

Title: Update Cooperative Watershed Management Plan and Develop Implementation Plans for Aravaipa Valley and Canyon

Applicant

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Executive Summary

December 5, 2023

The Aravaipa Watershed Conservation Alliance (AWCA), located in Klondyke, Graham County, Arizona, requests federal funding to support continued group development, update our watershed plan, and complete design for watershed management projects in Aravaipa Valley and Canyon. Building on our previous Phase I efforts, the AWCA will address critical watershed issues of erosion control, water conservation, and conservation of riparian areas. The AWCA will continue group development through outreach activities like educational workshops, interviews, and site visits. After engaging with external subject matter experts, the AWCA will select watershed management projects, on a consensus basis, and begin detailed design. Projects selected for design, monitoring results, and updated watershed assessments will be included in annual updates to the Cooperative Watershed Management Plan for Aravaipa Canyon. Watershed management projects will be evaluated for implementation based, in part, on their expected impacts on critical watershed concerns. Potential projects for implementation include installation of small-scale erosion control structures that also improve soil water capacity, sequester carbon, and improve flow duration.

The project is expected to take 36 months to complete. Assuming a 6/1/2024 start date, the project is expected to complete in 5/30/2027. The planning efforts involve federal (Bureau of Land Management, Forest Service) land.

1 Project Location

The AWCA requests federal support for a project to update the Cooperative Watershed Management Plan (Watershed Plan) for Aravaipa Canyon and to develop project implementation plans in support of the Aravaipa Creek Watershed (HUC10s 1505020304 and 1505020307) in southeastern Arizona. Aravaipa Valley and Canyon are well known for their rugged beauty, rural character, and relatively unaltered natural conditions. In Aravaipa Canyon, groundwater tables rise above the creek bed, providing perennial flow and associated wildlife refugia. Enclosed by rugged mountains and wilderness areas on the west, east, and north sides, vehicular access to the valley is limited to a pass in the east and from the Willcox area to the south. This inaccessibility has helped limit human impacts to the watershed.

Figure 1 shows the location of the plan area within the state of Arizona. The perennial portions of Aravaipa Creek within the AWCA plan boundary are shown as a bold blue line, while ephemeral, intermittent, and other perennial streams are shown as blue lines of increasing density. The perennial flows from Aravaipa Creek flow into the San Pedro River, which in turn joins the Gila River. The flows from Aravaipa Creek help maintain perennial flows through dozens of miles of the San Pedro and Gila Rivers, helping to support downstream communities and users.

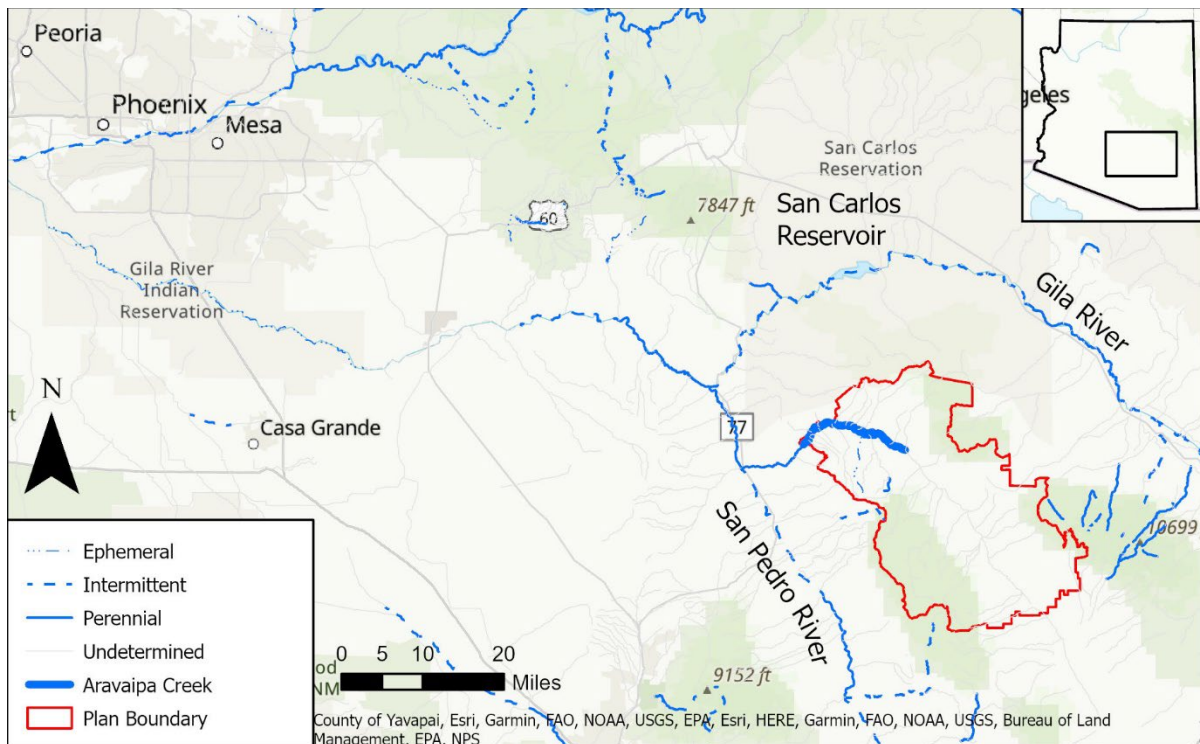


Figure 1: Project Location and Regional Context

2 Applicant Category

The AWCA is an existing watershed group formed in 2016 with a mission of preserving, maintaining, and improving watershed and rangeland conditions within Aravaipa Valley and Canyon (collectively the Aravaipa Creek Watershed). Participants in the organization include large and small ranchers, private property owners, the United States Forest Service, the Bureau of Land Management, and recreational groups. Participants in the organization own and/or manage over 90% of the Aravaipa Valley. The group promotes sustainable water use by educating stakeholders about watershed condition and functions, providing access to and visualization of data to help inform land management decisions, and by completion and release of the Watershed Plan in May, 2023.

The AWCA invites participation in all planning efforts and meetings from all interested parties, making decisions using consensus-based approaches. Membership on the AWCA Board of Directors (BOD) requires evaluation of a resume against position qualifications followed by a vote by existing BOD members. During development of the initial release of the Watershed Plan, BOD members included The Nature Conservancy, large ranches, and private property owners in the area. Advisors and volunteers to the board represent varied interests, including small business owners, large- and small-scale ranches, and outdoor recreation enthusiasts.

In 2020, the AWCA was awarded a Bureau of Reclamation WaterSMART Cooperative Watershed Management Program (CWMP) Phase I grant to support group development and watershed restoration planning. Completed in 2023, the AWCA used this grant to perform group development activities (e.g., community workshops, stakeholder outreach) and author the Cooperative Watershed Management Plan for Aravaipa Canyon. Beyond stakeholder workshops, the AWCA conducted an extensive direct outreach campaign (e.g., site visits, on-on-one meetings with local residents and stakeholders), to document local knowledge and concerns within the watershed. Based on this outreach campaign and development of the Watershed Plan, the AWCA identified the following priority concerns to address within the watershed:

1. Erosion control
2. Water conservation
3. Conservation of Riparian Areas

Watershed Plan development efforts further included identification of specific sites of concern and a variety of project types that can be used to address these priorities. These projects should help address water quantity and quality issues within the Aravaipa Creek Watershed. The effort proposed herein builds on this past work by continuing outreach to identify additional potential project sites, updating the Watershed Plan with this expanded information, selecting projects for implementation planning via consensus, developing project implementation plans, and continuing educational opportunities to encourage sustainable use of water and land resources.

3 Eligibility of Applicant

The AWCA is an existing watershed group and non-profit organization located entirely within and registered with the state of Arizona. The AWCA, the watershed group, is the applicant. As described in Section 2, the AWCA is a grassroots organization that works to address issues of water quality and quantity within the Aravaipa Creek Watershed.

4 Project Description

The AWCA was previously awarded a CWMP Phase I grant in 2020. As described in Section 2, previous funding was used to facilitate development of the AWCA as a watershed group and to perform watershed restoration planning. Through a variety of outreach techniques (mailings, newsletters, workshops, interviews, site visits), AWCA increased participation in the watershed group and developed the Watershed Plan, including identifying the following priority concerns to address within the watershed:

1. Erosion control
2. Water conservation
3. Conservation of Riparian Areas

As part of planning efforts, AWCA and its stakeholders identified geographic regions within the watershed where these concerns are prominent and a variety of project types that can be used to address these priorities. The efforts proposed herein build on this past work to continue group development through ongoing educational workshops on watershed topics, identifying combinations of project types and sites for implementation planning, and developing implementation plans for priority projects. Under this project, the AWCA propose to complete work under Tasks A, B, and C as described below.

Based on discussions with other watershed groups in the state, a significant contributing factor to success is funding of staff positions. Therefore, AWCA request funding for a contract position for a full time Watershed Coordinator. The Watershed Coordinator would be responsible for a variety of tasks, including coordinating and facilitating educational, planning, and Science Advisory Committee meetings, pursuing and closing actions from meetings, grant reporting, authoring updates to Watershed Plan, updating the Board of Directors and other stakeholders with project progress, performing stakeholder outreach, publicizing achievements, and working with other large watershed groups, like the Lower San Pedro Collaborative and Arizona Cross Watershed Network.

4.1 Task A: Watershed Group Development

The AWCA will continue outreach activities in support of group development as described below. Work performed in this task is focused on encouraging participation in the AWCA via publicity, education, and cooperation with other watershed groups:

- Hold education seminars and workshops for watershed issues based on community stakeholder inputs from our previous Phase I efforts, including:

- Native grass farming and seed collection
- Water issues including water quality and water conservation
- Erosion and Erosion Control measures
- Invasive species management
- History of watershed and historic events in the area
- Weather recording and weather station usage
- Continue to update [GIS Hub](#) to provide visualization tools to support stakeholder needs and planning efforts
- Publicize progress, achievements, and opportunities, including status of projects, funding opportunities, upcoming educational workshops
- Participate in and share lessons learned with other watershed groups (e.g., Lower San Pedro Collaborative, Arizona Cross-Watershed Network, Altar Valley Conservation Alliance)

4.2 Task B: Watershed Restoration Planning

Under Task B, the AWCA will complete annual updates to the Cooperative Watershed Management Plan for Aravaipa Canyon, building on our previously completed work. Through all planning activities, AWCA plans to continue stakeholder outreach and engagement to ensure the diverse interests within the watershed are reflected in this strategic-level document. The first annual update is planned as a substantial revision, including the following work:

- Hold stakeholder workshops to kick off planning efforts, brainstorm additional projects, identify projects for implementation, and review Watershed Plan revisions
- Continue targeted outreach (e.g., site visits, one-on-one interviews) to identify additional areas of concern within watershed
- Develop and work with a Science Advisory Committee
 - Identify information/data gaps needed to rank/prioritize projects and sites for implementation planning
 - Review criteria and project types, including brainstorming additional project types
 - Provide input to monitoring plans
 - Recommend projects for implementation planning
 - Identify research opportunities for external partners
- Collect additional data to inform revised assessment and project selection, including:
 - Field measurements and monitoring
 - Rough order of magnitude costs for the project, including:
 - Materials and sourcing
 - Equipment
 - Labor
 - Engineering design and permitting requirements

- Potential partnerships (e.g., technical support, funding)
- Failure mode and effects analysis

After this initial update, monitoring plans will be in place and AWCA will transition to detailed project design. Therefore, subsequent annual updates will be of a more routine nature, including:

- Status of projects
- New data/information
- Emerging concerns
- Monitoring results

4.3 Task C: Watershed Management Project Design

As part of previous and proposed planning efforts, the AWCA will continue to identify projects for implementation to address watershed concerns at specific locations. Projects types range from relatively small scale (e.g., water harvesting projects for domestic landscaping irrigation to reduce groundwater demand, installing one rock dams, check dams, and other nature based solutions to address erosion) and large scale (e.g., major road maintenance partnership with the county, addressing sediment transport from major drainages like Buford Canyon and Klondyke Wash, improving road crossings of significant tributaries). Under this task, AWCA will:

- Develop a request for proposal and quote evaluation process
- Issue request for proposals for selected projects, with a goal of addressing at least one small and one large project
- Perform detail site-specific design and engineering, including:
 - Taking necessary measurements
 - Identify environmental and cultural compliance concerns
 - Determining permitting requirements

5 Evaluation Criteria

5.1 Criteria A: Watershed Group Diversity and Scope

5.1.1 Subcriteria A.1: Watershed Group Diversity

The AWCA is open to the public and invites participation in planning efforts from all interested parties. The BOD makes decisions on a consensus basis after addressing feedback and concerns from stakeholders. Membership on the BOD requires evaluation of the prospective members resume and a simple vote by the BOD. During plan development, BOD members, volunteers, and advisors included The Nature Conservancy, large and small property owners, large- and small- scale ranches, small business owners, and outdoor recreation enthusiasts.

As part of previous outreach efforts, the AWCA held a series of workshops with stakeholders to explain the mission of the AWCA, describe the purpose of the Watershed Plan, and invite inputs into the planning process. AWCA sent mailers to all

private parcel owners as listed in Pinal and Graham County records to invite participation in our group and planning process. Figure 2 shows land ownership within the plan boundary, data used to inform outreach activities. The San Carlos Apache Tribe and all federal, state, and local agencies were invited to participate in the planning process. Although AWCA made multiple attempt at outreach, the San Carlos Apache Tribe was only able to review the Watershed Plan after all completed workshops. The Arizona State Land Department did not respond to requests to participate. Although some groups did not respond to our requests to participate, no groups declined to participate in our planning efforts. Table 1 summarizes stakeholders that participated in the plan development and the interests represented.

Table 1: Stakeholders and Interests Represented

Stakeholder	Interest Represented
Bureau of Reclamation	Federal government
USDA Farm Service Agency	Federal government
United States Forest Service	Federal government
Bureau of Land Management	Federal government
United States Fish and Wildlife Service Ecological Services and Refuges	Federal Government
Natural Resource Conservation Service	Federal Government
Arizona Department of Forestry and Fire Management	State government
Arizona Game and Fish Department	State government
Graham County	Local government
The Nature Conservancy	Environment
University of Arizona Water Resources Research Center	Environment, scientific
Unites States Geological Survey	Environment and scientific
University of Arizona Cooperative Extension	Environment, scientific, agriculture
Private Property Owners	Livestock grazing, land development, recreation, tourism, small business

After researching well records and interviewing community stakeholders, AWCA determined that the only irrigated agriculture in the plan boundary is pasture irrigation to support livestock grazing. There are no hydroelectric producers, municipal water suppliers, timber production, or disadvantaged communities within the plan boundary. By funding a Watershed Coordinator position, AWCA will seek to expand and concentrate outreach efforts, including work to characterize the concerns of outdoor recreators like hikers, backpackers, and off highway vehicle users. Further, the Watershed Coordinator will conduct outreach to encourage participation in planning activities by more large-scale ranchers and small scale property owners.

5.1.2 Subcriteria A.2: Geographic Scope

The AWCA cooperated with the National Resource Conservation Service in the development of our plan boundary. The planning boundary is largely based on two HUC10 watersheds (1505020304 – Upper Aravaipa Creek and 1505020307 - Lower Aravaipa Creek) as shown in Figure 2. The plan boundary was extended to maintain continuity across land ownership in the region.

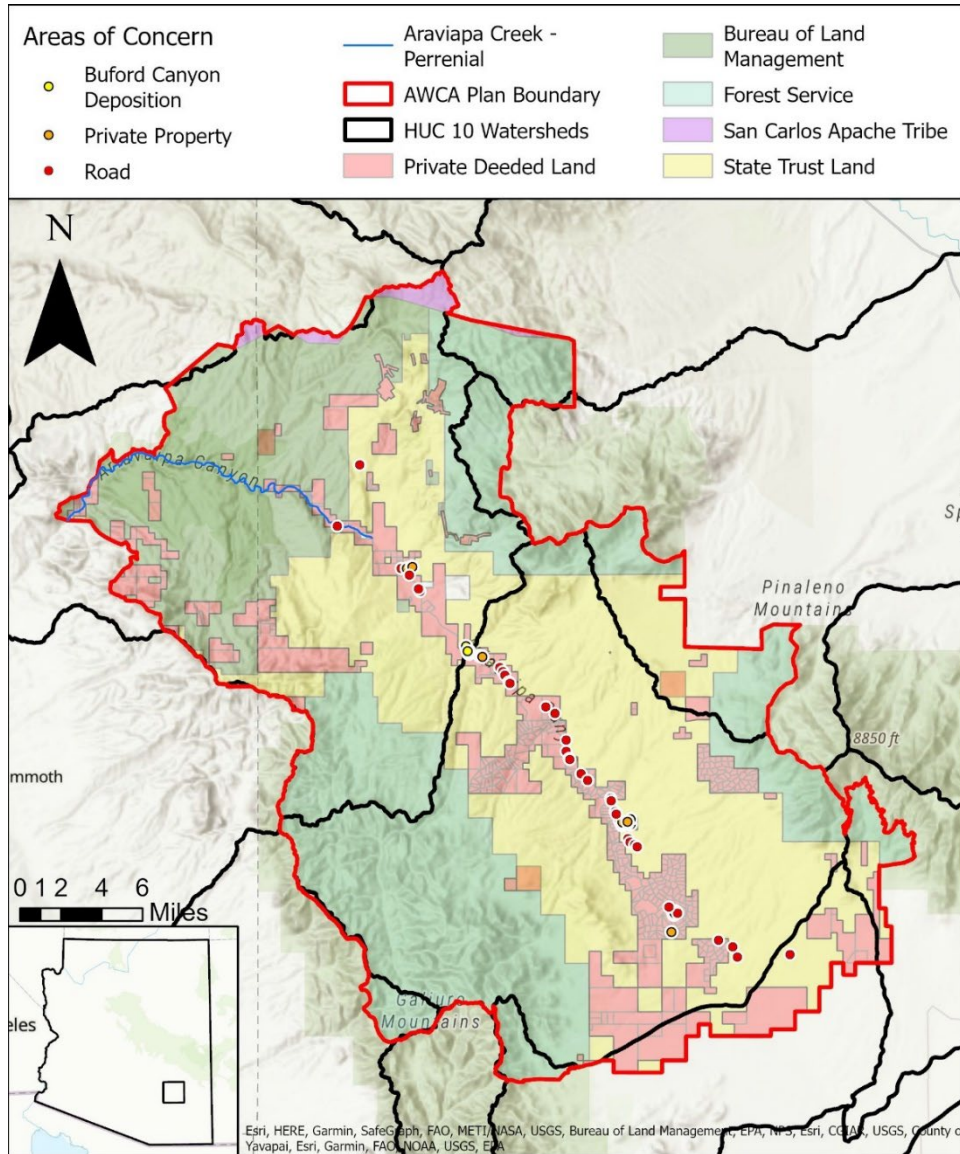


Figure 2: Project Geographic Scope, Including Land Ownership and Identified Potential Project Sites

5.2 *Criteria B: Developing Strategies to Address Critical Watershed Needs*

5.2.1 Subcriteria B.1: Critical Watershed Needs or Issues

As part of development of the Cooperative Watershed Management Plan for Aravaipa Canyon (Aravaipa Watershed Conservation Alliance, 2023), the AWCA performed a detailed watershed assessment based on publicly available data, previous agency assessments, and one-on-one interviews with watershed residents. Data sources utilized include United States Geological Survey reports and stream gauges; Arizona Department of Environmental Quality geospatial data and reports; Arizona Department of Water Resources geospatial data and reports; Bureau of Land Management reports, management guidance, and geospatial data; PRISM climate data; Department of Agriculture Agency (e.g., Forest Service, National Resource Conservation Service) reports and geospatial data. Further supplemented by the on-the-ground knowledge of historical trends provided by long-term watershed residents, the AWCA identified three priority watershed concerns to address:

1. Erosion control
2. Water conservation
3. Conservation of Riparian Areas

Beyond the BLM assessment of degraded function due to channelization of Aravaipa Creek in the upper watershed (Bureau of Land Management Safford Field Office, 2015), observations of sedimentation at the confluences of major tributaries with Aravaipa Creek further reveal this priority, including the deposition of approximately five feet of material from Buford Canyon across the breadth of Aravaipa Creek as a result of runoff events following 2021's Pinnacle Fire. Further, longer term sediment aggradation from other major tributaries has caused the emergence point of Aravaipa Creek to shift further downstream (Aravaipa Watershed Conservation Alliance, 2023).

Review of publicly available groundwater elevation data (Arizona Department of Water Resources, 2022) revealed that groundwater levels are relatively stable in the lower watershed, but decreasing at rates ranging from one to two feet a year. These groundwater trends are likely to be exacerbated if development of the upper watershed continues. Figure 2 shows how two large ranches in the upper watershed have been subdivided into lot sizes ranging from approximately 10 to 40 acres. Although development was slowed by the economic recession of 2008, expansion of groundwater pumping in support of domestic use, landscape irrigation, and small-scale ranching as more plots are developed. If these trends continue, declines in water table elevations in the lower watershed are likely to be realized because groundwater flow through the region runs roughly parallel to Aravaipa Creek. Upstream development also has the potential to worsen erosion concerns within the watershed. For example, as additional roads are cut, the changes to topography, compaction of soil, and material movement associated with routine road maintenance are likely to increase runoff velocity and sediment carrying capacity (Aravaipa Watershed Conservation Alliance, 2023).

The riparian areas within Aravaipa Canyon provide a valuable refugia for wildlife in the region, including:

- Five species listed under the Endangered Species Act
- 13 Bureau of Land Management sensitive species
- 14 Arizona Game and Fish Department species of greatest conservation need

The perennial reaches of Aravaipa Creek provide long-term habitat for seven native fish species (loach minnow, spokedace, roundtail chub, speckled dace, longfin dace, desert sucker, and Sonora sucker). Bird species in the region include yellow-billed cuckoos, Mexican spotted owls, gray hawks, bald eagles, red-tailed hawks, belted kingfishers, vermilion flycatchers, and Great Blue Heron. Although these riparian areas are in relatively good condition for the region, there are some existing concerns (e.g., presence of invasive plant and fish species, fires caused by downed power lines in the canyon). Since the perennial reaches of Aravaipa Creek are groundwater fed, the riparian areas supported by the Creek provide a valuable refugia for wildlife as the effects of anthropogenic climate change, including increasing temperatures and decreasing total precipitation, are realized (Aravaipa Watershed Conservation Alliance, 2023). Erosion control and water conservation are complementary to the conservation of these riparian areas. Erosion control will serve to limit channel and pool infill, preserving habitat for and creating conditions more favorable to native fish species. Further, erosion control will help reduce non-point source pollution, improving habitat conditions. Reducing groundwater use will help maintain water table elevations and, therefore, support perennial flows through Aravaipa Creek.

5.2.2 Subcriteria B.2: Project Benefits

As part of Watershed Plan development, the AWCA and stakeholders identified geographic regions within the watershed where erosion concerns are pronounced, see areas of concern in Figure 2. Similarly, watershed groundwater trends have shown that water conservation measures are needed in the upper watershed to reduce groundwater table elevation declines. Previous planning efforts also identified project types that could be implemented to address these concerns (e.g., rainwater harvesting to reduce domestic landscaping groundwater demand, small scale sediment detention structures installed in streambeds). Finally, the Watershed Plan includes preliminary criteria that can be used to evaluate these projects for implementation.

As part of the proposed project, AWCA will continue work with stakeholders to continue documentation of additional areas of concern and project types, including working with external subject matter experts. After we complete rough estimates of project requirements, AWCA will work with all stakeholders to decide, on a consensus basis, priority projects to proceed with detail design. Preliminary project selection criteria include evaluation of erosion reductions, water savings, benefits to riparian areas, and project feasibility (e.g., development status, labor and funding required). This process will ensure that the planning, detailed design, and projects implemented reflect the

diverse interests within the watershed, benefit all stakeholders, and reflect local priorities.

Preliminary project types that have been identified to address the critical watershed issues frequently offer co-benefits for multiple issues. For example, installing small-scale structures (e.g., check dams, one rock dams, beaver dam analogs, gabions, zuni bowls) slows runoff velocity, depositing sediment and reducing erosion. Sediment deposition improves downstream water quality and prevents infill of habitat in downstream riparian areas. These structures also offer a water conservation benefits by slowing the release of stormwater. Some watersheds have seen increases in soil moisture content by 10%, increases in flow volumes by up to 28%, and extended durations of baseflows and pool life (Norman et al., 2022) .

As shown in Figure 2, there are many potential projects sites throughout the watershed. These areas include private property, roads, and the Buford Canyon confluence with Aravaipa Creek. Project types range in scale from small (e.g., rock structure installation described above, rainwater harvesting projects) to large (e.g., addressing frequent road washouts at Klondyke Wash, partnering with Graham County to improve road maintenance practices). The AWCA plans to perform detailed design on at least one large- and one small- scale project. Upstream projects will benefit downstream users by reducing erosion and water table elevation decreases, including those outside the plan boundary as shown in Figure 1. Therefore, projects in the upper watershed are likely to be scored higher.

5.3 Criteria C: Readiness to Proceed

Table 2 shows the project schedule, broken out by task and subtask. Milestones are highlighted in yellow. The Watershed Coordinator will be responsible for completing most of the work Table 2, aside from the detailed engineering design that will be completed by other contractors. Other specific tasks for the Watershed Coordinator include:

- Organizing all meetings, including:
 - Identifying speakers/topics for educational elements
 - Inviting attendees
 - Coordinating schedules
 - Coordinating A/V needs
- General outreach activities
- General planning support
- Science Advisory Committee recruitment and development
- Research and development of the request for proposal process
- Project management of engineering contractors
- Grant reporting

The Watershed Coordinator will provide routine status updates to the BOD. The BOD will provide inputs to all products, review meeting materials, reports, and plans, and take final action on any items that require approval.

Table 2: Project Schedule

Task	Subtask Description/Milestone	Timeframe
	Hire Watershed Coordinator	6/2024
Watershed Group Development	General Outreach <ul style="list-style-type: none"> • Updates to the GIS Hub • Development of visualization tools • Publicizing results • Participating in other watershed groups • Identifying stakeholder educational interests • Researching and answering stakeholder questions 	Ongoing
Watershed Group Development	Kickoff Workshop <ul style="list-style-type: none"> • Complete watershed history timeline teambuilding exercise • Describe purpose of new efforts, outline of work to be completed, and opportunities to participate 	7/2024
Watershed Group Development	Educational Workshop 1	11/2024
Watershed Group Development	Educational Workshop 2	5/2025
Watershed Group Development	Educational Workshop 3	11/2025
Watershed Group Development	Educational Workshop 4	5/2026
Watershed Group Development	Educational Workshop 5	11/2026
Watershed Group Development	Educational Workshop 6	5/2027

Task	Subtask Description/Milestone	Timeframe
Watershed Restoration Planning	General planning support <ul style="list-style-type: none"> • Targeted outreach (e.g., site visits, one-on-one interviews) to identify existing and emerging concerns. • Research (e.g., literature review, field measurements, subject matter expert interviews) in support of plan revisions • Rough order of magnitude project cost estimation • Failure mode and effect analysis • Status updates to stakeholders and BOD • Coordinate and participate in volunteer monitoring efforts 	Ongoing
Watershed Restoration Planning	Year 1 Workshop 1 <ul style="list-style-type: none"> • Describe purpose of first revision to plan • Brainstorm additional project types • Identify emerging concerns for research 	9/2024
Watershed Restoration Planning	Science Advisory Committee Meeting 1 <ul style="list-style-type: none"> • Identify data/information gaps to assess projects • Review criteria and project types, including brainstorming additional project types • Develop monitoring plans • Review community research questions • Brainstorm additional research questions • Watershed tour 	9/2024
Watershed Restoration Planning	Science Advisory Committee Meeting 2 <ul style="list-style-type: none"> • Rank projects for implementation • Develop partnerships with local stakeholders for co-production of knowledge 	11/2024
Watershed Restoration Planning	Year 1 Workshop 2 <ul style="list-style-type: none"> • Review Science Advisory Committee project rankings • Develop consensus on final project ranking • Review updated assessment results 	3/2025
Watershed Restoration Planning	Year 1 Workshop 3 <ul style="list-style-type: none"> • Review revised Watershed Plan 	5/2025
Watershed Restoration Planning	Watershed Plan Revision Release	6/2025
Watershed Restoration Planning	Routine Science Advisory Committee Meetings: Meet on a semi-annual basis to <ul style="list-style-type: none"> • Update research results • Update Status of projects • Provide inputs into planning processes 	Ongoing

Task	Subtask Description/Milestone	Timeframe
Watershed Restoration Planning	Year 2 Workshop 1 <ul style="list-style-type: none"> Identify emerging concerns for research Update status of research and projects 	9/2025
Watershed Restoration Planning	Year 2 Workshop 2 <ul style="list-style-type: none"> Review revised Watershed Plan 	5/2026
Watershed Restoration Planning	Watershed Plan Revision Release	6/2026
Watershed Restoration Planning	Year 3 Workshop 1 <ul style="list-style-type: none"> Identify emerging concerns for research Update status of research and projects 	9/2026
Watershed Restoration Planning	Year 3 Workshop 2 <ul style="list-style-type: none"> Review revised Watershed Plan 	4/2027
Watershed Restoration Planning	Watershed Plan Revision Release	5/2027
Watershed Management Project Design	Develop Request for Proposal (RFP) Process, including: <ul style="list-style-type: none"> Researching federal requirements for competitive bidding Researching RFP processes for other organization Authoring, reviewing, revising, and publishing RFP process 	4/2025-6/2025
Watershed Management Project Design	Issue RFP for small- and large- scale design projects, including identifying potential engineer/architect contractors	6/2025
Watershed Management Project Design	Quotes Selected	10/2025
Watershed Management Project Design	Detailed design for projects, including: <ul style="list-style-type: none"> Identifying design requirements Taking measurement to support design Making drawings and plans Identifying bill of materials, equipment needed, labor estimates Performing project management of engineering/architect contractors 	10/2025-5/2027
Watershed Management Project Design	Design Review #1 <ul style="list-style-type: none"> Review design requirements, specifications, and permitting requirements Identify measurements needed for designs, data collection plans 	07/2026
Watershed Management Project Design	Design Review #2 <ul style="list-style-type: none"> Review preliminary design 	01/2027

Task	Subtask Description/Milestone	Timeframe
Watershed Management Project Design	Design Review #3 <ul style="list-style-type: none"> Review final design 	05/2027

5.4 Criteria D: Presidential and Department of Interior Priorities

5.4.1 Subcriteria D.1: Climate Change (EO 14008)

As described in Section 5.2.1, the riparian areas in Aravaipa Canyon provide a critical refugia for biodiversity, supporting five Endangered Species, 13 sensitive species, and 15 species of greatest conservation need. Figure 1 illustrates the relatively small number of perennial streams in the region, further highlighting the importance of the perennial reaches of Aravaipa Creek in supporting this pocket of biodiversity under the reduced total precipitation expected to be realized in this region as a result of anthropogenic climate change.

The watershed management projects selected for detailed design will be evaluated against their benefits for erosion control, water conservation, and conservation of riparian areas. These directly conserve the land and support more sustainable water supplies, especially for the downstream communities supported by perennial flow from the San Pedro and Gila Rivers (see Figure 1). For example, one category of project under consideration is the installation of many small-scale structures through areas of high erosion. These projects increase soil moisture content, increase flow volumes, extend duration of base flows, trap and store sediment, sequester carbon, attenuate floods, increase vegetation viability, and result in microclimates with lower temperatures (Norman et al., 2022) providing direct mitigation of climate pollution and reduction of its effects.

5.4.2 Subcriteria D.2: Disadvantaged and Underserved Communities:

There are no disadvantaged or underserved communities within the plan boundary.

5.4.3 Subcriteria D.3: Tribal Communities

The San Carlos Apache Tribe's lands extend through the northern edge of the plan boundary as shown in Figure 2. As described in Section 5.1.1, the San Carlos Apache Tribe did not respond to initial outreach attempts during our private Phase I award. The AWCA will make continued engagement with the Tribe a priority for the Watershed Coordinator and AWCA BOD.

6 Project Budget

The total project budget for the proposed work is shown in Table 3, and supported by the budget narrative submitted with this application. A brief summary of different expenses are included below.

Table 3: Total Project Budget

FUNDING SOURCES	AMOUNT
Non-Federal Entities	
1. None	\$ 0
Non-Federal Subtotal	\$ 0
REQUESTED RECLAMATION FUNDING	\$288,614

- Travel - \$6,906
 - Includes costs to travel from Tucson, AZ to Klondyke AZ for:
 - 6 speakers to individually give educational workshops (\$1,389)
 - 10 members of the science advisory committee to travel to two in-person meetings (\$5,517)
- Supplies - \$9,620
 - Food and non-alcoholic drinks for 19 in-person workshops/meetings, including: (\$4,370)
 - 1 kickoff workshop
 - 6 educational workshops
 - 2 Science Advisory Committee Meetings
 - 7 Planning workshops:
 - 3 in year 1
 - 2 in year 2
 - 2 in year 3
 - 3 Design reviews
 - Publicity supplies, including printing, newsletters, envelopes, and other mailings: \$3,000
 - Printing of annual revision of watershed plan: \$2,250
- Contractual - \$243,000
 - Full time Watershed Coordinator (\$180,000)
 - Engineering/Architect (\$60,000)
 - Speaker honorariums (\$3,000)
- Other Direct Costs - \$2,850
 - Facility rentals for 19 in-person workshops (\$2,850)
- Indirect Charges - \$26,238
 - Based on 10% De minimis.

7 Environmental and Cultural Resources Compliance

Will the proposed project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.

There are no planned impacts to the surrounding environment for the planning and monitoring efforts proposed by this project.

Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? If so, would they be affected by any activities associated with the proposed project?

There are listed endangered species and critical habitat in the plan boundary, but they will not be affected by the planning and monitoring efforts proposed by this project.

Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as "Waters of the United States"? If so, please describe and estimate any impacts the proposed project may have.

Many streams, including Aravaipa Creek, within the plan boundary are considered "Waters of the United States." The proposed planning and monitoring efforts will not impact the streams.

When was the water delivery system constructed?

Not applicable, the proposed project does not modify a water delivery system.

Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.

The planning and monitoring efforts will not result in the modification of or effects to any irrigation systems.

Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resources specialist at your local Reclamation office or the State Historic Preservation Office can assist in answering this question.

Powers Cabin is a building within the plan boundary that is listed on the National Register of Historic Places. The planning and monitoring efforts proposed by this project will not impact this building.

Are there any known archeological sites in the proposed project area?

There are archeological sites in the plan boundary. The planning and monitoring efforts proposed by this project will not impact archeological sites.

Will the proposed project have a disproportionately high and adverse effect on low income or minority populations?

The proposed planning and monitoring efforts will not disproportionately or adversely affect income or minority populations. The census tract

encompassing much of the planning boundary shows that the population is 60th percentile for low income (i.e., people in households where income is less than or equal to twice the federal poverty level). As described in Section 5.1.1, the AWCA made extensive outreach efforts to ensure that the interests of all residents within the watershed were incorporated into planning efforts.

Will the proposed project limit access to, and ceremonial use of, Indian sacred sites or result in other impacts on Tribal lands?

The proposed planning and monitoring efforts will not limit access to or ceremonial use of Indian Sacred sites or other impacts on Tribal Lands.

Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?

The proposed planning and monitoring efforts will not contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species in the plan area.

8 Required Permits or Approvals

There are no permits or approvals necessary for the proposed work.

9 Overlap or Duplication of Effort Statement

This proposal does not duplicate any proposal or project that has or will be submitted for funding consideration to any other funding source.

10 Conflict of Interest Disclosure Statement

No actual or potential conflicts of interest exist at the time of submission.

11 Uniform Audit Reporting Statement

The applicant does not expect to spend more than \$750,000 in Federal Award funds in a fiscal year.

12 SF-LL: Disclosure of Lobbying Activities (If Applicable)

Not applicable, the AWCA has not engaged in lobbying activities.

13 References

Aravaipa Watershed Conservation Alliance. (2023). *Cooperative Watershed Management Plan for Aravaipa Canyon*.

Arizona Department of Water Resources. (2022). *Groundwater Site Inventory Dataset*. https://new.azwater.gov/sites/default/files/GWSI_ZIP_20220106.zip

Bureau of Land Management Safford Field Office. (2015). *Final Aravaipa Ecosystem Management Plan and Environmental Assessment*. Arizona: Bureau of Land Management,

Norman, L. N., Lal, R., Wohl, E., Fairfax, E., Gellis, A. C., & Pollock, M. M. (2022). Natural infrastructure in dryland streams (NIDS) can establish regenerative

wetland sinks that reverse desertification and strengthen climate resilience.
Science of the Total Environment, 849, 157738.
<http://dx.doi.org/10.1016/j.scitotenv.2022.157738>

14 Letters of Support

Please see attached letters of support.



United States
Department of
Agriculture

Forest
Service

Coronado National Forest
Safford Ranger District

711 14th Ave., Suite D
Safford, Arizona 85546
Phone (928) 428-4150
FAX (928) 428-2393

Date: November 20, 2023

Bureau of Reclamation (BOR)

To Whom It May Concern:

The Forest Service enjoys our partner relationship with the Aravaipa Watershed Conservation Alliance (AWCA). We support their proposed project to continue their efforts by creating an implementation plan of projects. This Implementation plan will help the AWCA in the next steps in their efforts to solve areas of concern with-in the watershed.

Sincerely,

Bonnie Woods
Acting District Ranger





United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Safford Field Office
711 14th Avenue
Safford, Arizona 85546
(928) 348-4401



November 29, 2023

In Reply Refer To:
6700 (G010)

Memorandum

To: Christina Munoz
Supervisory Grants Management Specialist, U.S. Bureau of Reclamation

From: Bureau of Land Management, Safford Field Office

Subject: WaterSMART Cooperative Watershed Management Program Phase I for Fiscal Year 2023: Funding Opportunity Number R23AS00362

I would like to express the Bureau of Land Management's support for the Aravaipa Watershed Conservation Alliance's CWMP Phase I grant application. The Aravaipa watershed group has devoted significant efforts to coordinate and integrate land management activities across ownership within the Aravaipa watershed. The Aravaipa watershed greatly influences and supports the management goals identified within Aravaipa Ecosystem Management Plan (AEMP), in which the primary goal is to cooperatively manage over 70,000 acres of public land, integrated with the goals of the Arizona Game and Fish Department and The Nature Conservancy's adjoining lands. The AEMP area maintains one of Arizona's most pristine and diverse areas, home to 529 plant and 353 animal species, 36 of which are threatened, endangered, or species of concern. The AEMP area and the broader Aravaipa watershed support a diverse working landscape of ranching, farming, and internationally recognized recreational opportunities. Improved, coordinated management of the Aravaipa watershed is building a vibrant rural community that is collectively working to preserve the habitats and diversity they support.

The Bureau of Land Management looks forward to continuing working with and supporting the Aravaipa Watershed Conservation Alliance.

Sincerely,

Amelia Taylor
Acting Field Manager



United States Department of the Interior

FISH AND WILDLIFE SERVICE

San Bernardino and Leslie Canyon National Wildlife Refuges
P O Box 3509
7628 North Hwy. 191
Douglas, Arizona 85608



November 28, 2023

U.S. Department of the Interior
Bureau of Reclamation
WaterSmart Cooperative Watershed Management Program

To Whom It May Concern,

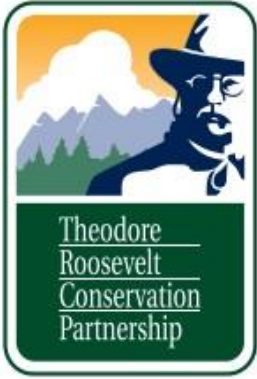
We are writing this letter in support of the Aravaipa Watershed Conservation Alliance (AWCA) proposal for the DOI, Bureau of Reclamation, WaterSmart Cooperative Watershed Management Program (CWMP) Phase I, specifically for their desire to develop an implementation plan for projects identified in their comprehensive watershed management plan.

We continue to be encouraged by the AWCA's progress and that they seek to fully utilize and implement a watershed management plan for their group. The AWCA is part of the US Fish & Wildlife Services Mogollon Emphasis Area for the protection of native fishes. We share common interests in protection and improvement of the watershed, which will have a positive impact on the native fish populations in the Aravaipa Creek. Supporting the AWCA also contributes to the US Fish & Wildlife Service Mission "*...to administer a national network of lands and waters for the conservation, management and, where appropriate, restoration of the fish, wildlife and plant resources and their habitats within the United States...*"

The AWCA is one of the largest un-fragmented landscapes in the state of Arizona and New Mexico, which provides habitat for wildlife. With this grant the group will be able to implement actions identified through the development of their watershed management plan and have on the ground impacts and results. The proposed plan will further benefit the landscape on a large scale. We are supportive of this proposal and look forward to the AWCA continuing progress.

Sincerely,

Tasha Harden
Refuge Manager



His Vision

~

Our Mission

November 22nd, 2023

RE: WaterSMART Cooperative Watershed Management Program Phase I for Fiscal Year 2023

Bureau of Reclamation (BOR): to Whom It May Concern,

As the Theodore Roosevelt Conservation Partnership's (TRCP) Western Water Policy Associate, I work to support local watershed groups and conservation practitioners in accessing public funding to scale and enhance watershed restoration projects across the state of Arizona.

While I value the hard work and commitment to stakeholder engagement and watershed stewardship embodied by all our partner organizations, it is an honor and a privilege to work with our partners at the Aravaipa Watershed Conservation Alliance (AWCA). In a strictly volunteer capacity, Matt and his team are dedicating countless hours to the successful restoration and conservation of native plants as well as implementation of natural erosion controls to stabilize the Aravaipa watershed. Even more, AWCA embodies the hard-to-reach characteristics of a successful watershed group through their commitment to engaging with the diverse group of stakeholders that characterize Arizona's rural landscapes and the communities they encompass. We at TRCP are confident in AWCA's ability to restore the Aravaipa Watershed in a manner that will benefit wildlife, sustainable agriculture, native fish, hiking, recreational opportunities and enhanced water quality and quantity for Arizona.

We feel the WaterSMART Cooperative Watershed Management Program (CWMP) would increase the capacity and effectiveness of the AWCA in fulfilling their mission and vision for the future of the Aravaipa Valley. As an active partner, we strongly support this application for funding from the Bureau of Reclamation through the WaterSMART CWMP Phase 1. We are interested in remaining active in the planning process and providing insight and expertise where our mission and scope align with the AWCA's goals and objectives. I will continue to pursue opportunities to collaborate and work to help AWCA more fully develop their watershed group and access the necessary resources to complete watershed restoration planning activities, and design and implement watershed management projects.

Regards,

Christian Fauser
Western Water Policy Associate
Theodore Roosevelt Conservation Partnership