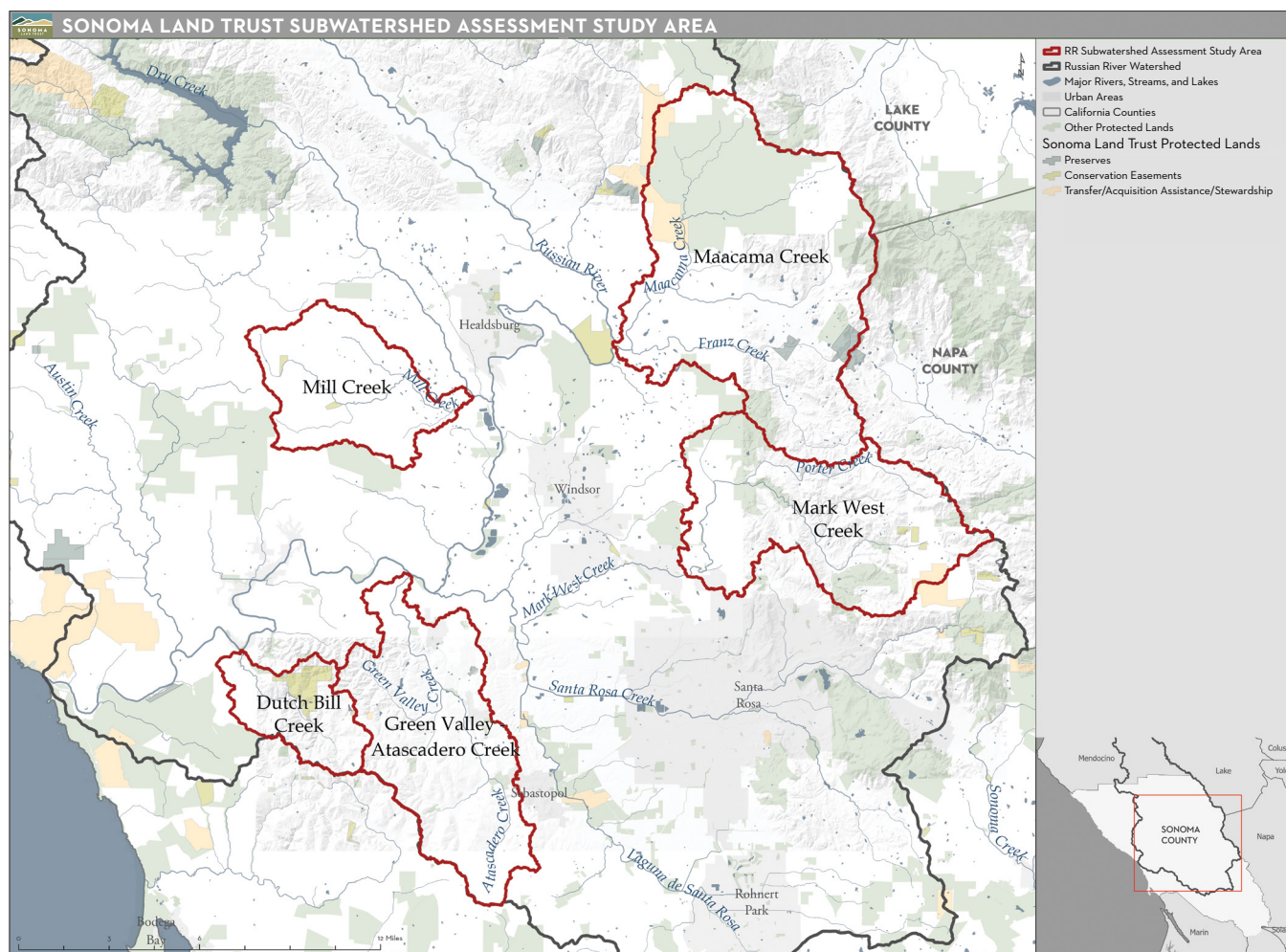




Russian River Subwatershed CONSERVATION ASSESSMENT

Over the years, we've seen salmonid fish populations approach extinction in Sonoma County. This brochure explains what's happening and the steps Sonoma Land Trust is taking to improve conditions for salmonids in the Russian River watershed—before it's too late. This work relies on partnerships with willing property owners.

Because the Russian River watershed is vast, we are strategically targeting the most critical areas for coho salmon and steelhead trout in five subwatersheds: Dutch Bill Creek, Green Valley Creek, Maacama Creek, Mill Creek and upper Mark West Creek.



This work was generously funded by Resources Legacy Fund and The Nature Conservancy. Our Resource Conservation Districts (RCDs) and other local experts, including O'Connor Environmental, Inc., provided valuable input and review.



SCOTT HESS

OUR APPROACH

Sonoma Land Trust is responding to the decline of salmon in our watersheds by focusing directly on projects that will increase freshwater flows in key watersheds. This is a timely move as increased water scarcity is predicted based on a changing climate that will likely bring hotter, drier and longer dry seasons and droughts to California.

Salmon are keystone species whose survival indicates the health of the entire ecosystem. Protecting water where salmon need it most contributes to the recovery of the species and overall watershed health. To this end, we

- conducted a Conservation Assessment, based on a spatial analysis developed by Tom Robinson Consulting, to identify where conservation actions would be most beneficial to streamflow enhancement and the recovery of coho salmon.
- are implementing the findings of the Conservation Assessment as follows:
 - Sharing options with the public and neighborhood leaders for protecting streamflow—while increasing their understanding of our prioritization methods.
 - Working with partners to reach out to landowners to gauge interest in projects.
 - Developing streamflow-related projects with willing landowners and applying for funding.
 - Identifying and implementing streamflow-related stewardship projects on Land Trust Preserves.

CHANGES TO THE WATERSHED

The Russian River wends its way through Sonoma and Mendocino counties, draining 1,485 square miles before joining the Pacific Ocean. This watershed is Sonoma County's largest, providing habitat for plants and wildlife—some very rare—and water to more than 600,000 human users.

For thousands of years, people have been drawn to the Russian River, with Indigenous peoples making use of its bountiful fishing and basket-making materials while tending to, and living amidst, the grasslands, oak woodlands and conifer forests across the watershed. The water flowing in the Russian River's main stem and its tributaries has sustained expanding communities over the years. In the past 175 years or so, population growth and accompanying development, farming, ranching, recreation, logging and gravel mining have accelerated rapidly.

All these activities have taken their toll and impacted the watershed's natural function, converting and degrading natural habitats, drastically altering channel morphology and stream hydrology, increasing erosion and sediment transport into the creeks, and drawing down surface water and groundwater.

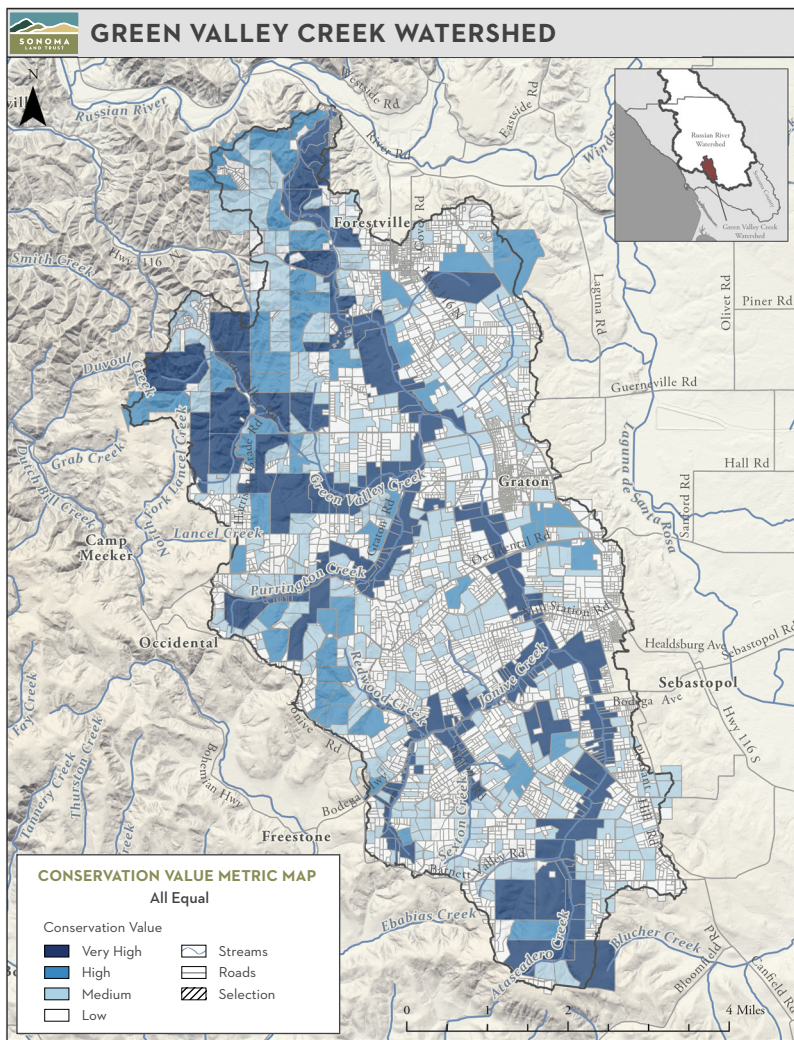
Collectively, these shocks to instream, riparian and upland habitats have profoundly affected fish and other wildlife in the watershed, especially native salmonids.



SALMON IN CRISIS

With an increase in drought and flooding due to climate change, our creeks and river may not be able to provide the quantity of cool, clean water required for salmonid survival. Low streamflow is one of the biggest inhibitors to coho recovery. These fish now face a high likelihood of extinction in the Russian River watershed and elsewhere.

However, all is not lost. According to a 2018 study led by California Sea Grant, small amounts of running water—less than a gallon per second—are enough to keep pools cool and interconnected, which allows young salmon to survive through the hot, dry summer months. The Land Trust is focusing its energies on helping to create these conditions.



CONSERVATION ASSESSMENT AND IMPLEMENTATION TOOLS

The Conservation Assessment is based on a detailed spatial analysis and serves as a decision-support tool to determine the appropriate locations and actions that will be most beneficial to maintaining and enhancing summer streamflow for coho recovery.

We began by identifying the conservation values across each watershed, noted as a conservation value metric (CVM). CVM scores are based on three ecological factors that affect salmon survival in the Russian River watershed: **upland and riparian habitat, instream habitat, and streamflow.**

Then, to narrow the conservation opportunity to locations with the greatest potential for positive impact on streamflow and salmonid populations, we took the locations with a high or very high CVM and added property-based criteria and conservation co-benefits (see Action Scenario below).

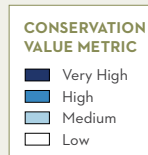
As with all our work, while scientific analysis provides essential information, implementing a project depends on property-specific details and willing landowners.

◀ Example in Green Valley Creek watershed, showing priority areas when combining the three ecological factors of the Conservation Value Metric equally.

ACTION SCENARIO: (Stewardship) Forest and grassland management that maximizes riparian aquifer recharge

STEP 1: Identify Conservation Value Metric

FACTOR	WEIGHT	SUBFACTOR	RATING
Upland and Riparian Habitat	50%	Stream Valley Area	33%
		Upslope Contributing Area	33%
		Headwater Contributing Area	33%
Instream Habitat	0	Instream Priority	n/a
		Off-channel Priority	n/a
Streamflow	50%	Groundwater Recharge	100%



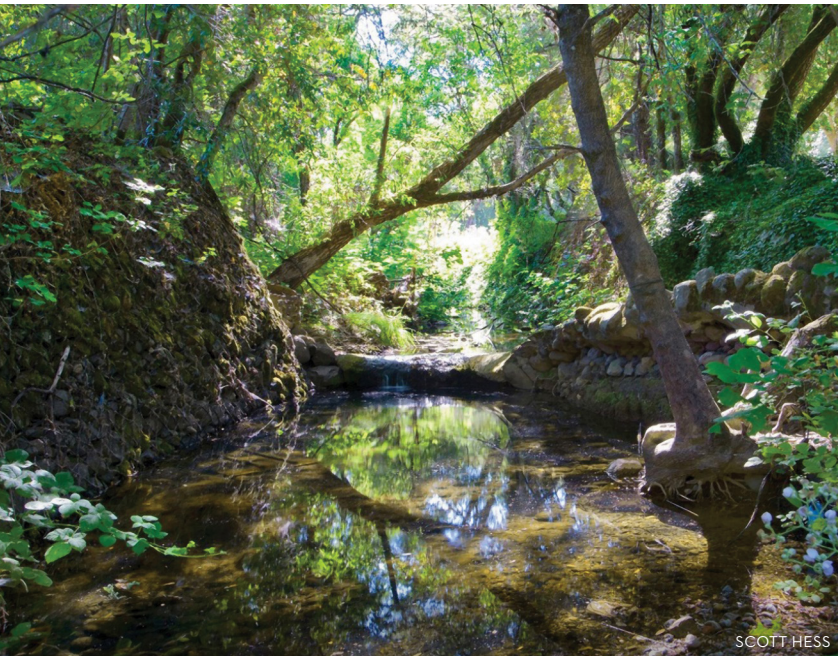
STEP 2: Query the data for this Action Scenario

- High conservation value (emphasis on recharge and upland) AND
- Presence of suitable forest stands for treatment (conifer, low height classes, even-aged, greater than 10 acres) and/or grassland (greater than 10 acres)

DATA AND CRITERIA: Mill Creek Watershed

Example of determining where a specific action will have the most impact in Mill Creek watershed. Step 1: Tailor the weight and rating of the Conservation Value Metric for the action under consideration. Step 2: Define criteria to identify the best places for this action.





SCOTT HESS

SPECIALIZED WATER SOLUTIONS

To bring the salmon out of crisis, we must use all available options, including new and specialized tools to directly enhance water availability during dry seasons where it matters most. These tools include:

- Acquisition of fee title and conservation easements on lands prioritized in the Conservation Assessment –prevents conversion of natural land to more intensive uses and ensures continued groundwater recharge.
- Stewarding fee lands owned by the Land Trust and supporting conservation easement landowners –focuses on creek restoration, forest management, rangeland management and road maintenance.
- Engaging in water transactions, such as water right dedications, instream use, winter water storage projects and more (see below).

WATER TRANSACTIONS

The State Water Resources Control Board (State Water Board) ensures that all water-rights uses in California are reasonable and beneficial. One such use is *“for fish and wildlife preservation and enhancement”*—in addition to *domestic, irrigation, power, municipal, mining, industrial, aquaculture, recreational, stock watering, water quality, frost protection and heat control.”*

With fish and wildlife preservation in mind, the Land Trust looks for the type of water transaction best-suited to each property for increasing water in streams during low-flow periods. We are bringing these ideas to landowners to solicit interest in working with us to find ways that a property’s water assets and water rights can benefit fish and wildlife.

TRANSACTION	BENEFIT
Purchase or lease a water right for instream use	Dedicates water to instream flow so the water will be available to benefit fish and wildlife
Purchase or execute a water forbearance agreement	Leaves water in the environment when streamflows are low, thereby increasing flow
Purchase or execute a water release agreement	Releases water from a reservoir or pond when streamflows are low, thereby increasing flow
Change of water use to dedicate water to instream use	Modifies water right so water can be left in-stream to benefit fish and wildlife
Apply for new water right	Obtains a new water right to enable an existing water right to be dedicated to instream flow. (Currently, new water rights cannot be dedicated to instream flow, per the State Water Board)



If you live in one of these watersheds—or elsewhere—you can help.

Discuss how by contacting Sonoma Land Trust at 707-526-6930 or info@sonomalandtrust.org.