

**ARIZONA WATER SETTLEMENTS ACT
PROPOSAL FOR WATERSHED RESTORATION
TIER 2**

**Submitted by
GILA NATIONAL FOREST
Silver City**

**Submitted to
STATE OF NEW MEXICO
INTERSTATE STREAM COMMISSION**

December 14, 2011

**TIER-2 CRITERIA FOR A NM UNIT OR A WATER UTILIZATION
ALTERNATIVE [1010 total points possible]**

INTRODUCTION

This revised Tier 2 proposal is for a water utilization alternative. The proposal has been changed in two important aspects from the preliminary draft proposal submitted to the Interstate Stream Commission (ISC) on October 31, 2011:

- 1) Two specific watershed restoration projects are proposed. These project plans are fully developed and may be ready for execution. Partial AWSA funding is requested in support of these restoration projects.
- 2) The USFS is aware of other watershed projects that have been proposed to the ISC on Gila National Forest lands. Two of these projects (Catron County and Luna Irrigation Ditch Association) have been reviewed and the Forest Service has provided letters of support. The Forest Service has no knowledge of the status of other proposed projects, other than noting their existence on the ISC website listing the Tier 1 evaluation results. For those projects, the Forest Service has provided neither input nor support. If these proponents submit Tier 2 proposals and they are approved by ISC, the Forest Service will require that they be reviewed and administered, and have provision for Forest Service oversight. Estimated costs for project review, administration and oversight are included in this proposal.

1. [570] If the proposal would extend the water supply through conservation, or increase the supply through development of new water,

- a. Describe the location and verify the ownership of and legal access to lands related to the proposal. [0 to 30 points]

This proposal is for watershed restoration projects within U.S. National Forest System (NFS) lands administered by the Gila National Forest. The Gila National Forest includes portions of Catron, Grant, Sierra and Hidalgo Counties. Figure 1 (Attachment 1) show the locations of the two project areas. A detailed description of the projects is provided in Attachments 2 and 3.

- b. Identify the source of the water to be put to use. [0 to 10 points]

These are water utilization alternatives, and it is anticipated that no water will be “put to use”; instead, the benefits of these projects may have a significant water conservation component.

Headwaters and streams of the Gila, the San Francisco, and Mimbres River, and others within the 4-County Southwest New Mexico Planning Region; on lands administered by the Gila National Forest.

- c. Describe and quantify whether and how the proposal would extend the water supply through conservation, or increase the supply through development of new water in the Southwest Planning Region. [4 points for each 10 AF up to 500 points]

Projects 1 (Snow Lake) and 2 (Burro Unit) will extend the water supply through conservation. The Snow Lake project is designed to achieve a functional watershed, one that can retain greater amounts of water in the soil, streambanks, and main stream channels. A functional watershed, by providing increased storage, will also slow the rate of flow through the watershed, thus making more water available during low flow periods, and somewhat less water contributing to flood peaks. Whether a functioning watershed will produce an increase in total water yield cannot be predicted.

The prescribed fires and thinning on the Burro Unit (Project 2) is a restorative measure that will also mitigate the effects of a catastrophic wildfire on the debris and sediment load, and on flood peaks in the Gila River. The overall water yield may not increase as a result of this work, however, as the project brings the various watersheds in the Burro Unit into the functioning watershed classification, the same water retention and release mechanisms are expected to occur, thus showing significant water conservation.

- d. Demonstrate how the proposal would meet AWSA and CUFA requirements. [up to 30 points] (see www.AWSAplanning.com for AWSA and CUFA documents)

The Snow Lake and Burro Units projects meet AWSA, Consumptive Use and Forbearance Agreement, and other applicable federal, state and local laws. It includes treatments to capture and conserve water.

This water conservation project will add to minimum flow requirements under the CUFA, allowing for more water to reach the river systems to offset the consumption of 14,000 acre feet (4,000 acre-feet per year from the San Francisco River) and thereby contribute to the CUFA-required volume of stored water in each given year. (CUFA 12.4.1.2: *“stream flow increases in Arizona resulting from watershed improvements or other water flow enhancement activities funded by the State of New Mexico, and the percentage of such increases that may be added to the Secretary’s ten-year permissible Consumptive Use pursuant to this Agreement”*)

Any stream flow measurements used to monitor this project will use flow measurement of the gauge station located on the San Francisco River near Reserve, New Mexico, and other US Geological Survey or approved designated entity’s flow measurement in compliance with CUFA (CUFA 12.1: *For purposes of the measurement of stream flows, real-time readings by the U.S. Geological Survey, or such other entity as designated by the technical committee for such purpose, shall be used for purposes of determining compliance with Exhibit 2.47 (Terms of New Mexico Diversions)*).

All work associated with this proposal will comply with NEPA (AWSA SEC. 212. (h) (1) ENVIRONMENTAL COMPLIANCE.-*Upon execution of the New Mexico Consumptive Use and Forbearance Agreement and the New Mexico Unit Agreement, the Secretary shall promptly comply with all aspects of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.), the Endangered*

Species Act of 1973 (16 U.S.C. 1531 et seq.), and all other applicable environmental Acts and regulations.)

2. [40] Describe the proposal and its technical viability.
 - a. Include any (or reference publically-available) technical and engineering studies completed and demonstrate how these studies support the proposal. [up to 20 points]

Project 1: Snow Canyon Sixth Code Watershed Restoration

Snow Canyon is a 31,354-acre sixth-code watershed located in the central highlands of the Gila National Forest. It is a high elevation watershed (average being greater than 8,000 feet) with comparatively subdued topography. Snow Canyon is within the larger Middle Fork Gila River watershed and provides controlled inflow to the River below Snow Lake. Snow Canyon is one of the headwaters of the Middle Fork Gila River watershed.

The watershed supports significant stands of mixed conifer, and expansive grasslands. Its relative remoteness, extensive rolling grasslands, camping and hiking opportunities, and year-round access to hunting and fishing, make the Snow Canyon watershed a very popular and heavily used region of the Gila National Forest. Snow Lake is one of only three fishing lakes in the Gila National Forest.

Snow Lake Dam was constructed in the 1960s to provide fishing and recreational activities. Originally the lake had a permanent capacity of 570 acre feet over 55 acres. A maximum of 1,500 acre feet and 100 acre area would occur at the principal spillway level. An evaporation consumptive use water right of 129.8 acre feet per year was granted, based on the 55 acre permanent pool. Lake expansions in the 1970s to 1,500 acre feet and 100 acres resulted in the requirement of an additional 105.8 acre feet evaporation water right. Although a stream gage was installed below the Snow Lake dam, it has been discontinued and records are not readily available.

A large degree of forest cover has been lost over the past decade between the 2003 Middle Fire and the 2006 Bear Fire. Cumulatively, more than 15,000 acres, approximately half the watershed area, were classified as high severity burn in the watershed as a result of both fires. Natural resource conditions diminished immediately after the fire, but have been on a slow upward trend. Monsoonal precipitation events on burned areas led to onsite degradation of many stream channels within the watershed and loss of soil in the uplands. While the area was reseeded within days of the fire's suppression, slow germination processes led to excessive runoff and erosion occurring during the first 2 to 3 years.

Some of the major environmental problems identified in the proposed work are:

- Maintenance of grassland areas, some of which are being encroached on by woody vegetation.
- Sediment load in tributary streams caused by runoff after the Bear and Middle fires.
- Erosion and downcutting caused by high runoff after these fires
- Reduced capacity in Snow Lake.
- Water quality and sedimentation rates in Snow Lake and in downstream Middle Fork Gila River areas.

The project purpose is to conduct landscape-scale watershed restoration involving hazardous fuels reduction, riparian restoration, and source water protection. The proposed work outlines 10 tasks (Essential Projects, listed in Attachment 2, pages 16-19) designed to address and mitigate these and other environmental problems. The technical viability of the tasks listed in this plan are well established as being effective at achieving the project objectives.

The NEPA analysis for work proposed under this project is in progress. This task is anticipated to be completed by June 2012.

The Gila National Forest is the source of an estimated mean annual 386,000 acre-feet of high-quality water (Brown and Froemke, 2009, http://www.fs.fed.us/rm/value/docs/water_supply_national_forests.pdf). Although increasing available water supplies is neither the intent nor one of the anticipated results of this project, local-scale increases in water supply to some stream reaches or to alluvial aquifers in contact with stream reaches may occur as a result.

By creating resilient landscapes and improving watershed health, these projects ensure that high quality water is coming off National Forest System lands which results in fewer dollars required to treat it for human use downstream. The Gila National Forest manages the head of the watersheds in the Gila-San Francisco basin and maintains the responsibility of keeping these watersheds in as good of condition as possible to maintain high quality water. These projects align with the Clean Water Act, which was established to restore and maintain the chemical, physical, and biological integrity of the Nation's waters.

This project would not be expected to use any water to be made available under AWSA. The project is expected to provide protection and increase for water quality/quantity to users in the Gila River watershed. These projects would not affect any party's water rights.

Project 2: Burro Unit Thinning and Prescribed Burning

This proposal is described and budgeted in Attachment 2. It describes a multi-year project of approximately 67,000 acres (105 square miles) of prescribed

burning on the Burro Unit of the Gila National Forest (Figure 1). It also includes 7,000 acres (11 square miles) of vegetation thinning in areas that will not be burned. The objectives of this project are 1) reduce the potential for catastrophic wildfires in the Burro Unit, which, in addition to the deleterious and long-term impacts to the land, such wildfires would also cause significant degradation of water quality in the Gila River as well as impair the watershed function as a buffer to catastrophic flooding.

This project is already NEPA-approved and project execution is only waiting funding and scheduling.

Project 3: Administration and Oversight of ISC-Approved Projects on National Forest-Administered Lands

As discussed above, additional Tier 2 project proposals on the Gila National Forest may be submitted to ISC for AWSA funding. The status of these proposals and whether they will receive funding is not known. The Forest Service actively supports research projects but is naturally concerned that any projects undertaken on forest lands have scientific validity, will not undertake actions that will cause environmental harm, will not have unanticipated health and safety issues, or run contrary to Gila National Forest policy or public law. The Forest Service is also ultimately responsible for the impacts such projects leave on the forest itself.

The Gila National Forest requests that it be reimbursed for time and expenses required for the necessary review, management and administration of such progress, and for possible mitigation or restoration. Gila National Forest suggests a sliding scale up to 20% (2011 National Burden Rate of 7.4% + 12.6% project oversight) of the project budgets, depending on the size and complexity of the approved projects.

- b. Include any (or reference publicly-available) hydrologic, ecologic, or geotechnical studies completed and demonstrate how information included in these studies specifically supports or detracts from the proposal. [up to 20 points]

The Gila National Forest 2009 Annual Report provides a variety of examples of this work already accomplished or in progress on the Gila National Forest. These include:

- Forest Restoration (woody vegetation treatment), including fire use. More than 230,000 acres were treated with managed wildfire during that time. In addition, nearly 25,000 acres were treated in 2009 alone for fuels management using a combination of prescribed fire, pile burning, and mechanical thinning.
- Local economies benefit from projects funded by the American Recovery and Reinvestment Act. While these funds are no longer available, other funds such as through the Secure Rural Schools allocations also accomplish work benefiting watershed conditions, when approved through the southern New Mexico Resource Advisory Committee.

- Analyses and treatment across large landscapes provide meaningful improvements as well as partner opportunities. The Slaughter Mesa (Quemado Ranger District) and Signal Peak (Silver City Ranger District) examples are highlighted in this report.

These projects protect future water supplies through restoration or improvement of watershed health and ecosystem resilience. These types of projects ensure that high quality water is coming off National Forest System lands which results in fewer dollars required to treat it for human use downstream. The Gila National Forest manages the head of the watersheds in the Gila-San Francisco basin and maintains the responsibility of keeping these watersheds in as good of condition as possible to maintain high quality water. These projects are directly in line with the objective of the 1977 Clean Water Act (as amended), which was established to restore and maintain the chemical, physical, and biological integrity of the Nation's waters.

Benefits include local publics via headwaters resilience, and both local and all people of the U.S. regarding the multiple benefits of sustainable systems in the water cycle. Healthy watersheds can lower some flood peaks, with greater infiltration and groundwater recharge, along with reduced erosion.

Technical viability and feasibility have been demonstrated through similar projects that have been completed nationwide, including on the Gila National Forest. Some of these projects are landscape in scale and others are more site-specific.

This type of effort is also aligned with the New Mexico Statewide Natural Resources Assessment & Strategy and Response Plans (June 2010), which references the New Mexico Watershed Health Plan (2005) and the "Protect Watersheds from Harm theme. "Maintenance of hydrologic regime including riparian flows and water quality" is noted on page 12, with watershed prioritization and impaired watersheds addressed on page 29 and the acknowledgement that "Much of the state's water supply originates in the forests and upper watersheds...water supply is intrinsically linked to water quality" (p.50).

Also aligned with this effort is the New Mexico River Ecosystem Restoration Initiative through the New Mexico Environment Department. Some projects funded through that program resemble this proposal in accomplishment and costs. A list of projects is available at <http://www.nmenv.state.nm.us/swqb/veri/Tables/index.html>. Success of this program is a testimony supporting the feasibility and importance of this proposal.

These reports, along with Gila National Forest's ongoing program of work support that these treatments improve watershed condition and health. Watershed health promotes a functioning hydrologic cycle to extend the quality and quantity of ecosystem goods and services provided. Water quality and quantity are both tied to demand, because uses require a supply of clean water; the economic opportunity cost of having to purchase water in lieu of establishing and

maintaining a healthy aquatic system represents the economic value of this project. The National Forest System represents the headwaters of stream and river systems in the four-county area.

3. [40] Quantify estimated costs.

- a. Quantify the proposal's estimated costs, including planning, design, and/or construction, and administration or oversight. [up to 10 points]

Project 1 (See Attachment 2, page 19):

Planning	\$ 12,240
Design	\$ 222,000
Implementation	\$ 741,655
Monitoring	\$ 30,045
Total:	\$ 1,005,940

Duration: Years 2012 – 2016

Project 2 (See Attachment 3, page 2):

NEPA, Design	\$ 0
Implementation:	
Burning	\$ 6,700,000
Thinning	\$700,000
Total:	\$ 7,400,000

Duration: Years 2012-2021

Project 3

Funding needs unknown and dependent on other ISC-approved AWSA projects on Forest Service lands.

- b. If applicable, quantify the proposed project's on-going administrative, operational, and maintenance costs. [up to 10 points]

Administrative and O&M costs are included in 3.a.

- c. Describe environmental compliance activities, and quantify the costs for environmental mitigation and restoration related to the proposal. [up to 10 points]

As described above, NEPA compliance has either already been obtained (Project 2) or this activity is currently being conducted (Project 1). Thus they are not included in these budgets.

- d. Quantify the AWSA funding sought for the proposal and for the pendency of the proposed activity's or project's duration. [up to 10 points]

Project 1: As can be seen in the description of the funding and partnerships (Attachment 2, page 19), partnership contributions are approximately 15% of the project total. Gila National Forest, in keeping with normal cost sharing practices, requests AWSA funding for 40% of the costs remaining costs, or approximately \$312,000 ($\$779,200 * 40\%$).

Project 2: Gila National Forest requests AWSA funding for 40% of the total costs, or approximately \$2,950,000.

Project 3: Gila National Forest requests AWSA funding for 20% of the total budgets of ISC-approved AWSA projects on lands administered by Gila National Forest.

4. [40] If proposal impacts, beneficially or adversely, the environment of the Southwest Planning Region, the Gila River, its tributaries or associated riparian corridors, use the best available science to:
- a. Describe and quantify how the proposal might impact the project site and environment, particularly state and federally-listed species. [up to 10 points]

Project 1: Listed and endangered species in the Snow Lake Watershed are listed in Attachment 2.

Project 2: Sensitive, listed and endangered species in the Burro Unit within the watersheds proposed for thinning and prescribed burning are loach minnow critical habitat, spikedace critical habitat, Southwestern willow flycatcher critical habitat, goshawk post fledgling activity area, and occupied roundtail chub habitat.

Improvement of watershed conditions is intended to accomplish the following objectives: reduce catastrophic wildfire; augment natural streamflow regimes; provide for flood protection; provide for erosion protection; protection of native plants and animals; watershed restoration; and protection of soil resources. Landscape restoration using fire entails some risk; fire season pre-planning and assessment of local conditions and available resource are standard procedures during fire season. Current fire administration protocols enable the Forest Service to change from managed fire to suppression if conditions change. Restoration work in more populated areas, and adjacent to forest boundaries may proceed more slowly, and at greater cost, than in other forest areas. The Gila National Forest has successfully used fire as a restoration tool near some populated communities.

Fuel treatments can help produce forest structures and fuel characteristics that then reduce the likelihood that wildfires will cause large, rapid changes in biophysical conditions (Graham and Jain: Forest Structure and Fire Intensity and Severity, 2004; Attachment 4). Fuel treatments can also help modify fire

behavior sufficiently so that some wildfires can be suppressed more easily. Subsequent, sustained fuel treatments can maintain these conditions. Different fuel reduction methods target different components of the fuel bed. Thinning mainly affects standing vegetation, and other types of fuel treatments such as prescribed fire and pile burning woody fuels are needed to modify the combustion environment of surface fuels. In forests that have not experienced fire for many decades, multiple fuel treatments—that is, thinning and surface fuel reduction—may be required to significantly affect crown fire and surface fire hazard. Fuel treatments cannot guarantee benign fire behavior but can reduce the probability that extreme fire behavior will occur. The degree of risk reduction will depend to some degree on the level of investment, social and economic acceptability of treatments, and concurrent consideration of other resource values.

Source water protection through watershed restoration can reduce the likelihood of increased sediment delivery and degraded water quality from stormflow events immediately following fire. Pulse-type stormflows following the Rodeo-Chediski Fire were up to 2000 times higher and persisted for up to 2 years post-fire. Stream turbidity and nutrients generally increased for several years following the Hayman Fire in Colorado.

Watershed restoration projects would provide benefits to downstream water users, the State, and the U.S. public by improving supply, reducing the potential for flood damages, and protecting/increasing water quality. These benefits will have a net beneficial effect on the environment, and on listed species.

The NEPA analysis to be conducted before approval of project 1 would identify the potential for impacts to listed or sensitive species, as well as mitigation measures to protect resources.

- b. Describe and quantify the proposal's efforts to mitigate possible adverse impacts on the environment, particularly riparian areas and state and federally-listed species in the Gila Basin and at the specific location of the proposal. [up to 10 points]

Site-specific NEPA analyses have been or will be completed for each project to minimize any potential negative impacts and ensure regulatory compliance for each resource specialty such as laws relating to water, wildlife/fish, heritage/archaeological resources, etc. Forest Service NEPA projects must consider effects to endangered and sensitive species; coordination with U.S. Fish and Wildlife Service is often necessary. Direction on benefiting floodplains, wetlands and riparian areas is also identified in Forest Service Manuals 2526 and 2527 (available at http://www.fs.fed.us/cgi-bin/Directives/get_dirs/fsm?2500). Direction on listed and sensitive species may be found at <http://www.fs.fed.us/im/directives/fsm/2600/2672-2672.24a.txt>. Listed/sensitive species would have direct and indirect benefits from the proposal relating to water quality (loach minnow), riparian habitat (southwest willow flycatcher nesting habitat), and water quantity (benefits all species).

- c. Describe and quantify how the proposal may benefit the environment, particularly riparian areas and state and federally-listed species in the Gila Basin and at the specific location of the proposal. [up to 10 points]

The benefits of each project are described in Attachments 2 and 3. These projects would provide benefits to riparian areas through stabilization and increased water quantity and quality; to irrigators, the State, and the U.S. public by improving water quantity and quality; fish habitat by maintenance or improvement of the spawning substrate and improvement of stream habitat diversity, cover, and macroinvertebrate diversity (food source); reduction in negative impacts to stream health and channel configuration.

- d. List any environmental statutes, rules, or regulations that may apply to the proposal, and demonstrate how the proposal implementation will comply with such laws, rules or regulations. [up to 10 points]

The NEPA analyses are either completed or in process, and demonstrate how project implementation complies with laws and rules governing mitigation of possible adverse impacts. These reports can be provided when they are complete. Projects within NFS lands administered by the Gila National Forest are consistent with these laws and regulations:

- Federal Clean Water Act (Federal Water Pollution Control Act – 33 USC 1251 et seq. 1977) including as administered by the New Mexico Environment Department which establishes state water quality standards.
- May require permits from the U.S. Army Corps of Engineers and the New Mexico Environment Department.
- New Mexico Nonpoint Source (NPS) Management Program (1999 is the most current plan and is available at:
 - <ftp://ftp.nmenv.state.nm.us/www/swqb/WPS/NPSPlan/2009NPSPlan.pdf>). The Forest Service submits annual reports to the New Mexico Environment Department; paper and electronic copies were provided as requested to the Stakeholders Group. New Mexico's Outstanding Natural Resource Waters (ONRW) designation (effective 2011) which includes coordination between National Forests and the state regarding Wilderness management activities.
- The New Mexico Forest and Watershed Health Plan (2004) has Guiding Principles related to ecological systems. The "zero code" of Forest Service Manuals provides additional information on authorities and legislation related to activities for that resource. These are available for various resources at http://www.fs.fed.us/im/directives/dughtml/fsm_2000.html . The Gila's Forest Plan also provides guidance, Standards and Guidelines for work within the Gila National Forest. It is available at the Gila National Forest's website – www.fs.usda.gov/gila,

5. [70] Describe any economic or cost analysis information and data for the proposal:
- a. Quantify estimated economic benefits including environmental, recreation, value of water itself, value of the water to the regional economy, increased economic growth, protection

against loss of jobs, agriculture, ranching, local economic sustainability or growth, or other. [up to 10 points]

Economic benefits would be multifold:

- Environmental – unquantified at present
- Recreation – Forest visitors would benefit from decreased risk of catastrophic wildfire, continuous campground receipts, and special use permits. Local economies benefit from Forest visitors with dollars spent in adjacent communities. Unquantified at present.
- Value of Water – unquantified at present
- Value of water to regional economy – unquantified at present
- Increased economic growth – increased timber supply provided to local mills and contractors
- Protection against loss of jobs – timber industry, ranching industry, local operators and users of wood products and by products
- Agriculture – unknown if any at present
- Ranching – protection against rangeland losses and ranching losses due to catastrophic wildfires, unquantified at present
- Local economic sustainability or growth

- b. Quantify estimated costs including planning, design, and/or construction, environmental compliance, operation, maintenance, repair, and administrative costs or other. [10]

All costs are itemized in Section 3 and in Attachments 2 and 3.

- c. Identify the source of local contributions and demonstrate the commitment and ability to pay any local cost-share for project proposal, including any applicable exchange costs [1 point for every % of project cost to be borne by local sponsor up to 50 points]

Project 1: Attachment 2, pages 14 and 15, list the following partners contributing funding, labor, or in-kind support for the Snow Lake project, totaling about 15% of the project budget:

- i. New Mexico Game and Fish Department will assist in planning and implementation of activities impacting Snow Lake
- ii. New Mexico Environment Department will assist in planning, funding, and monitoring of activities throughout watershed.
- iii. Trout Unlimited will assist in implementation of activities in live streams and Snow Lake.
- iv. Mesilla Valley Flyfishers will assist in implementation of activities in live streams and Snow Lake.
- v. Wellness Coalition Americorps/Youth Conservation Corps will assist in implementation of activities at Snow Lake.
- vi. Aldo Leopold High School Youth Conservation Corps will assist in implementation of activities at Snow Lake.,
- vii. Catron County Youth Conservation Corps will assist in implementation of activities at Snow Lake.

Project 2: This majority of this project is currently unfunded. Each year the Forest evaluates its budget allocation against Regional targets commitments to determine what

6. [120] Describe how the proposal addresses the needs of a particular group or groups or interests on the issues of
- a. Historic uses, traditions, cultures, and customs. [up to 10 points]

People from around the country – and around the globe –utilize water resources of the Gila National Forest, whether for recreation, business/agricultural, or domestic uses. The Forest’s Recreation Niche Statement includes,

From wilderness to western heritage, visitors to the Gila National Forest have the opportunity to ‘find themselves’ ...Heritage and cultural connections allow local communities, Native Americans, and recreationists to establish long-term bonds with the forest.rivers and lakes, uncommon in the Southwest, provide relief from heat across the forest.

Livestock grazing is another important use of the Forest as well as local culture and economics. Water is needed to provide sustainable forage and livestock water. Wildlife animals – another recreation and economic contributor – have similar water needs. On the Gila National Forest, livestock grazing estimates include:

- Approximately 29,336 head of cattle and 263 head of horses/mules are permitted to graze on the Forest each year.
- 137 grazing allotments on the Forest (approximately 130 are active allotments). .
- 119 Term Grazing Permits.
- Approximately 2,724,539 acres that are under permit to be grazed on the Forest.

Land “products” meeting needs of humans and animals are sometimes called “environmental services” or “watershed services.” Using a holistic view that is reflected in the Forest Service 2011 draft Planning Rule, providing for healthy ecosystems can in turn help provide a sustained supply of various watershed services, including those to various types of agriculture.

With source water protection a critical issue, and increasing demands for water to support population growth, environmental protection, and economic development, any further reduction in water quantity or quality would adversely affect the quality of life and economic vitality. While studies show that high elevation zones produce most watershed yield, other evidence suggests the importance of the condition of the whole watershed, from alpine meadow to desert riparian zone. New Mexico recently completed two plans for watershed management, the FOREST & WATERSHED HEALTH PLAN and the NON-NATIVE PHREATOPHYTE/WATERSHED STRATEGIC PLAN.

The cultural climate of the area and of New Mexico is compatible with the objectives of forest and watershed restoration. Various individuals spoke to the need for watershed restoration at the June 22, 2011 meeting of the Interstate Stream Commission (ISC) in Silver City, NM. ISC Commissioner Stafford obtained from Craig Roepke that watershed projects qualified under AWSA as (1) stand-alone projects if meeting water supply/demand criteria or (2) as mitigation projects.

A Forest Service Southwestern Region Landscape Conservation and Restoration Strategic Action Plan is being formulated which emphasizes working with partners to identify and plan/implement landscape restoration work. The New Mexico Forest and Watershed Health Plan (2004), New Mexico Statewide Natural Resources Assessment & Strategy and Response Plans (2010), and forthcoming U.S. Forest Service Landscape Conservation and Restoration Strategic Action Plan (2011) all emphasize the importance of working together across jurisdictional boundaries for watershed health.

Restoring the functionality of ecosystems requires crossing jurisdictional boundaries and has multiple benefits relating to water quantity (including related soil condition, ground cover, and other infiltration factors) and water quality (including promoting the hydrologic cycle including the above-and below-ground filtering processes). Watershed and riparian enhancement to improve water quantity and quality is also consistent with other New Mexico planning documents and reports. Examples include restoring more natural densities of woody vegetation, maintaining biodiversity (vs. invasive species), and other current conditions resulting in “compromised watersheds and decreased water supply” (NM Forest and Watershed Health Plan, 2004).

b. Current and future demands for water in the Southwest Planning Region. [up to 20 points]

These projects are expected to provide an increase in water quality to users in the Gila Watershed. These projects protect future water supplies through restoration or improvement of watershed health and ecosystem resilience. These types of projects ensure that high quality water is coming off National Forest System lands which results in fewer dollars required to treat it for human use downstream. The Gila National Forest manages the head of the watersheds in the Gila-San Francisco basin and maintains the responsibility of keeping these watersheds in as good of condition as possible to maintain high quality water. These projects are directly in line with the objective of the 1977 Clean Water Act, which was established to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.

Benefits include local publics via headwaters resilience, and both local and all people of the U.S. regarding the multiple benefits of sustainable systems in the water cycle. Healthy watersheds can lower some flood peaks, with greater infiltration and groundwater recharge, along with reduced erosion.

These projects would not be expected to use any water to be made available under AWSA. The project is expected to provide protection and increase for water quality/quantity to users in the Gila and San Francisco drainages. These projects would not affect any party's water rights.

c. Flood control.[up to 20 points]

Project 1: Through the tasks described in Attachment 2, certain enhancements to flood control are achieved through restoration of watershed function. These enhancements serve to slow the floodwaters, permitting higher rates of retention, infiltration, and bank storage, and thereby lowering the flood peaks.

Project 2: Through the extensive use of burning and thinning, there is a significant increase in the retention of floodwaters on lands that have increased percentages of grasses as opposed to herbaceous woody plants. The reduction in the possibility of a large catastrophic wildfire on these lands will reduce the impacts of heavy rains and concomitant debris and sediment loads in streams tributary to the Gila River.

The role of healthy watersheds relating to flood control includes providing appropriate ground cover to increase infiltration into soil and reduce erosion; provide healthy vegetation in appropriate amounts to enhance resilience to fire, climate change, insects/disease and other factors; provide a well-functioning hydrologic cycle that supports the water resource. Optimizing infiltration can change water flow from the racing surface runoff to water moving through the hydrologic cycle more slowly below the ground surface.

An important part of environmental analysis relating to watershed or stream/riparian improvement projects is recognizing what type of system is within the project area – geology, soils, slope, etc. all contribute to the uniqueness of stream systems and also the ability to identify risks and opportunities by stream/valley type. Sound environmental analysis, such as occurs through the interdisciplinary professional specialists involved in NEPA analyses, and is critical to success.

d. Fire protection, prevention, or suppression. [up to 20 points]

Fire risk is related to the fire regime condition class, which also relates to watershed conditions. In some watersheds, fire regime condition class is out of balance with its historical range of variation, increasing the risk for major stand-replacing fires. Projects 1 and 2 are designed to address this balance. Watershed treatments such as those identified above and reported in the Gila National Forest 2009 Annual Report help to restore the fire regime condition class. Some treatments provide fuel breaks to the wildland-urban interface, or to large expanses of fuels. A healthy watershed and hydrologic cycle also helps provide water for firefighting when needed.

e. Recreation. [up to 20 points]

In the dry Southwest, recreation opportunities around clean, productive water sources are of inestimable value. Stable watersheds provide a variety of economically-valuable recreation experiences, including hiking, horseback riding, motor vehicle-based recreation, water sports, and wildlife-based recreation, among others. The waterways and rivers within the Gila National Forest attract a variety of recreationists; popular hiking trails, hot springs, wildlife, endangered fish and birds ... all of these characterize and attract people to the Gila and San Francisco River, and all are linked to water quantity and quality. Portions of the Gila National Forest and its waters have sensitive species or species listed under the Endangered Species Act, such as Southwest Willow Flycatcher and Loach Minnow. Providing for ecological system health is an agency preferred method to accommodate the needs of most species at risk, as opposed to trying to manage the landscape for each species individually. Healthy watersheds are currently a national priority in the U.S. Forest Service – a priority that fits well with the New Mexico Statewide plan (2010). Some unique water-based recreation opportunities exist. For example, the formerly-endangered Gila Trout has been downlisted to “threatened” status under the Endangered Species Act, largely due to efforts by the State of New Mexico and Gila National Forest for its recovery. As a result, a limited fishing season for this special fish is now available.

- f. Environmental protection and/or enhancement. [up to 20 points]

This is described in Attachments 2 and 3.

- g. Any others. [up to 10 points]

This proposal supports more than a single proponent, as it benefits missions of the state (such as New Mexico Environment Department) and the nation (such as EPA/Clean Water Act and Endangered Species Act).

7. [40] List those supporting the application, including federal, state, and local government entities; Indian nations, tribes or pueblos; irrigation or conservation districts; non-profit organizations; and other entities. Provide letters or resolutions of support for the application. [up to 40 points]

These are listed in Section 5.c.

8. [30] Describe whether the proposal would benefit one or more than one of the counties in the Southwest New Mexico Planning Region – Catron, Grant, Hidalgo, and/or Luna Counties. [10 points/county up to 40 points]

Direct benefit of work within the Gila and San Francisco watersheds would be to Catron and Grant Counties, due to the location of these rivers within New Mexico. However, the Gila National Forest also encompasses lands in other river basins within the 4-County area, including a minor portion of Hidalgo County in the southernmost portion of the Burro unit.

9. [50] Describe whether the proposal would support economic growth or benefit one or more than one of the following interests in the Southwest New Mexico Planning Region – agricultural, ranching, municipal, recreational, or other (specify). [10 points/interest up to 50 points]

Agricultural benefits from this proposal through a more reliable supply of water resulting from a healthy watershed and hydrologic cycle, as well as from water quality reducing costs in filters or alternate water sources.

Ranching – local ranchers are primary users of the water. The Gila National Forest has both seasonal and year-round grazing allotments which depend on local water. Enhancing watershed and riparian condition enhances the opportunity for water availability and quality in the headwaters, as well as in mainstem lower rivers. Livestock owners are dependent on available water to fully utilize their permits.

Recreational – the Gila and San Francisco Rivers are highly valued by recreationists and environmentalists, who enjoy its diverse flora and fauna. Enhanced water quality enhances the recreation experience.

Other – Natural Systems – improve water supply, water quality, and habitat for endangered fish and wildlife (e.g., loach minnow, southwest willow flycatcher). Aldo Leopold was very involved in the Gila National Forest area. The Gila National Forest is a “melting pot” of industry and environmental interests, all of which can benefit from healthy watersheds and riparian systems.

ATTACHMENTS

1. Figure 1 – Locations of Project Areas
2. Snow Canyon Watershed Restoration Action Plan
3. Burro Mountains Unit Thinning and Prescribed Burning Plan
4. Graham and Jain: Forest Structure and Fire Intensity and Severity, 2004