Upper San Juan Integrated Water Management Plan

WRP and WSRF Grants – POGG1 PDAA 2020-3065

Progress Report
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PREPARED BY:
Mountain Studies Institute
&
Upper San Juan Watershed Enhancement Partnership

SUBMITTED TO:
Colorado Water Conservation Board
Southwest Basin Roundtable

Background

Five years ago, the Colorado Water Plan (CWP) and Southwest's Basin Implementation Plan (BIP) identified a significant gap in information necessary to understand and protect environmental and recreational (E&R) water needs in Colorado. Through the generous support of the Colorado Water Conservation Board (CWCB) and Basin Roundtables, local watershed groups have been encouraged to develop new tools and evaluations to address these gaps and needs through their own unique Stream Management Plan (SMP) or Integrated Water Management Plan (IWMP) processes.

In 2018, the CWCB and Southwest Basin Roundtable generously awarded funding for Mountain Studies Institute (MSI), Trout Unlimited (TU), and Western Wildscapes (WW) to coordinate a stakeholder group to begin the critical first steps of facilitating a community-led process to assess water values, needs, and priorities for the San Juan River Basin. Envisioned as a three-phase process, the ultimate purpose of this project is to implement the SMP/IWMP process to seek opportunities to conserve the San Juan Basin streams and their uses, with wide-ranging community support and decisions based on local input and current scientific analysis.

Phase I (May 2018-April 2020) directly supported the CWP and Southwest Basin's BIP goals by tackling the first critical steps in the process: initiation of community engagement; establishment of a steering committee and stakeholder groups to guide the process; a review of existing data and information; and an outline for next phases. This group of local and diverse water users is now called the Upper San Juan Watershed Enhancement Partnership, or WEP. Building upon the E&R water needs focus of SMPs, this process has evolved to consider agricultural and municipal water needs and use in planning to create what the state now calls an Integrated Water Management Plan (IWMP).

In Phase II, MSI, WW, and TU continue project coordination and stakeholder engagement formed in Phase I, while project partners Lotic Hydrologic and San Juan Conservation District develop an assessment of E&R water supply needs and agricultural irrigation structures for input into hydrologic models analyzing current and future water scenarios. This assessment will be utilized in Phase III to identify opportunities for cooperative projects to address the multiple water needs into a comprehensive IWMP with specific options for projects, actions, and potential challenges.

Objectives & Outcomes

The primary outcomes of Phase II include:

1) An understanding of the hydrology of the upper San Juan watershed project area and the interactions between stream flows, environmental and recreational attributes, and consumptive uses under existing and potential future conditions – including forest health and climate change;
2) An inventory of agricultural structural needs, such as ditch/diversion improvements and other measures that have the potential to improve irrigation practices and irrigation efficiency;
3) An understanding of E&R water supply needs and gaps;
4) A well-coordinated process that informs and incorporates input from stakeholders and the community as a whole;
5) A scope of work for the Phase III management plan.

This report describes Phase II progress, challenges, lessons learned, and next steps as the group advances to Phase III. To date, changes and restrictions from the COVID-19 pandemic have, fortunately, not delayed project progress due to partners' and steering committee members' proactive adaptation to remote meetings and ability to conduct field work with social distancing, smaller teams, disinfecting, and wearing masks.

Progress By Task

Task 1: Coordination & Stakeholder Engagement

From May to October 2020, Mountain Studies Institute and Western Wildscapes, with the additional guidance of Trout Unlimited, facilitated a variety of stakeholder and program management meetings to ensure Phase II tasks were coordinated; timeline goals upheld; and updates were regularly conveyed to project partners, stakeholders, and the community. All meetings have smoothly adapted to being hosted remotely through video conferencing or in outside settings for groups of 10 people or less in order to upheld Colorado state COVID-19 protocols.

Steering Committee meetings occur every other month, with the option to attend Project Management meetings when beneficial and available. Steering Committee meetings accomplished the following:

- Solidifying WEP brand and Steering Committee members as an active watershed group in Pagosa Springs area, with more public presentations and marketing materials.
- Tailored public outreach and presentations for different audiences, including broader public, smaller communities, and individual property owners to discuss complex water topics and WEP's multi-phased efforts (Attachment 1 & 2).
- Developed survey collect public's feedback on Phase II steps as well as community water values, needs, and areas of interest (results still being collected).
- Discussed opportunities and funding strategies to collaborate with congruent river planning efforts or projects with the Town of Pagosa Springs, Colorado Parks & Wildlife, and local communities.
- Committed WEP representatives to participate in cross-collaborative efforts on landscape scale projects on the San Juan National Forest to ensure forest and watershed group goals are communicated and aligned.
- Expanded funding options through a national crowd-funding website called the Great Outdoors Fund, where donators can contribute to the WEP's project to improve river recreation access, restoration, and education.

For these first six months of Phase II, Project Management Meetings between MSI, WW, TU, Lotic and SJCD focused on maintaining coordinated field and reporting schedules, sharing and aligning data needs, addressing issues (i.e. property or database access), organizing public outreach strategies, and documenting progress.

The Steering Committee visited Banded Peak Ranches near the Navajo River in August 2020 to explore implemented restoration, conservation and forest management projects that may be applicable in other areas of the San Juan Basin (Attachment 3). The Banded Peak Ranches are 3 separate ranches totaling 52,000 acres southeast of Pagosa Springs. Four main areas were visited to visually inspect sites and explore project options, multiple water user groups involved, project benefits, challenges, and resources for each site. Projects included:

- Stream gauge on the Navajo River. Discussions focused on data gathered at the gauge, its purpose, and how data was relayed to the different agencies. The gauge is just upstream of the Oso Diversion, a Bureau of Reclamation facility, that sends on average approximately 85,000 acre feet of water through a transmountain diversion to supply Albuquerque residents with water via the Rio Grande River.
- San Juan Cutthroat trout habitat, including ponds and a rehabilitated stream inhabited by this recently rediscovered trout subspecies, with an engineered fish barrier for non-native trout.
- Fire modeling and conservation easements. Band Peak uses FARSITE based models to help guide the forest treatments on the ranch and prioritize the work being done and monitor their effectiveness.
- Irrigated hay pasture converted from an oil production field. Discussions focused on typical irrigation structures and systems used on the ranches, as well as head cut areas to restore.

Task 2: Agricultural Water Needs Analysis

The Watershed Enhancement Partnership contracted with San Juan Conservation District (SJCD) to conduct an

inventory and analysis of existing agricultural infrastructure on the upper San Juan River, with the possibility of extending to the Navajo and Blanco watersheds, if time and budget allowed. This partnership allowed the SJCD, with technical assistance from National Resources Conservation Service (NRCS) to complete necessary evaluations of 5 major ditches (Park, Fourmile, Echo, Snowball, and Dutton) and their laterals along the San Juan River mainstem and its tributaries. SJCD hired a team of professionals to work with ditch representatives, water right holders and agricultural water users to assess current conditions of their irrigation delivery system and identify opportunities to improve system efficiency (Attachment 4).

The team has inventoried and mapped approximately 61.7 miles of ditch thus far (Attachment 5). Approximately 325 structures were identified along these ditches which include division boxes, headgates, diversions, inlets, measuring devices, check dams and culverts. The condition of each structure was rated: Poor - Replaced Immediately; Fair - Functioning with major defects; Good - Functioning with some minor defects; or Excellent - Properly functioning with no defects. Cost estimates are being developed for structures that rated Poor or Fair. This data will help identify potential water efficiency improvement projects along each ditch in the future. This data will also be used by Lotic to perform hydrologic modeling. The SJCD team also contacted approximately 175 private water users to discuss voluntary participation in this process and offer to perform a free onsite visit to evaluate each system. According to the water user's identified goals and objectives, SJCD staff have begun to identify agriculture water system improvements with cost estimates. Next, the WEP, SJCD, and NRCS will explore funding mechanisms to design and implement projects.

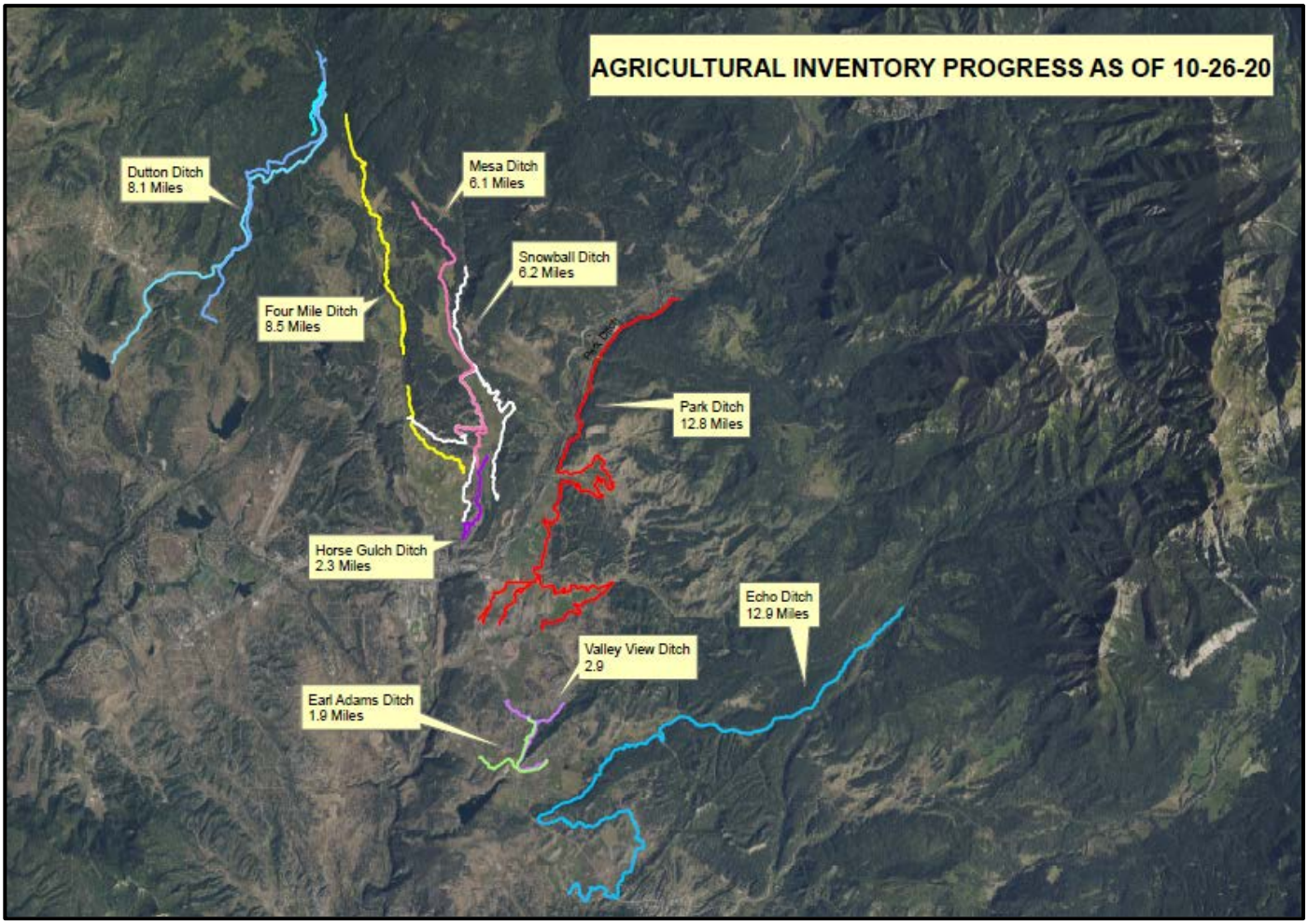


Figure 1. Map of major ditches and laterals surveyed by San Juan Conservation District for the agricultural infrastructure inventory on the upper San Juan River.

Task 3: Technical Analysis and Modeling

Lotic Hydrological's team of experts have collected available hydrological from current and historical USGS stream gauges and forest/vegetation data from the US Forest Service and County lidar surveys. CWCB hydrological simulation data generated by the Colorado Water Plan technical update was processed and disaggregated from a monthly timestep to a daily timestep at key locations along each of the study reaches. Sediment transport and fish habitat characteristics were surveyed in the field and hydraulic models were constructed to allow for assessment of changes in sediment transport characteristics and habitat quality as a function of streamflow changes produced by climate change and/or population expansion. An assessment of climatological factors that predict characteristics of streamflow and forest vigor was completed. These results will be foundational to the hydrology/forest health nexus portion of the assessment. This fall, Lotic will consult with a team of local businesses and experts to consult on optimal recreation flows to consider as thresholds in hydrological analysis and models. Recently published (draft) LiDAR data for Archuleta county will be used to identify potentially incised stream reaches on small tributaries across the planning area that might benefit from process based restoration.

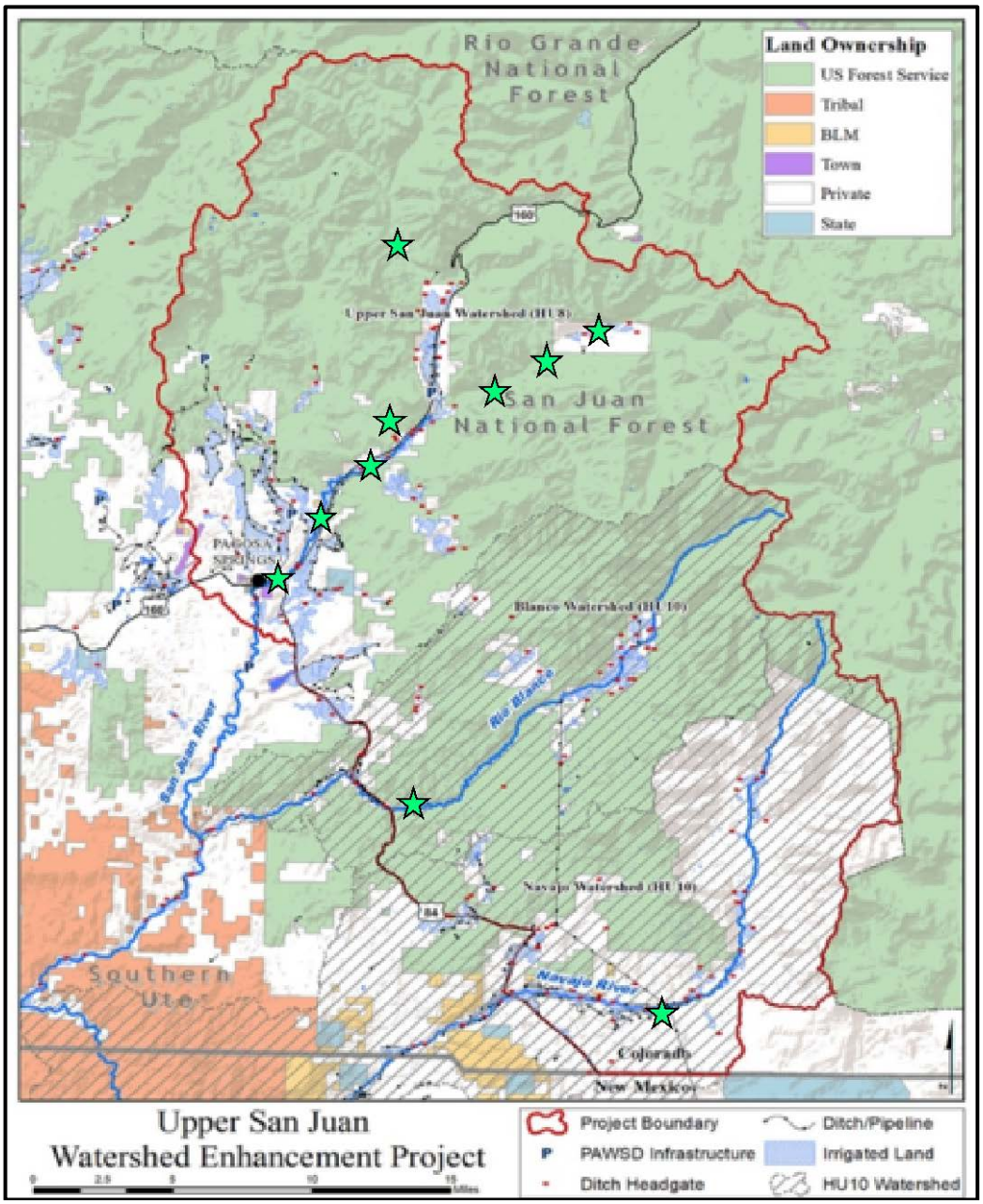


Figure 2. Lotic Hydrological's field data collection locations (green stars) associated with Task 3.

Figure 3. Bathymetric (underwater depth) survey data collected along the San Juan River in downtown Pagosa Springs. Data is being used to create hydraulic models of fish habitat quality and quantity.

Challenges, Opportunities and Lessons Learned

- **Maintaining safe stakeholder engagement with COVID-19 limitations**

Due to public gathering restrictions with the COVID-19 pandemic, the WEP Steering Committee, Lotic Hydrological, and SJCD held a virtual public webinar in May 2020 to share Phase II goals, objectives and steps with the intent to provide transparency of the Phase II process, gather feedback, and maintain engagement with the local community. All Steering Committee, project management, and public meetings have been and remain online until further state guidance, except for unique outdoor events beneficial to project progress and small group sizes and social distancing practices can be upheld.

Although pivoting interactions and dispersal of information to online or printed materials does have its advantages (i.e. travel cost savings), the WEP understands not all stakeholders readily use or are aware of these online events or resources. WEP Steering Committee members assist in bridging this gap by bringing forth WEP updates and goals to other public venues or direct contact with interested landowners or residents. The group is already brainstorming on how best to present project updates and how the overall assessment results will be shared and prioritized in methods to reach the most people and activate a community consensus-building process for IWMP goals.

- **Property access for field surveys**

The WEP chose to partner with the San Juan Conservation District and Lotic Hydrological due to their expertise in field work, analysis, and networks within the local communities in and around Pagosa Springs. The WEP hoped partnering with crews familiar with the unique conditions and stakeholders involved in the project area would early

on establish credibility and trust of our partners helping with Phase II's watershed assessment. However, even with these local connections, both crews ran into challenges in accessing properties and received from landowners over confusion with the WEP's goals, intentions of the field work, and how that data/information would be used.

To help clarify this process and assist our partners request access for field surveys, the WEP utilized newspaper and radio announcements, explanatory flyers, and direct communication with specific landowners or entities. In the future, this group will strive to make even more public announcements and share outreach materials in the months leading up to any future field work. Proactive outreach, respect of stakeholder privacy and concerns, and transparent methods will continue to be essential in building community trust, buy-in and openness to participating in the WEP's efforts.

- **Maintaining clarity on process and outcomes**

Steering Committee members are either invited to attend Project Management meetings with Lotic and SJCD or are offered meeting notes to ensure members are kept updated and informed of any project needs or concerns. The local networks and expertise of the committee provides insight on field survey access, individuals or entities to contact, and locations of known issues or opportunities for field crews to consider. The open communication and shared learning between the committee, project partners, and community ensures questions are addressed more immediately, timelines and goals are aligned, and that the WEP representatives are able to pass this information along to their constituents.

With community stakeholders/partners, the Steering Committee has applied both targeted and broad outreach approaches to ensure private information and concerns are respected, coupled with public events to keep the community abreast of the WEP process and invite feedback. As this is a community-driven effort, the WEP strives to balance keeping public stakeholders informed of developments through educational events and outreach, while also maintaining privacy of individual projects and sites when asked.

- **Appropriate scale**

Scale continues to be one of the more challenging components to the effort due to concerns over staff capacity to assess the lower watersheds of the Navajo and Blanco Rivers, modeling refinement, and the group's ultimate goal to identify actionable opportunities in completion of a SMP/IWMP. In Phase I, after concerns over the appropriate size of watershed were addressed, and recognition that the sub-drainages have different issues, impacts, influences, and interests, the group opted for a phased approach within the different sub-basins.

Now in Phase II, the group is currently evaluating whether adequate funds and capacity to conduct partial field surveys or data analysis in the Navajo and Blanco, after focusing on completing work on the San Juan River. However, the group believes even if thorough analysis and modeling are only possible on the San Juan River during Phase II, the lessons learned and accomplishments made during this phase will be applicable and beneficial for other future watershed planning efforts.

- **Timeline of comprehensive analysis and demonstrating progress**

Perhaps the largest challenge of the entire SMP/IWMP process is to balance the need for securing appropriate information and the need of participants to feel a sense of progress that can establish on-the-ground actions. Participants desire reassurance this process will result in more than conversation opportunities and another unused plan. Rather, the goal is to implement on-the-ground work to demonstrate to the community the types of activities and projects possible with designing and implementing a SMP/IWMP.

In 2019, the WEP identified a site along the San Juan River and created concept design plans to investigate opportunities for a demonstration project that addresses agricultural, environmental, and recreational water needs (Attachment 2). Involved stakeholders have shown promising support and offered helpful refinement of project options to meet multiple stakeholder desires and needs. This project option is currently on hold until a quiet title

lawsuit is resolved, but the WEP continues to engage in dialogue with property owners, board meetings, and ditch company members.

Fortunately, Steering Committee members are aware of several other potential projects this group may be able to assist with in the immediate future to demonstrate progress and implementation of a successful SMP/IWMP.

- **Steering Committee member turnover**

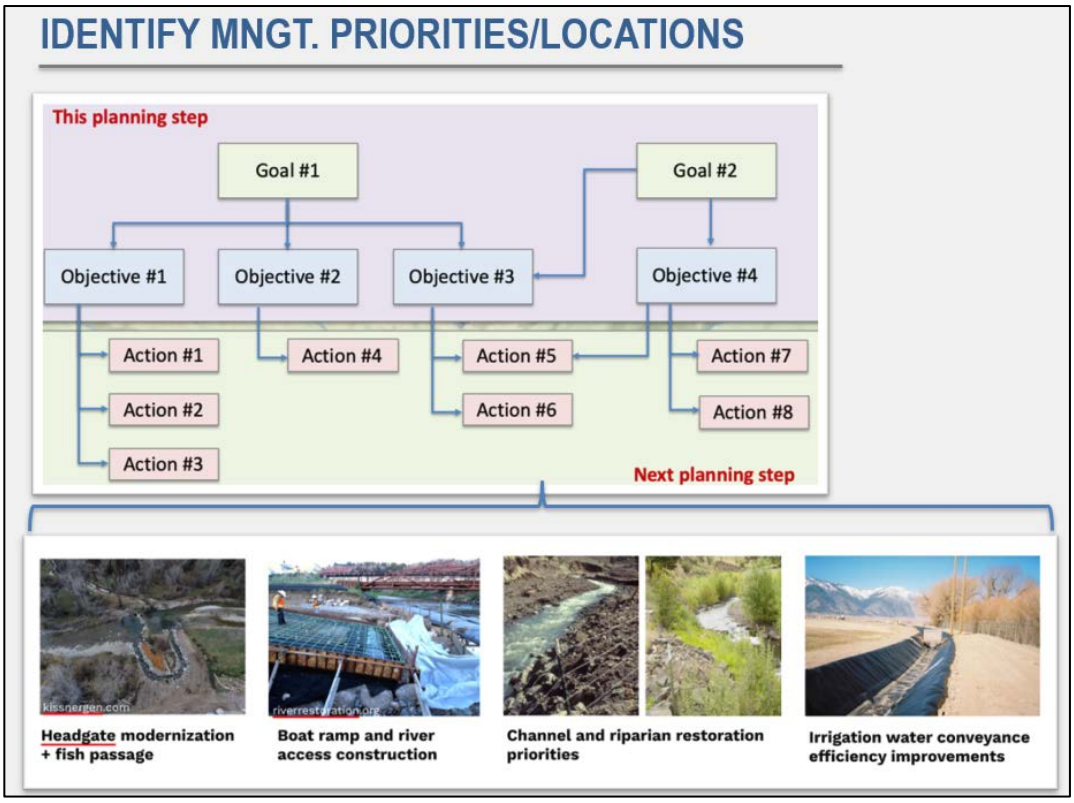
The Steering Committee experienced both the loss of one agricultural representative from the committee due to COVID-19 pandemic changes and received letters of interest from other community members to join. Development of a long-term strategy on committee size and constituent groups represented are underway to ensure the committee remains productive, possesses diverse interests without bias towards one group, and does not become exclusionary. In the meantime, to ensure agricultural concerns and interests are represented in the watershed group, two individuals involved in ranch management and/or members of major ditch companies have been contacted and shown interest in becoming engaged in the WEP process.

Next Steps

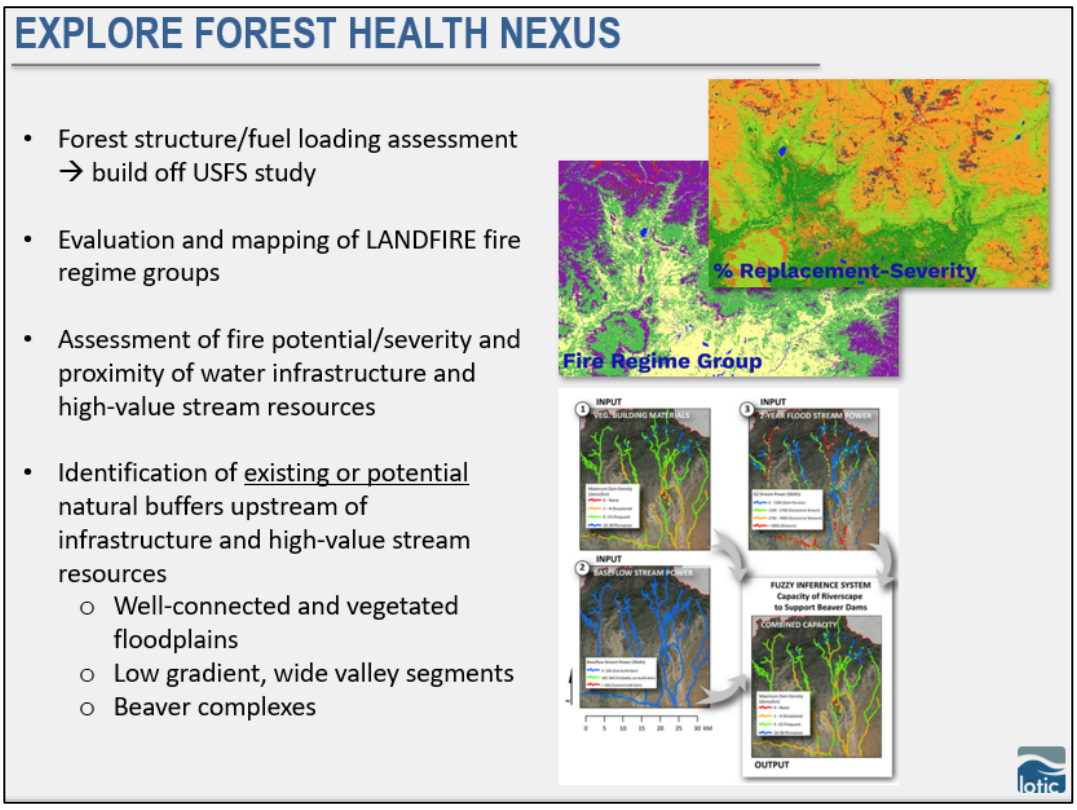
Once Lotic Hydrological and SJCD staff have finished field work and collection of data, the WEP hopes to host their second public meeting in winter of 2021 to invite feedback and maintain transparency about project progress, initial results, and mapping efforts. Feedback on these results and first steps towards identifying priority areas will be included in our final report and inform the scope of work for Phase III.

ATTACHMENT 1

Presentations on Phase II roles, goals, objectives and timelines were presented to the general public in May 2020 and the Environmental & Recreation Subcommittee of the Southwest Basin Roundtable in June 2020 to ensure multiple levels of stakeholders are involved and invited to provide feedback on the WEP's process. Example presentation slides are shown below.



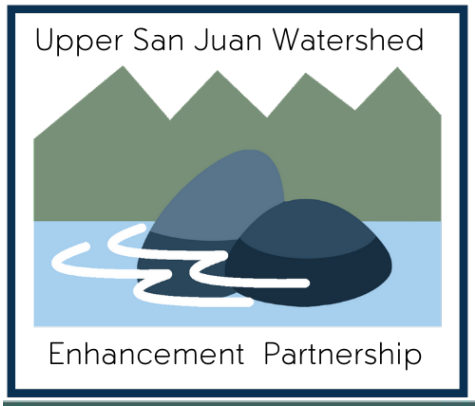
Mountain Studies Institute provided information on the WEP's history and approach, while Lotic and San Juan Conservation District explained in more detail Phase II tasks and outcomes, including the identification of management priorities, locations, and possible actions.



Based on other SMP experiences, strong forest collaborations on the San Juan National Forest, and wildfire concerns across Colorado, the WEP is proactively incorporating analysis of the forest health/water nexus into its assessment and modeling in Phase II. The goal of considering influencing factors like forest health and climate will better prepare this area for future water scenarios.

ATTACHMENT 2

Mountain Studies Institute and WEP steering committee members have developed several new outreach materials and regularly participate in local board meetings to introduce WEP efforts and long term goals, including a new logo and a flyer describing concept design plan components developed in 2019 for the San Juan River Improvement Project (shown below). These resources enhance the WEP's public presence, establish collaborative credibility, and maintain transparency.



The WEP partnered with Pagosa Springs teacher and artist Kelly Lewis to design their new logo, furthering local connections and exposure of group's efforts.

Graphic designers at Hey Red Marketing helped the WEP convey key project details for the San Juan River Improvement Project. See the full flyer here

ATTACHMENT 3

Photos from WEP Steering Committee visit to Banded Peak Ranches to view stream gauges, San Juan Cutthroat trout habitat and barriers, irrigation structures, and forest management treatments.

ATTACHMENT 4

The WEP and San Juan Conservation District collaboratively created outreach materials advertised in local media and directly provided during in-person field surveys to describe goals and details of the agricultural infrastructure inventory to major ditch company members and property owners.

Upper San Juan River Basin Needs Assessment

Background—In the summer of 2018, the Upper San Juan Watershed Enhancement Partnership (WEP) formed as a community-led, voluntary process to understand local water supply needs and information gaps in the Upper San Juan River Basin. This process is part of the Colorado Water Plan and is funded in part by the Colorado Water Conservation Board (CWCB) as well as local organizations and partners such as Mountain Studies Institute, Town of Pagosa Springs, Pagosa Tourism Board, San Juan Water Conservancy District, Southwestern Water Conservation District, Banded Peak Ranch, and many more.

The WEP is following a three-phased process to:

- **Phase I (completed):** organized/established a stakeholder group, led by a steering committee, to understand community values and concerns throughout the process; the Steering committee is comprised of agricultural, environmental, recreational, private landowner, and local government representatives; Phase I accomplishments include: formation of the steering committee and outreach to stakeholders and the public; identification of our community's collective values and concerns and the geographic scope of the WEP; developed scope of work for Phase II.
- **Phase II (2020-2021):** conduct a watershed-scale assessment, focusing on the Upper San Juan River Basin, to determine water needs to support recreation and environmental values, structure needs to support agricultural irrigation; and identify potential project areas to benefit multiple water uses.
- **Phase III (2021+):** outline a framework and map identified priority areas, with voluntary, cooperative project options to implement in the future.

Phase II Needs Assessment—the WEP is working with Lotic Hydrological, LLC (Lotic) to evaluate environmental and recreational water needs and information gaps in the project area. Data will be collected to inform models that will look at current and future stream conditions, while considering factors like forest health and changes with climate and their influence on water availability.

The WEP is also working with San Juan Conservation District (SJCD) to evaluate potential improvement of structures used for agricultural irrigation. SJCD will be working with ditch representatives, water right holders and agricultural water users to assess current conditions of their irrigation delivery system and identify opportunities to improve system efficiency.

How the inventory/field work will be conducted: A representative from SJCD will contact each agricultural water user, ditch representative or water right holder to discuss voluntary participation in this process. Our representative will perform a free onsite visit to evaluate each system. According to the water user's identified goals and objectives, agriculture water system improvements will be identified, with cost estimates provided for the improvements. Funding will then be sought to help implement these projects.

How your information/data will be protected: Private landowner information will be kept confidential and NOT released to the public.