The American River Headwaters and French Meadows Project: Measuring Nature's Benefits in response to improving forest health through a collaborative, landscape-scale restoration project

What improvements in water security do we receive as a side-benefit of accelerating the pace and scale of forest restoration? **That was the question.** The selection of the French Meadows restoration project was the answer.

Looking at a map of the fire history for the upper watershed of the Middle Fork of the American River, the lack of recent fires in this area surrounding and immediately upstream of Placer County Water Agency's (PCWA) French Meadows Reservoir is clearly noticeable. Most of the land is managed by the U.S. Forest Service's Tahoe National Forest (TNF) and approximately 8,000 acres are owned by the American River Conservancy (ARC). The 2014 King Fire made local residents, agencies, and non-profit organizations keenly aware of the risk to critical infrastructure posed by unhealthy forest conditions in the American River Headwaters as evidenced by how close the other major PCWA reservoir, Hell Hole, came to being burned over. In the end, the fire dumped millions of cubic yards of logs, silt and debris into PCWA's infrastructure. To reduce the risk of another severe wildfire, Sierra Nevada Research Institute's research will focus on helping to quantify the water benefits of the forest restoration effort.

Deliberate intent also played an import role in selecting the site for this restoration work. With the purchase of approximately 8,000 acres by the American Rivers Conservancy in proximity to the French Meadows reservoir and Placer County Water Authority's interest in protecting the reservoir and Middle Fork from the damage that the Rubicon River drainage system experienced from the 2014 King Fire, and with the French Meadows Reservoir and Middle Fork watersheds already being a part of the state's Watershed Improvement Program (WIP) the mix of interests for a large-landscape restoration were in play.

Six partners to include the Tahoe National Forest (TNF), land manager; American Rivers Conservancy (ARC), buyer of approximately 8,000 upper watershed acres; The Nature Conservancy (TNC), a global conservation organization; the Sierra Nevada Conservancy (SNC), a state agency; and the Sierra Nevada Research Institute (SNRI) at UC Merced signed a memorandum of understanding (MOU) and head up this diverse collaboration. Placer County, also joined as business partner in the hydropower project. Their goals are to restore forest health and resilience in the American River Headwaters/French Meadows Project area, thereby increasing the pace and scale of forest and watershed restoration throughout the Sierra Nevada.

Severe wildfire in recent years created enormous soil erosion, clogging American River system infrastructure and negatively impacting wildlife habitat, water quality and overall watershed health. By forming a steering committee to seek funding from diverse players, i.e., federal, state, local, private sources the local water utility, county, and water-dependent companies who value investing to secure their water supply; and utilizing innovative project mechanisms such as Master Stewardship Agreement and stewardship contracting, the French Meadows Project which includes the approximate 8,000 acres purchased by ARC, is on course to accelerate forest restoration at scale to reduce forest fuels.

Concurrent with these restoration efforts are the Sierra Nevada Research Institute's (SNRI) and California Polytechnic State University research efforts into the life-supporting Nature's Benefit of WATER. With instrumentation already in place over drought and significant snowfall years, scientists are monitoring streamflow, snowpack, snow water content and looking at the disparity between areas

treated and untreated in the French Meadows footprint. They will evaluate how the thinning of tree stands effect stream flow, the timing of flows and the impact of shade on snowpack. For the Placer Water County Agency, the results of these finding will prove informative to optimizing water storage, timing and volume of releases of water throughout the year for hydro power generation; for federal and state partners, the interest is the release of cold and fresh water to clean out the California Bay-Delta ecosystem and agriculture of briny tributaries and strengthen the habitat to support fish population; and for households, clean, plentiful water is the critical life source to downstream communities drinking water and commercial businesses.

To date, Phase 1 of 3 has been implemented for the approximate 8,000 acres owned by ARC with funding coming from California's Wildlife Conservation Board and California Natural Resources Agency and over 2,000 private donors. The overall budget for implementing the public lands portion of the French Meadows Project is approximately $10.6 million, which includes $1.6 million in planning and permitting and $9 million to implement the project. So far, the partners have raised and contributed over $1 million towards planning and permitting. Once the Environmental Assessment for the public lands portion of the French Meadows project becomes available for public comment in spring 2018, funding efforts will be ramped up and sought after from a variety of federal, state, local, and private sources.