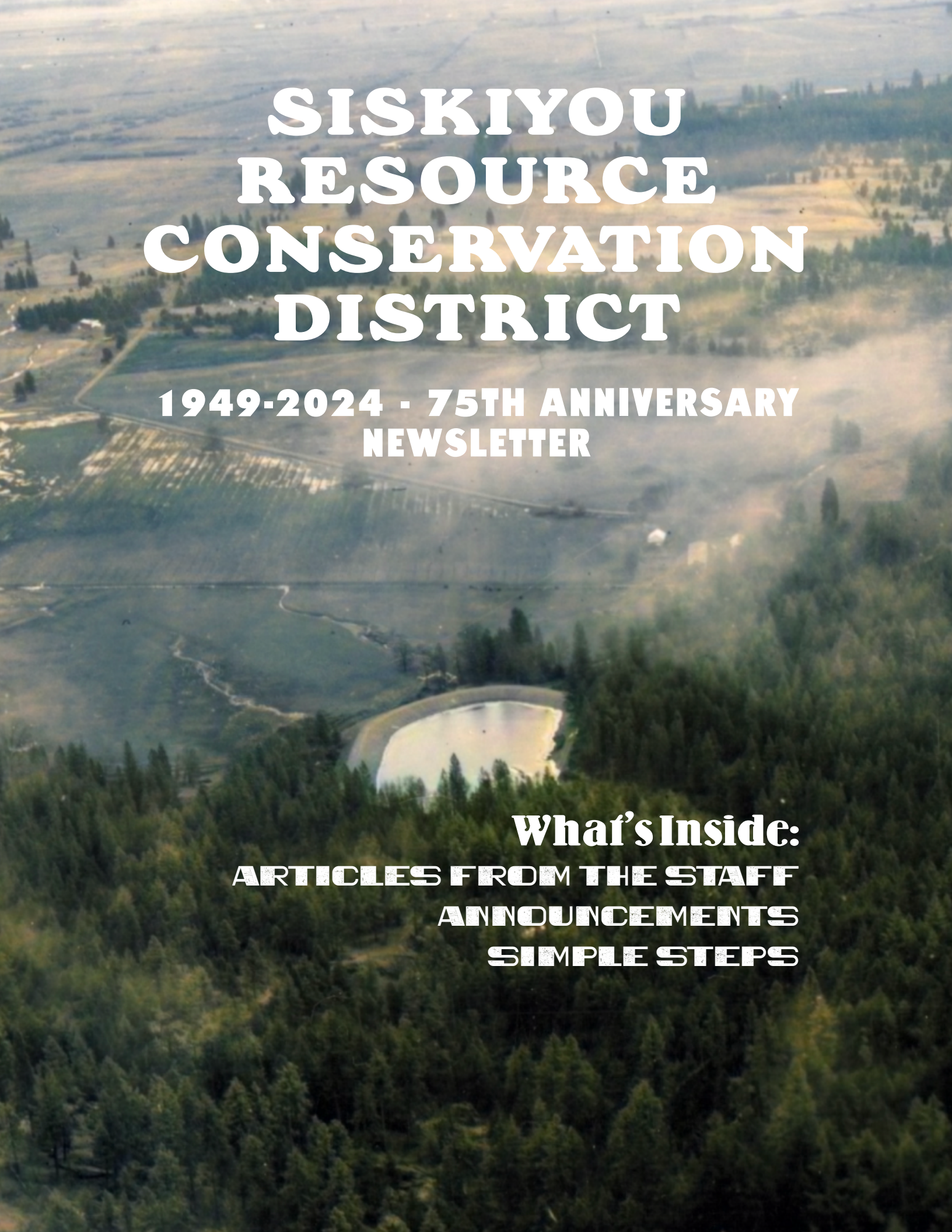

SISKIYOU RESOURCE CONSERVATION DISTRICT

1949-2024 - 75TH ANNIVERSARY NEWSLETTER

What's Inside:

ARTICLES FROM THE STAFF

ANNOUNCEMENTS

SIMPLE STEPS

Scott River at Young's Point and Scott Valley Irrigation District Point after December 1964 flood. This flood was the largest on record with a peak discharge of 54,600 cubic feet per second.

Featured

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A Visit from the Serpas

Gaylene Lyda and Jim Copitzky (pictured above) are the grandchildren of Joe and Inez Serpa (pictured below).

Local reporter and historian Bernita Tucker said: "There is a story which Joe often tells that sums up his philosophy of soil and the stewardship of it: The King of Portugal was riding through the countryside to look upon his people and see how they were getting along. He came to an old, old man who was planting a fig tree. The King said, 'Old man, do you think you will live to eat fruit from that tree?' The old man answered, "Sire, if I don't, someone will.' That, Joe says, has been his philosophy."

One lovely summer morning at the Etna Farmhouse Bakery, in Etna California, we were fortunate and delighted to meet the grandchildren of Joe Serpa.

Joe Serpa left his home and occupation of shore-whaling in the Azores (an archipelago in the Atlantic Ocean, northwest of Portugal) at the age of 19, arriving in Ft. Jones in 1904. He married Inez Simas in 1915, and together they purchased the Klamath Hot Springs Ranch and Resort, turning it into a successful business after just 20 months.

In 1925, they returned to Scott Valley where they purchased their ranch on Serpa Lane and lived out the rest of their days.

Joe grew up learning Azorean farming methods, and over time his interest in soil conservation continued to grow. He said: "All my life, the soil has been precious to me. In my youth, I watched my friends and relatives battle the elements to keep their little bit of soil. I helped carry buckets and wheelbarrows to maintain handmade terraces on steep hillsides. After coming to America, where soil is abundant, I couldn't understand the total disregard for this precious element. I watched painfully the acres and acres of good soil being eroded away each year, in the quest of the almighty dollar."

After the dust storms of the 1930s, conservation concerns came to the forefront of national attention; and in 1935, Congress passed Public Law 46, declaring conscious land use and soil conservation a national policy. In order to translate this new policy into local action, local districts had begun to form all over the country by the 1940s. Joe Serpa tirelessly fought to form a local soil conservation district. Finally in May of 1949, the Siskiyou Soil Conservation District was voted into creation with a tally of 97 to 82.

The SCD became the Siskiyou Resource Conservation District, continuing today to develop projects working with landowners that improve soils, fish and wildlife habitat, and water quality.
- Jamuna Maloney

Adult male coho salmon spawner. Location: East Fork Scott River. Photo captured by Evan Senf. December 2021.

Freshwater to Salt and Back

EXAMINING CHINOOK & COHO SALMONS' PERSISTENT JOURNEY

When the first surveyors from the Hudson Bay Company viewed Scott Valley, they found approximately 462 miles of stream habitat for anadromous fish. Two-hundred sixty-five miles of which were on the east side of the valley.

Currently, some estimates suggest Scott River's salmonid (steelhead trout, chinook and coho salmon) returns are less than 1% of 170 years prior. Despite their steadily declining populations coho salmon and steelhead trout return to the same headwater habitat of the East Fork and South Fork, more than 200 miles from the ocean (SRCD Salmon Studies), they always have.

As autumn advances in Scott Valley, the chinook salmon (king) commence their spawning migration. Typically in mid-October, in response to the cooling weather and the initial rise in water levels, salmon make their way up the Scott River water levels permitting.

King salmon favor the Scott River's main-stem for spawning, seeking areas with deep, swift moving, cool water. In the Scott Valley, Kings often concentrate their spawning activities on the main-stem downstream of Young's Dam, a stretch of river that has historically seen significant spawning activity.

In contrast, coho salmon (silvers) begin their spawning migration through the Scott Valley later in the season. From December through mid-January, when water levels are higher and temperatures cooler, coho navigate the river system. These conditions allow them to travel further upstream, reaching western tributary creeks like Shackleford, French, and Sugar. Surveys conducted as recently as December 2023, show silvers utilize the headwater habitats of the East and South Forks of the Scott River, over 200 miles from the ocean. This journey of more than 400 miles in freshwater alone is crucial for their lifecycle, ensuring that they spawn in habitats that provide the necessary conditions for the survival of their offspring.

Siskiyou Resource Conservation District field technicians have been conducting spawning ground surveys for Coho Salmon since 2001, and Chinook Salmon since 2014. Around the year 2000, it was recognized that baseline population and run data was needed in order to implement and assess restoration plans and efforts specific to each species. These surveys have documented the presence of spawning adults throughout the watershed and been the primary means by which the suspected historic ranges of the species have been evaluated and refined.
- Evan Senf

Above: Evan Senf holds a female steelhead caught and released on the Scott River. February, 2020. Below: A technician sampling an adult Chinook spawner on the main-stem Scott River above Young's Dam. November 2021.

SIMPLE STEPS

Willows and cottonwoods are terrific help in the battle against bank erosion. Willow and cottonwood species grow in North and South America, Europe, and Asia in generally cool areas. Most grow near rivers, lakes, or swamps. Willows and cottonwoods are deciduous and have tough, deep roots. They help to keep the soil of the Scott River from washing away.

Willows vary greatly in size and shape. They may be low shrubs that grow just a few inches above the soil. Some are large trees that reach more than 100 feet (30 meters) in height.

Willow Propagation: The first rule of thumb is soaking your willow cuttings around a day per foot. A 3 foot bundle will be in water for three days, a 5 foot bundle for 5 days, etc. Any barrel, bath, stream, or pond will do as long as the willow bases are in a few inches of water. The soaking times will vary by varieties and time of year.

Willow Planting: Making sure that 8 inches of cutting is underground, use a pointed metal stake or rebar to make holes a bit wider than the stem diameter at the butt end. Plant with buds facing upwards in moisture rich soil.

Cottonwoods can grow to heights of up to 70 to 100 feet. Cottonwood is a fast growing tree when it has adequate moisture and often grows as much as 8 feet per year.

In the wild, cottonwoods are one of the fastest trees to colonize unplanted areas, making it a solid choice for areas prone to flooding and soil erosion.

Cottonwood Propagation: Make cuttings 8 to 10 inches and place in damp pots that have been drained, fill with rooting soil, make a hole for cutting using a pencil, put the cutting in the hole and firmly place potting soil around it. If any leaves are touching the surface of the mix, trim them back.

Cottonwood Planting: Several cuttings can be placed in the same pot as long as leaves don't touch. Rooting will generally occur in 3 to 4 weeks. Cuttings for these trees can be taken at any time but the best times are either as the tree is going dormant in late fall (November) or when it is actively growing (June/July) for California.

Planting these trees reduces stormwater runoff by intercepting falling rain, slowing the force of rain that falls to the ground. The water is held in the bark and leaves, and absorbed through the roots reducing the risk of erosion by holding soil in place.

Trees give off oxygen. Trees reduce stormwater runoff, which reduces erosion and pollution and dampens the effects of flooding. We all depend on trees for habitat. Trees provide food, protection and homes for many birds and mammals. Let's do our part and plant trees!
- Christina Giertz

Unlocking the Aquatic Chronicles

OTOLITHS AS NARRATORS OF SALMON JOURNEYS

Within the inner sanctum of a salmon's ear resides a remarkable storyteller – the otolith. Like a natural black box recorder, these small ear bones meticulously accumulate layers of chemicals unique to the waters they traverse. As each stream imprints its distinct chemical signature upon these otoliths, they become invaluable to researchers, akin to the annals of a natural library, chronicling the sojourns of these aquatic voyagers.

Much like the concentric growth rings of a venerable tree, otoliths develop new layers daily, each a testament to the changing environments the salmon encounters. These microscopically etched patterns reveal a historical account of the fish's life – a narrative of survival, migration, and adaptation. The journey unfolds in layers: from the sheltered natal river of its birth to the branching tributaries that lead to the broader, sediment-rich waters of the estuary. Here, the otoliths record the transition as the salmon enters the vast, saline expanse of the ocean. Each chapter, demarcated by the chemistry of these diverse aquatic realms, is preserved in the crystalline structure of the otolith.

Otolith analysis offers a window into the past, enabling us to decipher the salmon's tale from freshwater fledgling to ocean -faring adult. This information is not just academic; it paints a broader picture of the health of our waterways and the life they support. By understanding the salmon's journey, we gain insight into the ecological tapestry of our rivers and oceans, the challenges faced by migratory species, and the interconnectedness of their existence with our own.

As we pore over these "travel journals" etched within otoliths, we are reading the very pulse of our aquatic ecosystems. It's a narrative that speaks volumes about our environmental stewardship and the legacy we leave in the ripples of our waterways.
- Christina Giertz

Above: SRCD Technician sampling Salmon otoliths 2023.

Above: Chinook otolith bones after removal 2023.

After two centuries of habitat loss beaver are enjoying a population resurgence in the Scott River watershed. This beaver dam on the main-stem of the Scott River provides clean water habitat. Directly downstream of this dam are Chinook Salmon redds. Photo captured December, 2023.

Slow Water

Before the arrival of Hudson Bay Company trappers in the 1830s, the Scott Valley or Beaver Valley as it was then known, supported thousands of beavers as well as numerous human inhabitants. Living alongside the Karuk and Shasta people for thousands of years, beaver shaped the valley, changed the course of the water, and maintained the ecosystem to harbor all manner of life. One of the last surviving original inhabitants of the valley, a Karuk man called Old Man Ruffy described the Scott Valley to the local paper in the early part of the 20th century as follows:

A large part was covered by water. Beaver dams caused the water to spread out over the valley floor. Along one bank of the old lake, part of which is now Etna, tall grasses and many kinds of wildflowers grew in profusion from early spring to late autumn. On the higher ground were many trees, especially several kinds of oaks. The foothills and nearby mountains were covered by thick evergreen forests. In this section of the valley of virgin beauty were many kinds of animals including... "small deer, lots of big dogs, lots of small dogs, lots of big bears with white faces, and small bears both brown and black. The creek was full of many kinds of fish, and there were beaver and many small animals." Food was plentiful.

A similar amount of rain fell on the valley floor then as today around 21.9in. in 1850 vs. about 20in. today (according to USGS). In 1830, the majority of land around the Scott River was flooded in a series of lakes, ponds, and braided waterways. While snowpack was much greater then, the total amount of water flowing through the watershed was comparable to today. The watershed then had plentiful surface water throughout the year.

Beavers fundamentally shape their landscape. Their dams are dynamic, semi-permanent structures. Dams filter water, letting silt (and gold) settle out of the water column. The dams slow water allowing for percolation into the ground. The increase in surface water encourages riparian habitat (not to mention excellent summer Coho habitat). The resulting evapotranspiration of all those riparian trees increases the local humidity and protects the riverine landscape from fire. Water that infiltrates into the ground returns to the surface downstream during summer months cooler and fresher. The filtering of sediment keeps stream-beds in ideal condition for salmon spawning. For millennia, beaver were the keystone species in the valley. Their dam building and tree felling shaped the landscape to hold water and support salmon.

In the 1950s, the USGS rated the annual flow of the valley to be upwards of 450,000 acre-feet per year. In the past, that water moved slowly through the landscape over the course of the year due to these engineering rodents.

In his History of Siskiyou California, author Harry Wells reported trappers in the 1850s: ***Trapped 1800 beaver on both forks of the Scott River in one month. It was "the richest place for beaver I ever saw", claimed one trapper many years later.*** He also described the Scott Valley as all one swamp caused by the beaver dams.

Estimates of beaver population in North America before 1492 range from 60 to well above 100 million beavers. In the Scott Valley alone, thousands of beavers were trapped and thousands of beaver dams failed. By the late 1800s, most of the beaver had been killed allowing spring floods coming off the snow melt in the Marble Mountains to rush through the valley. The Scott River was reduced from a complicated multi-braided system into a quick moving single channel. Without dams and trees to slow the water, the river eroded its banks and incised into the floodplains. In May 1855 (about 20 years into beaver trapping and five years into mining), one observer described the Scott River in the valley as "from thirty to forty yards in width, deep in many places, with a current of from five to seven miles per hour", much the same as the river today.

The landscape suffered further abuses with the arrival of gold miners in the 1850s. Mining was particularly destructive to the Scott River. Gold-bearing placer deposits were blasted with water to wash away gravel, sluicing huge volumes of sediment, sediment that once held groundwater and acted to sponge up the snowmelt. Watercourses were diverted and channelized. Erosion and flooding resulted. The final decades of mining brought the most destruction. Operating through the 1940s, large dredges excavated deep below the river bed in the upper valley, creating the present day tailing piles.

The US Army Corp of Engineers further altered the river and the hydrology of the valley in response to the flooding caused by trapping, mining, and logging. Throughout the 1950s and 60s, the progressive government of the time worked to speed the flow of water through the valley.

To reduce flooding caused by beaver removal, mining, and logging, the government reduced the ability of the watershed to recharge. The levees built by the government protected ranchers and allowed farmers in the valley to greatly increase the amount of land under cultivation. Electrification in the 1950s allowed for groundwater pumping to replace surface water irrigation.

In recent decades, state and federal governments have promoted groundwater extraction over surface water diversion, further reducing the connection between surface and groundwater systems. California Department of Water Resources estimated an increase in groundwater irrigation from 2% to 45% between 1958 to 2000. Total irrigation withdrawals in the valley have also increased 115% in that time. This increase in total irrigation consisted almost exclusively of groundwater extraction. Efficient irrigation systems and piped ditches no longer leak water into the ground or lose water to evaporation. The air and ground are drier as a result.

Despite the past actions of the trappers, miners, and loggers, the disastrous policies of state and federal government against the original inhabitants of this land, the years of beaver removal by the State of California, the years of pesticide use by the USDA and others in the national forests, the straightening of the river by the government, the Scott River still provides water for crops, livestock, fish, wildlife, and humans.

Tree rip-rap along Scott River. There were a total of six irrigation wells in the valley at this time. Photographer: Tumelson. May 12th, 1954.

Bank cutting and erosion along Scott River. Photographer: J. Nichols December 28th, 1955.

Lower Scott Valley Channel Stabilization. 1957. Tozier Brothers cabling trees to piling for jetties.

Tree rip rap along Scott River. Vegetation has been planted on bank to give added protection. 2023.

Today the SRCD is partnering with state, federal, and private funders, to re-vitalize a portion of the upper watershed. Covering more than a mile of the Scott's South Fork, the SRCD has been undertaken work on an abandoned mining site called Springtown. Engineered log jams have been placed to slow and redirect the high flows onto the abandoned floodplain. The slowing and spreading of the high water are providing habitat and refuge for salmon and trout. The water stays on the landscape longer and infiltrates into the floodplain, encouraging vegetative growth such as alder and willow. The water emerges downstream as cool spring water.

Planting deep-rooted trees in the riparian corridors will pull up groundwater to transpire in the summer months to cool and humidify the river corridor. Adding organic carbon to the topsoil through cover cropping and wetland development will enhance water infiltration and increase soil moisture. Incorporating biochar compost into the topsoil will enhance soil infiltration and soil structure. Prescribed burning will re-invigorate natural upland ecosystems. Flooding fields during the winter months will slow, spread, and sink surface water coming off the mountains. Building beaver dam analogs, loading the river with woody debris, and installing engineered log jams will mimic the effects of beaver.

Since its inception in 1949, the Siskiyou Resource Conservation District has been working to repair the aforementioned damage to the watershed. For better or worse, many years and much effort went into installing rip rap and planting willows to stabilize the banks of the Scott. The SRCD worked to prevent upslope erosion in the logged mountains, to protect the rivers with fencing, and to install fish screens on irrigation diversions.

The SRCD and other agencies are working to demonstrate the benefit of slowing the water and we hope to continue working to benefit landowners in their efforts at conserving and using their natural resources in a sustainable and profitable manner. There is more than enough water flowing through the watershed to provide an ideal habitat for fish and water for agricultural and other human needs. Slow, spread, and sink the water in the winter months. The wet winter is the time to address drought mitigation. Spread the water, slow the water, sink the water.

- Lindsay Cummings

Resource Harvesting

A wonderful thing about the field of resource conservation is that the concept is incredibly broad. It is wide open for endless useful applications. There are the natural resources we focus on at the SRCD, but in day-to-day life we are constantly navigating a web of resource limitations, including financial resources, mental resources, and so forth. Ultimately, the availability and usage of resources sets the tone for our personal lives, our families, communities, and all the way up.

Trying to understand conservation issues in terms of an entire watershed can seem overwhelming, let alone considering national or global level challenges, but resource conservation really starts at home. Wherever we can become more efficient and less reliant on outside inputs as individuals and households, we are actively working to make our communities stronger and more resilient.

Resources are constantly flowing through our homes in the forms of water, electricity, heating sources, and food. Conservation in these areas can reduce our costs and provide various other benefits. Beyond that, our homes and properties are constantly receiving free energy in the forms of wind, sunlight, and rainfall. Having the ability to harness and utilize some of that energy can reduce our cost of living and help to prepare us for a wide variety of difficult circumstances.

Harvesting rainwater is an ancient practice that involves capturing precipitation and storing it for later use. The stored water can then be used during emergencies or to offset regular water usage and additionally may be more ideal for our gardens and plants than other water sources due to the pH (1).

A common way of calculating the amount of rainfall we might be able to collect is to multiply the square footage of available roof space by the amount of precipitation by a conversion factor of 0.62 and then by a reasonable collection factor efficiency of 75% (1). As an example, the National Center for Environmental Information says that Siskiyou County received 2 inches of precipitation in April of 2023, thus for a 1000 sq foot roof we could expect: 1000 sq ft (roof area) x 2" (rainfall) x 0.62 (conversion factor) x .75 (efficiency) = 930 gallons of potential storage during that month.

Nine hundred and thirty gallons may not seem like much, but having the ability to capture that amount of water reliably and save it for later use may make all the difference when things get hot and dry or during any type of emergency situation. Anyone who has ever had a well go dry can imagine the peace of mind having even such a small buffer could offer.

There are a variety of options for water storage. One simple kit that utilizes an existing gutter system and 20 recycled food grade plastic barrels could accommodate 1000 gallons of storage and be purchased for under $1200 as of December, 2023 (2).

There are a lot of different approaches when it comes to rainwater harvesting systems and every system will be unique, but if you have a roof that receives rainfall you could be making use of this freely available energy source.

"Resource conservation starts at home," is a phrase I often repeat. Rainwater harvesting is one way we can prepare ourselves and our communities for troubled times - one that I believe is worth seriously considering, particularly for small landholders who depend on wells. I plan to install my own rainwater harvesting setup in 2024; check out our Instagram for updates and details! Cheers. *- Tully Doyle*

1 - www.watercache.com
2 - www.bluebarrelsystems.com

Accumulated snow during the winter of 1963-64 on trucks in the Scott Valley.

Pinky Bill Matthews and two associates posing with the helicopter used in capturing aerial photography still archived at the SRCD's office. *(1950's).* Visit our website's digital library page for an interview with *Pinky* and to see other historic photos like this *(siskiyourcd.com)*.