



Confluence

Native Vegetation Restoration
Ecological Landscapes
Natural Resource Monitoring



Confluence
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Confluence is a Landscape Contracting and Environmental Consulting firm based in Santa Cruz, California. Offering a wide range of complementary services, Confluence specializes in ecological landscapes, restoration plans and natural resource monitoring.



NATIVE VEGETATION RESTORATION

Aside from the inherent wildlife and aesthetic value, vegetation plays a vital role in the stabilization of slopes and stream banks. Once denuded by landslide or development, the erosion potential of that area increases dramatically. Re-establishing native vegetation is often the most cost-effective and aesthetic solution.

Confluence works with private land owners and public agencies in design, installation, and maintenance of native vegetation projects.

- Revegetation plans
- Remote irrigation
- Erosion control
- Maintenance

ECOLOGICAL LANDSCAPES

Drawing on years of local landscaping experience, Confluence designs and installs high quality gardens that fit your aesthetic and functional needs. Confluence believes that every home and garden has an inherent aesthetic value that can fade as new development or neglect persists. Armed with an acute sense of place, a wide pallet of plant material and the fundamentals of permanent construction, confluence can help you create a space that you can be proud of.

- Site specific planting plans
- Automated irrigation systems

- Retaining walls
- Pathways
- Patios
- Woodworking
- Lighting

NATURAL RESOURCE MONITORING

As our industrial society increases its demands on the natural environment we must be prepared to make educated decisions on environmental issues.

Collaborating with public and private agencies on projects throughout central California, Confluence specializes in quantitative data collection and monitoring of aquatic resources. Confluence has fabricated and maintained numerous automated hydrologic and water quality data collection devices throughout California.

Through innovative design and rigorous field work, Confluence provides tangible data for resource planners and environmental consulting firms to make key management strategy decisions on future restoration efforts.

- Surface water hydrology + geomorphology
- Groundwater monitoring
- BMP monitoring
- Water quality monitoring
- California fisheries monitoring

NATIVE VEGETATION RESTORATION

COWARD CREEK BIOMITIGATION
WATSONVILLE, CA 2005

The right bank of Coward Creek collapsed in a storm damaging Carlton Road in Watsonville, California. Confluence installed the biomitigation plans issued by the Department of Public Works Engineer. The project involved live willow staking, erosion blankets, and riparian woodland re-vegetation for long-term erosion control in the impacted area.



CORRALITOS CREEK BIOMITIGATION
CORRALITOS, CA 2005

Several acres were damaged at the bridge failure on Corralitos Creek and Browns Valley Road in 2000. With extremely sandy soil and intense gopher activity many tried and failed to establish upland vegetation. Confluence resurrected the existing woodland and riparian planting using an innovative remote irrigation system and invasive weed eradication.



COUNTY OF SANTA CRUZ, RIPARIAN RESTORATION SITE
SANTA CRUZ, CA 2003-2006

At more than 20 locations in Santa Cruz County, Confluence has installed and monitored biomitigation plans for the Department of Public Works. This is an on going contract with typical sites that include installation and monitoring of native vegetation lost by landslides, road failures and construction. These sites are monitored through the dry season until vegetation is established.



ECOLOGICAL PLANTING PLAN
CORRALITOS, CA 2005

Working with local landowner, Wayne Miller, Confluence designed a drought resistant, native planting plan to border an organic apple orchard on Corralitos Creek. The project goal was to reduce wind and water erosion, inhibit encroachment of invasive weed species, and increase local biodiversity by attracting beneficial insects and wildlife.



ECOLOGICAL LANDSCAPES

SHIMIZU-JONES RESIDENCE, APTOS, CA 2005

This project involved the transformation of unusable backyard hill-slope to an inviting garden with patios and open vistas. Working with designer, Michelle Swanson of cultivat&art, Confluence constructed mortared rock walls, a western Red Cedar pergola, slate patio, a deck of Brazilian Redwood, and installed drought tolerant vegetation in gopher baskets with an automatic irrigation system.



LIPSON RESIDENCE, SOQUEL, CA 2004

Years of poor planning and neglect inhibited the natural beauty and functionality inherent to the landscape. Confluence collaborated with the home owners to find their balance of functional and aesthetic needs. The project included rerouting primary automobile parking and foot-traffic with lit flagstone pathways that meander through colorful drought resistant planting beds, a pond, and an elegant outdoor patio that overlooks Soquel Creek watershed.



BOUTELL RESIDENCE, SANTA CRUZ, CA 2003

This small-scale garden in the heart of Seabright in Santa Cruz has all the component of a large landscape without the feeling of being cramped. Confluence's design provides easy access around the house with a variety of attractive perennial beds, custom woodwork, a flagstone patio, and decorative boulders to anchor the landscape.



ROBSON RESIDENCE, SEA CLIFF, CA, 2006

Working with Natural Gardens design team, Confluence brought the life back into this beach front property. It was out with the old and in with the new. Large tumbled flagstones leading you to the beach from the outdoor shower and strategically placed lights guiding you through the colorful planting, it was a total transformation. As part-time residence, they enjoy the completely automated system for irrigation and lighting.



NATURAL RESOURCE MONITORING

SALINAS RIVER LAGOON MONITORING
 MONTEREY COUNTY, CA 2002-2006

This is an ongoing mitigation project working with Jeff Hagar of Hagar Environmental monitoring steelhead populations in the Salinas River lagoon for the County of Monterey. This project includes fish seining, water quality data collection, and breach monitoring.



COMPARATIVE LAGOON ECOLOGICAL ASSESSMENT PLAN
 SANTA CRUZ, CA 2003-2005

This project, developed by Dr. Nicole Beck of 2NDNATURE and the Coastal Conservancy, is a multi-disciplinary data collection effort to better understand the function of central coast lagoons. Confluence's role included design and installation of continuous data loggers, fish seining, invertebrate sampling, and water quality monitoring.



CITY OF SOUTH LAKE SURFACE WATER/GROUNDWATER
 NUTRIENT - SOUTH LAKE TAHOE, CA 2005

The project, designed by Dr. Beck of 2NDNATURE for the City of South Lake Tahoe, is to assess the fluxes and fates of urban surface water nutrients infiltrated to shallow groundwater via storm water treatment systems. As a consultant and the primary field personnel, Confluence installed numerous quantitative data loggers and performs storm event sampling of surface and groundwater.



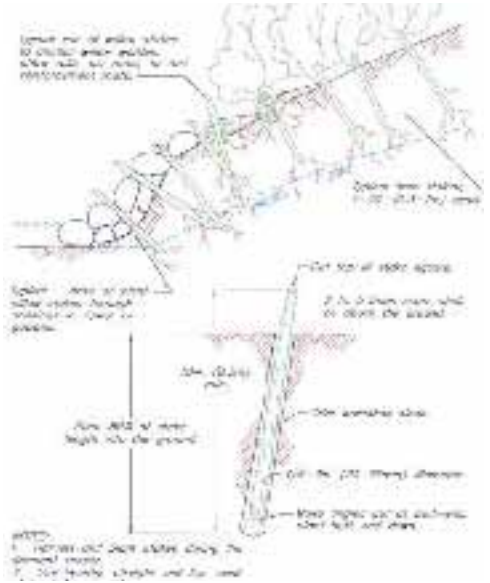
BURKE CREEK BMP MONITORING
 STATE LINE, NV 2004-06

This an ongoing study to quantify the efficacy of various residential BMP projects in reducing erosion and surface runoff in State Line Nevada. Working with NTC and 2NDNATURE, Confluence consulted on experimental design, design and installation of passive sampling devices, and cross-section surveys.





- Riparian vegetation
- Willow stakes
- Rock slope protection
- Transplanted ferns



NATIVE VEGETATION RESTORATION

GREEN VALLEY CREEK RIPARIAN RESTORATION

WATSONVILLE, CA 2004

At the intersection of Green Valley Road, P.M. .38, and Green Valley Creek the undersized culvert failed causing extensive damage to the river bank and road. Working with the County of Santa Cruz's Landscape Architect and Resource Planner, Confluence took a lead role in the design, construction, and monitoring of the riparian restoration project. The project included importing soil, routing surface and shallow groundwater through a rock-lined swale, and establishing native riparian vegetation. The soil was retained using a combination of 100 live Willow stakes, 80 trees and herbaceous vegetation, coir rolls and native duff.





Grasses

Mixed perennial beds

100' of dry creek bed



ECOLOGICAL LANDSCAPES

JOYE JOHNSON RESIDENTIAL

SCOTTS VALLEY, CA 2003

Located off Glenwood Drive in Scotts Valley, Confluence worked with homeowner Joye Johnson to create a low-maintenance, deer, gopher, and drought resistant landscape. The hardscaping component included design and construction of Arizona flagstone pathways, automated irrigation system, a re-circulating water feature, and 100' of dry creek bed. The planting palette for the mixed perennial beds integrated a variety of native cultivars, including Manzanita, Salvia, Mimulus, and grass species, with some Mediterranean favorites, such as lavender, yarrow, kangaroo paw, and phormium. Confluence also designed a live fence of native plants, which can be removed from irrigation, along the property boundary to shield utilities and the road from view.





- Staff plate
- Water quality data logger
- Outflow weir
- Passive sampler



> This project was recently extended by an EPA grant to design and implement a recirculation system for the wetland. Confluence designed and installed a system that will increase circulation and conserve resources by pumping water from the pond to irrigate and fertilize 17,000 square feet of turf adjacent to the wetland. The project will be installed spring of 2006.

NATURAL RESOURCE MONITORING

VILLAGE GREEN POND MONITORING PROJECT

INCLINE VILLAGE, NV 2003-2006

Confluence worked with 2NDNATURE and Swanson Hydrology + Geomorphology, for the Nevada Tahoe Resource Conservation District, to gain quantitative data on nutrient cycling in wetlands. As a consultant and 2NDNATURE's primary field personnel, Confluence is responsible for the surface water instrumentation and groundwater monitoring. Instrumentation included real-time water quality logger, surface and groundwater level loggers, and an outflow weir with passive samplers in the outflow channel. Confluence continues to collect real-time and storm event data for the surface and groundwater on this ongoing project.





Founders, Ryan Yarbrough and Doug Sommerville, have been working together for the past ten years in environmental science and construction. Confluence is the culmination of their ability to integrate an academic understanding of hydrology, ecology, biology and geomorphology with the fundamentals of landscape design and construction.

RYAN YARBROUGH

EXPERIENCE

Swanson Hydrology + Geomorphology (1999-2004)
Associate Hydrologist

Hagar Environmental Science (2001-2005)
Field Technician

Yarbrough Gardens (1999-2002)
Sole Proprietor

EDUCATION

B.S. Hydrological Science
University of California at Santa Barbara, 1997

B.S. Environmental Science
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DOUG SOMMERVILLE

EXPERIENCE

Hagar Environmental Science (2003-2005)
Field Technician

Fenisey's Creative Landscapes (2000-2002)
Foreman

Peace Corps (1998-2000)
Aquaculture program director

EDUCATION

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University of California at Santa Barbara, 1995

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