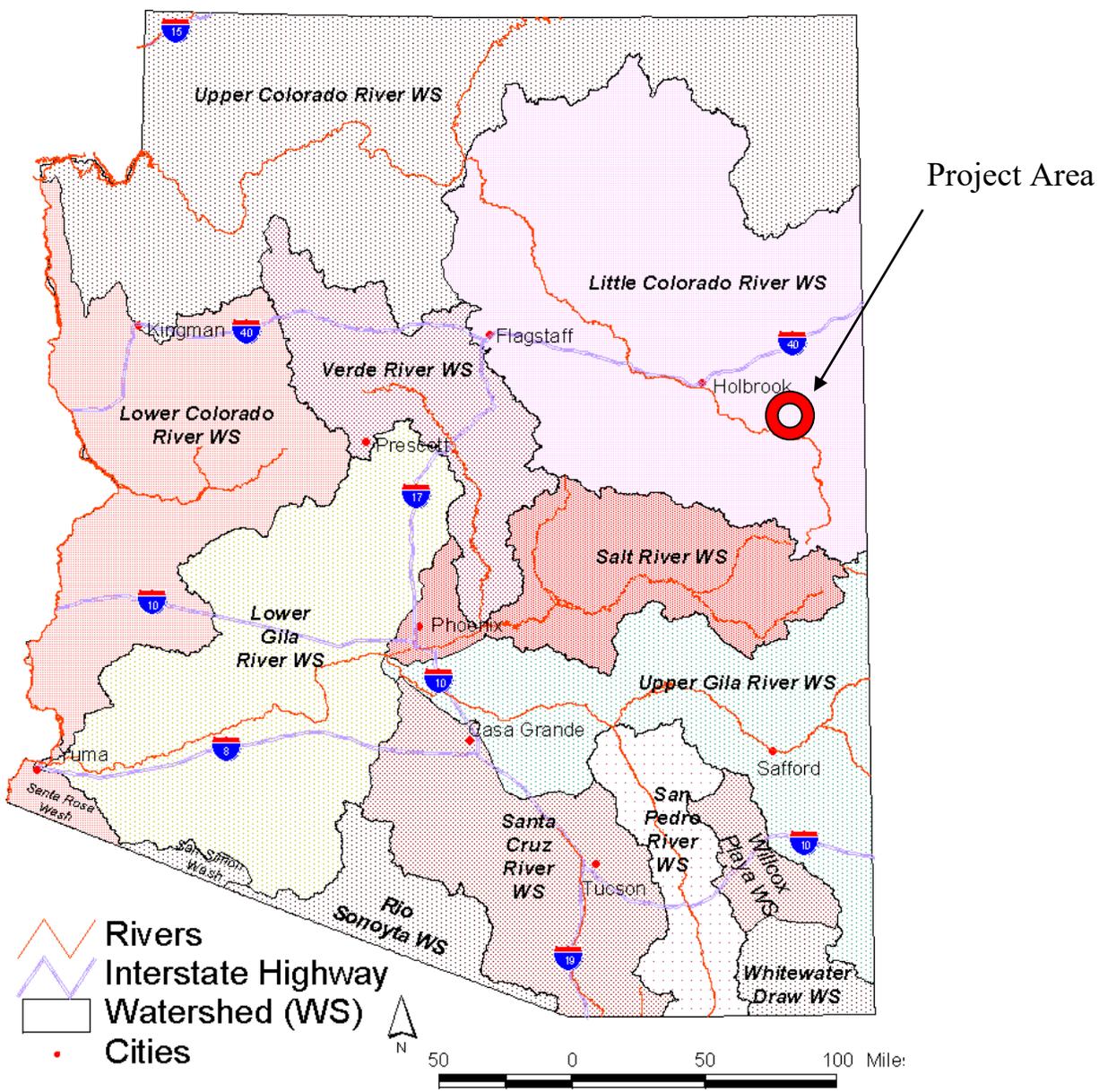
## **DETAILED MATCH BREAKDOWN**

**Enterprise Services:** Includes established costs for operation of DFFM/DOC Enterprise Forestry Crews. Costs are tracked on a daily basis and include DOC crew costs, travel, equipment usage, and personal protective gear. Matching expenses are cash commitments from DFFM Hazard Vegetation Removal funds.

**DOC Contribution:** Personnel costs for AZ Department of Correction staff costs to support DFFM/DOC Enterprise Forestry Crews. Matching expenses are actual payroll costs documented for DOC staff.

# Mapping

# Arizona Watershed Map FY 2019



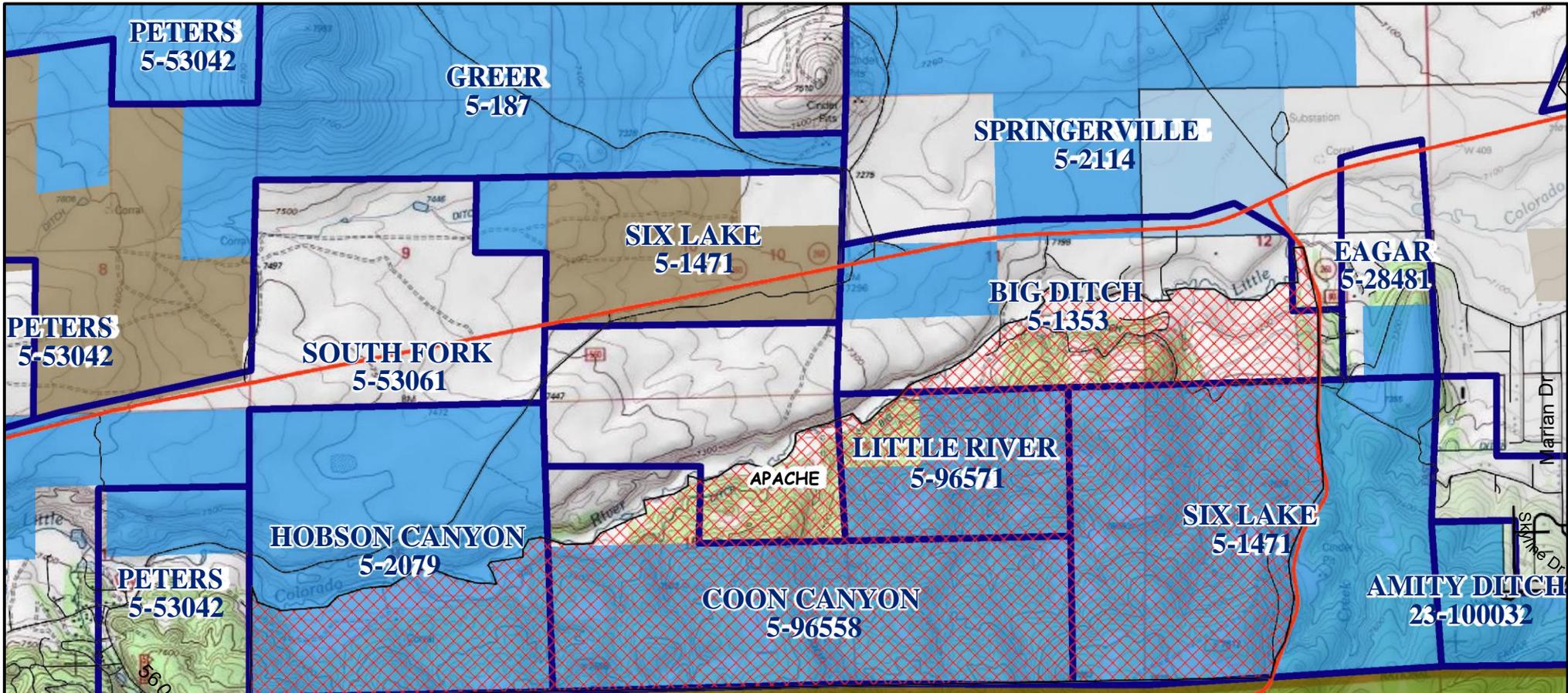
**Title of Project:** \_\_\_\_\_

**Location** (include UTM's & Township/Range/Section): \_\_\_\_\_  
 (Location must include at least one Section delineation for large scale projects)



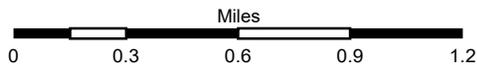
# LCR PROPOSED PROJECT

Date: 7/30/2018  
By: Joshua L. Grace



The Arizona State Land Department makes no warranties, expressed or implied with respect to the information shown on this map.

O:\jgrace\range\_template.mxd  
Joshua Grace, 12/22/2016



## Legend

LC Watershed Project Area

### AZ Roads

#### Type

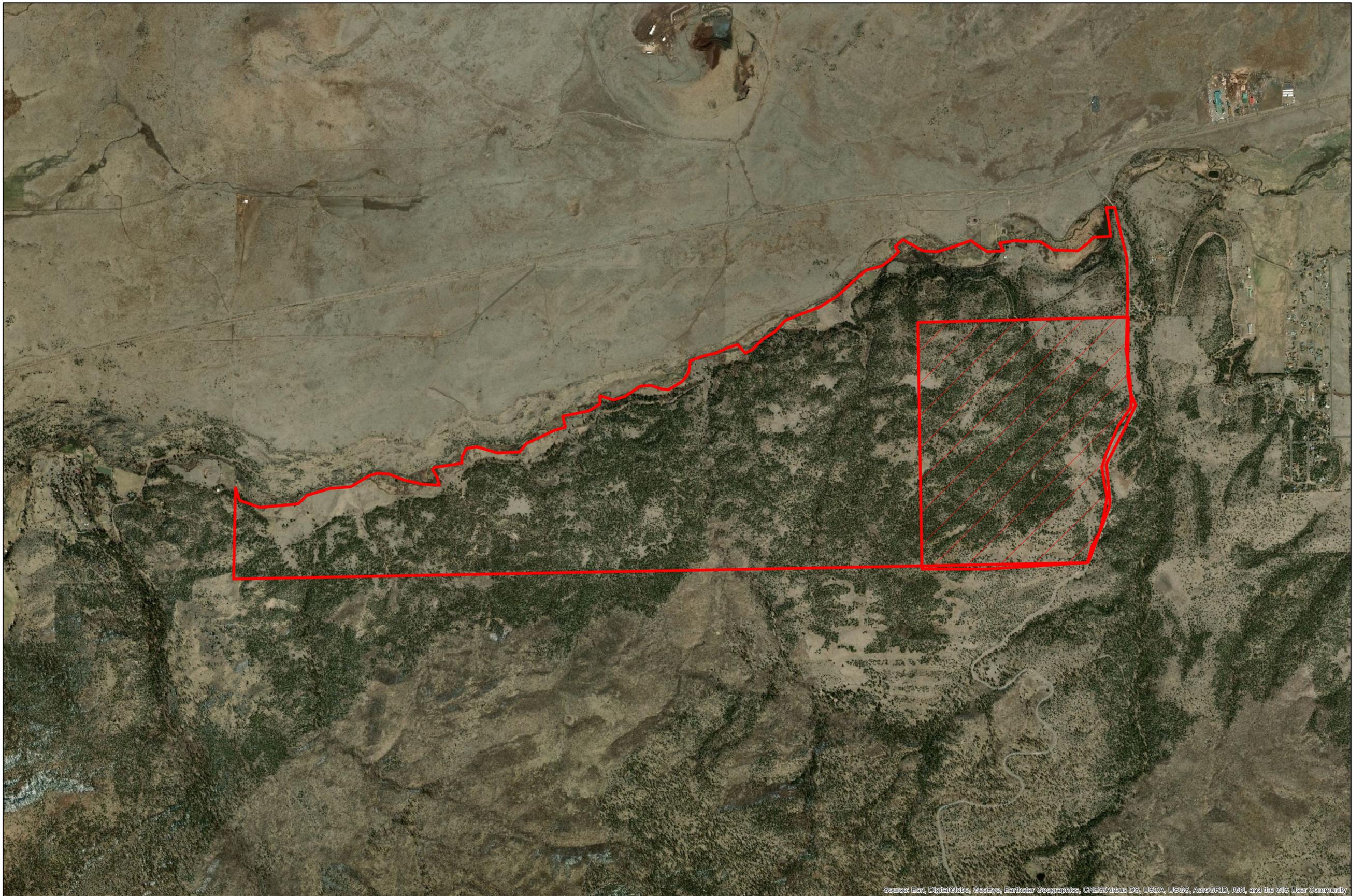
- Highways
- Major Roads
- Streets
- Alleys

Grazing Allotments

### Public Land Ownership

#### CATEGORY

- State
- US Forest Service
- Other

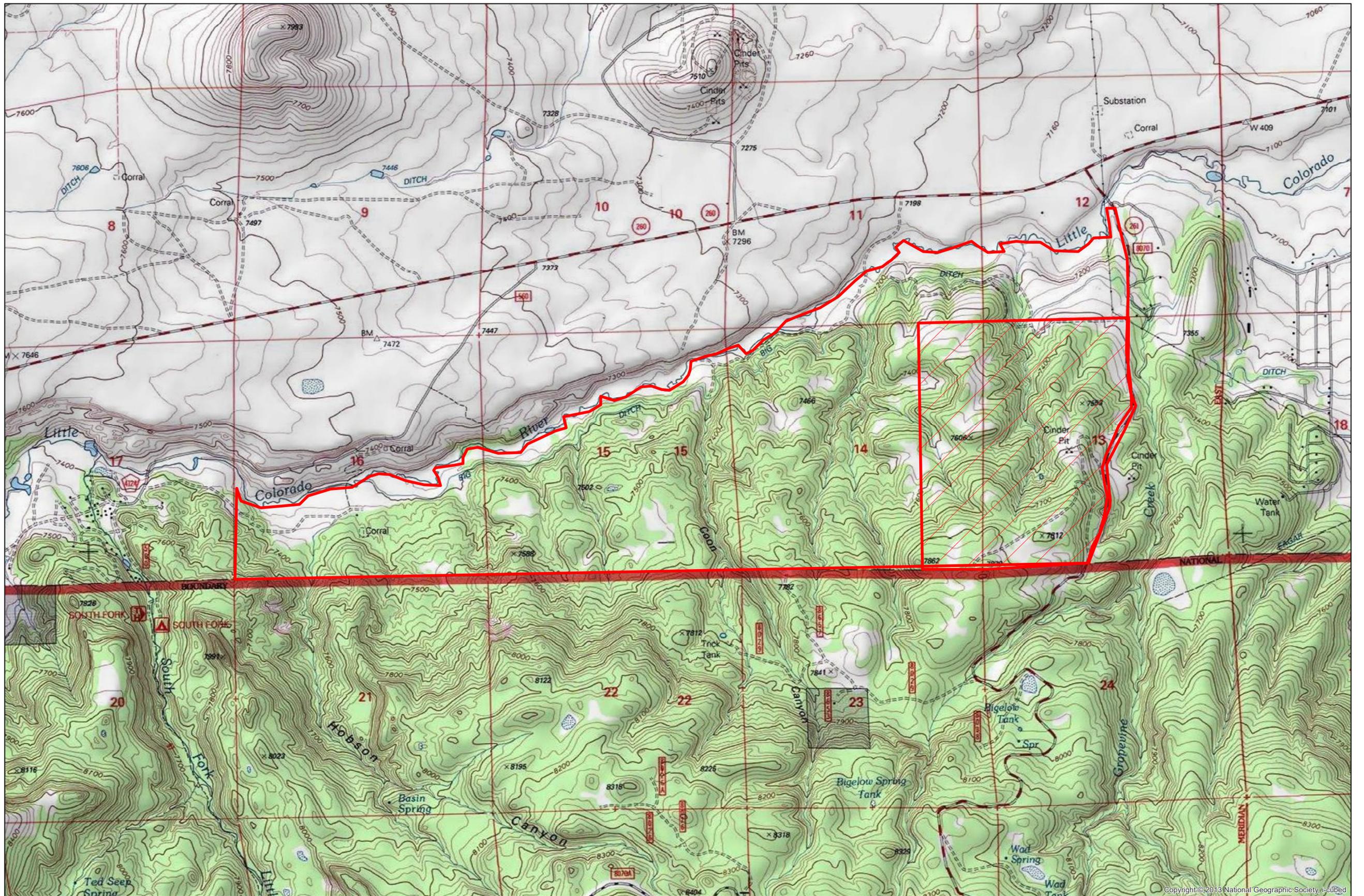


Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

### Legend

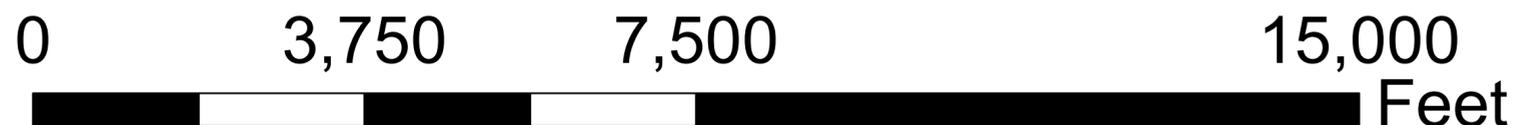
-  Phase 1-400 acres
-  Little Colorado Watershed Project Area-2000 acres





**Legend**

-  Phase 1-400 acres
-  Little Colorado Watershed Project Area-2000 acres



# Supplemental Information

## STATE HISTORIC PRESERVATION OFFICE Review Form

In accordance with the State Historic Preservation Act (SHPO), A.R.S. 41-861 *et seq.*, effective July 24, 1982, each State agency must consider the potential of activities or projects to impact significant cultural resources. Also, each State agency is required to consult with the State Historic Preservation Officer with regard to those activities or projects that may impact cultural resources. Therefore, it is understood that **recipients of state funds are required to comply with this law** throughout the project period. All projects that affect the ground-surface that are funded by AWPf require SHPO clearance, **including those on private and federal lands.**

The State Historic Preservation Office (SHPO) must review each grant application recommended for funding in order to determine the effect, if any, a proposed project may have on archaeological or cultural resources. To assist the SHPO in this review, the following information **MUST** be submitted with each application for funding assistance:

- A completed copy of this form, and
  - A United States Geological Survey (USGS) 7.5 minute map
  - A copy of the cultural resources survey report if a survey of the property has been conducted, and
  - A copy of any comments of the land managing agency/landowner (i.e., state, federal, county, municipal) on potential impacts of the project on historic properties.
- NOTE: If a federal agency is involved, the agency must consult with SHPO pursuant to the National Historic Preservation Act (NHPA); a state agency must consult with SHPO pursuant to the State Historic Preservation Act (SHPA),
- OR**
- A copy of SHPO comments if the survey report has already been reviewed by SHPO.

### Please answer the following questions:

1. Grant Program: Water Protection Fund
2. Project Title: Little Colorado Watershed Improvement
3. Applicant Name and Address: Kurt Schneider – DFFM
4. Current Land Owner/Manager(s): ASLD/AZGFD
5. Project Location, including Township, Range, Section: 8N 28E Sections 13, 14, 15 (Phase 1)
6. Total Project Area in Acres (or total miles if trail): 400 acres
7. Does the proposed project have the potential to disturb the surface and/or subsurface of the ground?  
 YES     NO
8. Please provide a brief description of the proposed project and specifically identify any surface or subsurface impacts that are expected: Tree will be removed using hand thinning and rubber tire masticators where feasible. Ground disturbance will likely be minimal.
9. Describe the condition of the current ground surface within the entire project boundary area (for example, is the ground in a natural undisturbed condition, or has it been bladed, paved, graded, etc.). Estimate horizontal and vertical extent of existing disturbance. Also, attach photographs of project area to document condition: Ground is mostly undisturbed with a few two-track roads throughout.



## KEY PERSONNEL

**Kurt Schneider-District Manager-AZDFFM**-Prepared this grant and is the District Manager of the Northeast District for Arizona Department of Forestry and Fire Management. He has 2 years of experience planning and implementing several projects in the White Mountains both as the Service Forester, and as District Manager. He received his Bachelor of Science Degree in Forest Management at UW-Stevens Point in 2013 and is currently completing his Masters at Humboldt State University. Kurt has worked as a Forester most of his career both as an employee for the Forest Service, Private Industry and as a volunteer on a chainsaw crew with the Nevada Conservation Corps.

**Darrell Craig-Assistant Fire Management Officer-AZDFFM**- Darrel Craig is the Assistant Fire Management Officer for the Northeast District of Arizona Department of Forestry and Fire Management. He has had several years of project management and fire experience and has successfully implemented dozens of projects in the White Mountains.

**Dave Dorum-Habitat Evaluation and Lands Program Manager-AZGFD**-Has worked for the Game and Fish Department for 28 years and has several years of project implementation and conducting wildlife surveys and has been implementing Grant funded projects since. In 2007, he implemented the Fairchild Draw Riparian Restoration Project, which was funded by the Water Protection Fund. He has a Bachelor's of Science in Wildlife Management from Arizona State University.

**Dave Cagle-Terrestrial Wildlife Program Manager-AZGFD**-Has worked for the Game and Fish Department and lived in the White Mountains for 25 years. His job duties include all aspects of big game management. Including: proposing, planning, and implementing habitat improvement projects on Forest Service and Game and Fish Land. Specific projects include wildlife water developments, prescribed burning, grassland restoration, and wetland vegetation enhancement. He implemented an ADEQ grant funded streambank restoration project on the Little Colorado River to reduce erosion downstream of Springerville. Dave has a Bachelor's degree in Wildlife Management and a Master's in Business Administration from Arizona State University.



### Photo Plot 1

<b>Slope Aspect</b>	50 degrees (NE)
<b>Photo Aspect</b>	230 degrees (SW uphill)
<b>Slope</b>	35%
<b>Trees Per Acre</b>	120 (Determined using 1/10 acre Fixed Radius plot)
<b>Mortality Rate</b>	Low
<b>Species</b>	Pinion Juniper
<b>Spacing</b>	10-15 Feet



## Photo Plot 2

<b>Slope Aspect</b>	6 degrees (Due N)
<b>Photo Aspect</b>	15 Degrees (Due N Downhill)
<b>Slope</b>	33%
<b>Trees Per Acre</b>	>540 (Determined using 1/20 acre Fixed Radius plot)
<b>Mortality Rate</b>	High
<b>Species</b>	Pinion, Juniper, and Ponderosa Pine
<b>Spacing</b>	5-10 feet



### Photo Plot 3

<b>Slope Aspect</b>	340 degrees (Due N)
<b>Photo Aspect</b>	350 degrees (Due N Downhill)
<b>Slope</b>	31%
<b>Trees Per Acre</b>	840 (Determined using 1/20 acre Fixed Radius plot)
<b>Mortality Rate</b>	moderate
<b>Species</b>	Pinion and Juniper
<b>Spacing</b>	5 Feet



Subject: Letter of Support for Little Colorado River Watershed Improvement

To whom it may concern:

I would like to express my support for the Little Colorado River Watershed Improvement Project being proposed by the Arizona Department of Forestry and Fire Management. As proposed, the project will focus on removing encroaching Juniper on lands that lie within the Little Colorado River (LCR) watershed and are directly adjacent to Forest Service lands. In addition to the watershed benefits, the project will reduce hazardous fuels adjacent to private and federal land thereby reducing the risk of catastrophic wildfire.

Robert S. Lever

*/S/ Robert S. Lever*

District Ranger, Springerville Ranger District  
Apache Sitgreaves National Forest



APACHE NATURAL RESOURCE CONSERVATION DISTRICT  
823 E. Main St. – P O Box 329 - Springerville, Arizona 85938  
Phone: 928-333-4941 ext. 3

Chairman - Daric Knight  
Vice-Chairman – Macky Trickey, Jr.  
Secretary – Milo Andrus  
Treasurer – Don Lann  
Member – Kevin Burk

Arizona Water Protection Fund  
Arizona Department of Water Resources  
1110 West Washington  
Phoenix, AZ 85007

September 2, 2018

Dear Water Protection Fund Members,

I am writing in support of the Juniper Mitigation Forest/Range/Watershed Improvement Project application submitted by the Arizona Department of Forestry and Fire Management. The Apache NRCD has taken great efforts to restore historic grasslands in our District from the invasion of Juniper. We believe that this restoration and the removal of invasive juniper will increase productivity on our rangelands and impact the watersheds in our District in a very positive manner. Our District, through partnering and working closely with different agencies has been able to help treat juniper in our District on a landscape level. This juniper work is starting to show very real effects on the range lands, watersheds and water quantity/quality in our District.

This project will be located on the southern end of our District boundaries along the Little Colorado River and adjacent to the USFS Apache Sitgreaves National Forest boundary. It is located on State Trust land, administered by the Arizona State Land Department, and is currently leased by the AZGF Department. All of these entities have been great partners in helping restore grasslands and our other precious natural resources.

It is with great pride and pleasure that the Apache Natural Resource Conservation District support this ADFFM project and we look forward to working with them on many more natural resource issues.

Respectfully,



Daric Knight

Apache NRCD, Chairman

# Evidence of Control and Tenure



August 31, 2018

Mr. Kurt Schneider  
Northeast District Manager  
Department of Forestry and Fire Management  
2922 West White Mountain Boulevard  
Lakeside, AZ 85929

Dear Mr. Schneider:

Your application to the Arizona Water Protection Fund to remove juniper trees on our Arizona State Land Department grazing lease near Eagar, Arizona has been reviewed and is supported by the Arizona Game and Fish Department.

Past land management practices to reduce naturally occurring fires on the landscape and long-term repeated livestock grazing have inadvertently increased juniper distribution across large areas of northern Arizona. The result of this juniper woodland encroachment has led to a change in what originally was a grass dominated ecosystem. The invading trees have reduced grass and forb species diversity, reduced ground cover, and has increased topsoil erosion. Your Little Colorado Watershed Improvement Project will reverse that trend while causing minimal disturbance with your hand cutting tree removal tactics. Reducing the density of juniper trees on the approximate 400 acre parcel of State Trust Land we lease for wildlife and watershed objectives will greatly assist us in achieving our habitat and wildlife goals.

This project area is within a key wintering range for mule deer and elk, and increasing the herbaceous forage base will benefit those species. The anticipated increased ground cover is predicted to reduce particulate runoff to the adjacent Little Colorado River and aid in percolation of snow melt and summer precipitation.

If you are funded on this worthwhile project, we look forward partnering with you to tailor the implementation to best achieve the mutual goals to improve the Little Colorado River watershed and improve our big game winter range.

Sincerely,

A handwritten signature in black ink that reads "Dave Cagle".

Dave Cagle, Pinetop Terrestrial Wildlife Program Manager

cc: Dave Dorum, Pinetop Region Habitat and Lands Program Manager  
Aaron Hartzell, East Sector Wildlife Manager Supervisor

azgfd.gov | 928.532.3680

PINETOP OFFICE: 2878 E. WHITE MOUNTAIN BLVD., PINETOP AZ 85935

Douglas A. Ducey  
Governor



Lisa A. Atkins  
Commissioner

**Arizona State Land Department**

1616 West Adams, Phoenix, Arizona 85007  
(602) 542-4631

TO: Whom it May Concern  
DATE: September 5, 2018  
FROM: Joshua Grace, Ph.D.  
Rangeland Resource Area Manager  
Arizona State Land Department  
SUBJECT: Letter of Support

Dear Sir or Madam,

Please accept this letter on behalf of the Arizona State Land Department in support of the Little Colorado Watershed Improvement Project. We are happy to have assisted in early stages of project development with Arizona Department of Forestry and Fire Management and Arizona Game and Fish Department (our Lessee). As the managing authority of Arizona State Trust lands, we support the proposed project and plan to continue our involvement going forward.

The proposed Little Colorado Watershed Improvement Project addresses several resource concerns important to Arizona State Land Department including invasive species control, soil health, water availability and quality, and rangeland restoration. This project would also benefit our Grazing lessees by increasing ground water availability for native plant growth, thus benefiting the Beneficiaries which we serve. We support and appreciate the efforts of AZDFFM in this project's development and look forward to further cooperation of all entities involved.

Thank you,

Joshua L. Grace

**ARIZONA WATER PROTECTION FUND  
Grant Application Check List**

- Cover Page\*
- Executive Summary
- Project Overview
- Project Location & Environmental Contaminant Form\*
- Scope of Work
- Budget
- Matching Funds Breakdown (If Applicable)
- Maps & Schematics
- Supplemental Information (State Historic Preservation Office Review\*, Watershed/Location Map\*, Etc.)

\*Indicates electronic form available