A group of people, including students and staff, are gathered in a field with tall grasses and trees in the background. They are looking at a smartphone held by one of the individuals. The scene is outdoors and appears to be a field study or a group activity.

SONOMA
STATE UNIVERSITY

Center for
Environmental Inquiry

2016 ANNUAL REPORT

SOMETHING SPECIAL IS HAPPENING AT SSU'S PRESERVES

Dear Friend,

At Sonoma State University, we give all students the opportunity to learn from the outdoors in a very practical way: by working on real-world environmental challenges.

The urgency to address these challenges couldn't be greater. In 2016, the World Economic Forum identified climate change as the biggest potential threat to the global economy. Our educational institutions need to get in front of this challenge.

At SSU, we are fortunate to have over 4,200 acres of nature preserves to study and address these challenges. Through the Center for Environmental Inquiry, we are finding ways for students and faculty to work with industry partners on key environmental issues. In 2016, these included topics such as water shortage, loss of biodiversity, climate change, and more.

These experiences are incredibly powerful. We're not talking about old-fashioned field trips! Instead, students are getting out in the field to collect data, analyze the results, and collaborate on finding creative solutions. These experiences are helping students develop 21st century job skills. They're also helping our partners generate new research and gain access to a talented pool of job candidates.

I continue to be amazed by the incredible work being done by our faculty and students. In fact, this year we conducted a record number of projects with our community partners—41 in total. Through this annual report you will get a glimpse into the powerful and important work being done through the Center.

With our society facing the biggest environmental challenges in history, I cannot think of a better way to prepare tomorrow's leaders. Please read on to learn more and join us in creating an Environmentally Ready Generation!

Sincerely,

Dr. Claudia Luke, Director, SSU Center for Environmental Inquiry



2016 PARTICIPANTS:

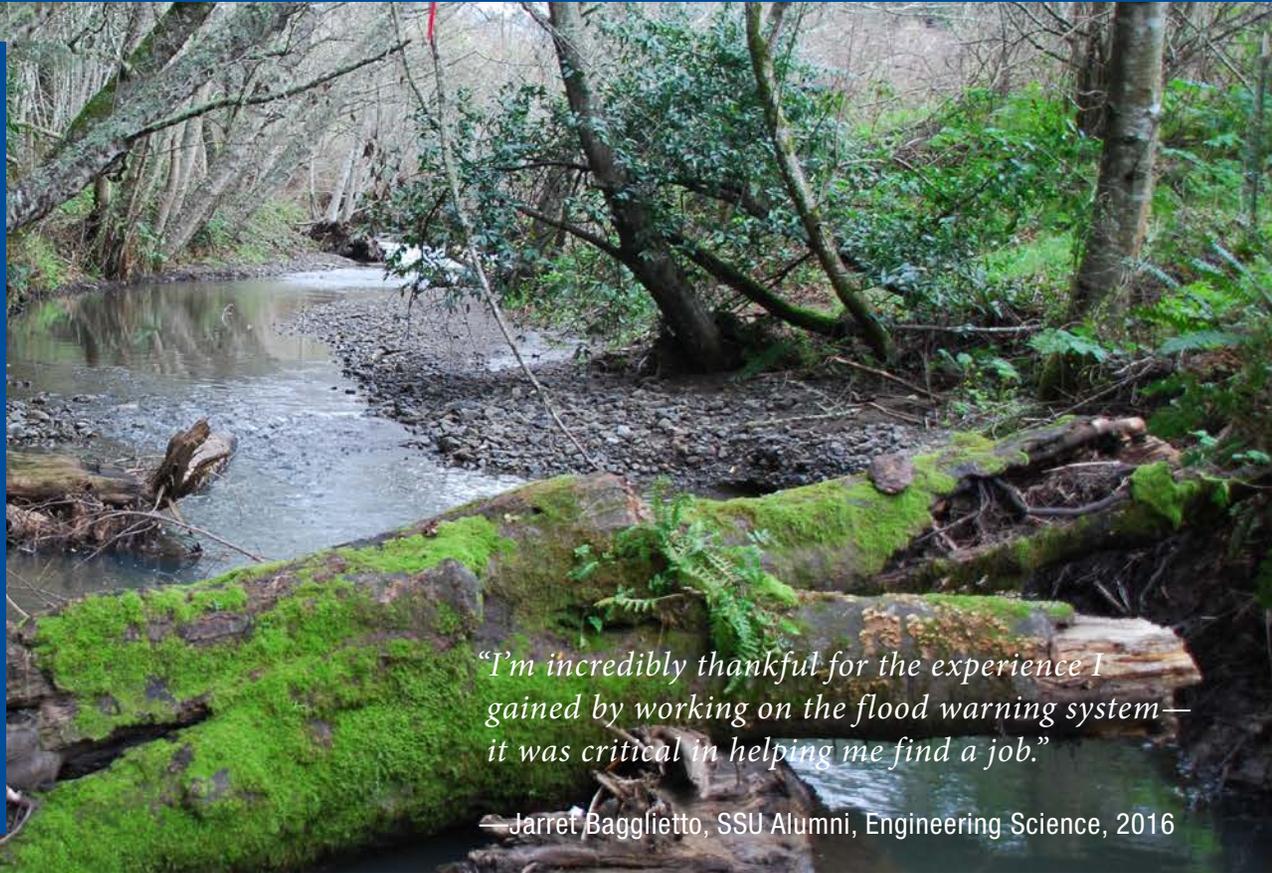
- » 1,243 university students
- » 1,110 K-12 students
- » 605 adult community members

OUTDOOR LEARNING FOR ALL DEGREES

You cannot ask for a more powerful learning tool than nature! Through the Center for Environmental Inquiry, we are finding ways to make learning experiences in and around SSU's preserves relevant to all degrees.

A great example this year was the Nature!Tech Collaborative, a new program that we launched in the fall. Through it, we are bringing faculty and students from engineering and computer science together to work on a variety of environmental issues. One of the most intriguing projects was the development of an early flood warning system for the city of Rohnert Park. In fact, this past spring, Senior Jarrett Baglietto and Engineering Science professor Dr. Farid Farahmand shared their plans for this new technology at a global 'Tech Jam' event sponsored by the National Institute of Science & Technology.

Today's ecological challenges are big and complex. To solve them, we need to bring as many disciplines to the table as we can. Doing so will encourage the kind of innovative thinking society needs to address these challenges.



"I'm incredibly thankful for the experience I gained by working on the flood warning system—it was critical in helping me find a job."

—Jarret Baglietto, SSU Alumni, Engineering Science, 2016

IN 2016, 49 FACULTY MEMBERS FROM 22 DEPARTMENTS WORKED ON PROJECTS AS PART OF CENTER PROGRAMS

SSU FACULTY:

Owen Afinson, Geology
Bron Anderson, Philosophy
Carlos Ayala, Education
Jeff Baldwin, Geography
Caroline Christian, ENSP
Matt Clark, Geography
Mike Cohen, Biology
Hall Cushman, Biology
Scott Eberle, Psychology
Eric Edlund, Geography
Steve Estes, History
Farid Farahmand, Engineering Science
Laura Garrison, Biology
Nicholas Geist, Biology
Robert Girling, Business

Derek Girman, Biology
Michelle Goman, Geography
Jacquelyn Guilford, CEI
Chris Halle, Engineering Science
Debora Hammond, Hutchins School
Genevieve Healy, Geography
Roberta Hodges, American Language Institute
Laurel Holmstrom-Keyes, Women's and Gender Studies
Fran Keller, Biology
Mads Lynnerup, Art
Nicole Myers, Geology
Mark Perri, Chemistry
Adrian Praetzellis, Anthropology
Jeremy Qualls, CEI

Nathan Rank, Biology
Rocky Rohwedder, ENSP
Russ Scarola, Hutchins School
Scott Severson, Physics
Martha Shott, Math and Stats
Wendy St. John, Biology
John Sullins, Philosophy
Tamas Torok, Biology

FACULTY FROM OTHER UNIVERSITIES:

Janice Alexander, Santa Rosa Junior College
Jenny Davidson, Bowdoin College
Daniel Fernandez, CSU-Monterey Bay

Sue Blondell, Mendocino Community College
Steve Cardimona, Mendocino Community College
David Hilton, UC-San Diego
Elyse Lord, UC-Davis
Bruce Kendall, UC-Santa Barbara
Ross Meentemeyer, University of North Carolina
Charles Mitchell, University of North Carolina
Kasey Wade, Santa Rosa Junior College
Dave Rizzo, UC-Davis



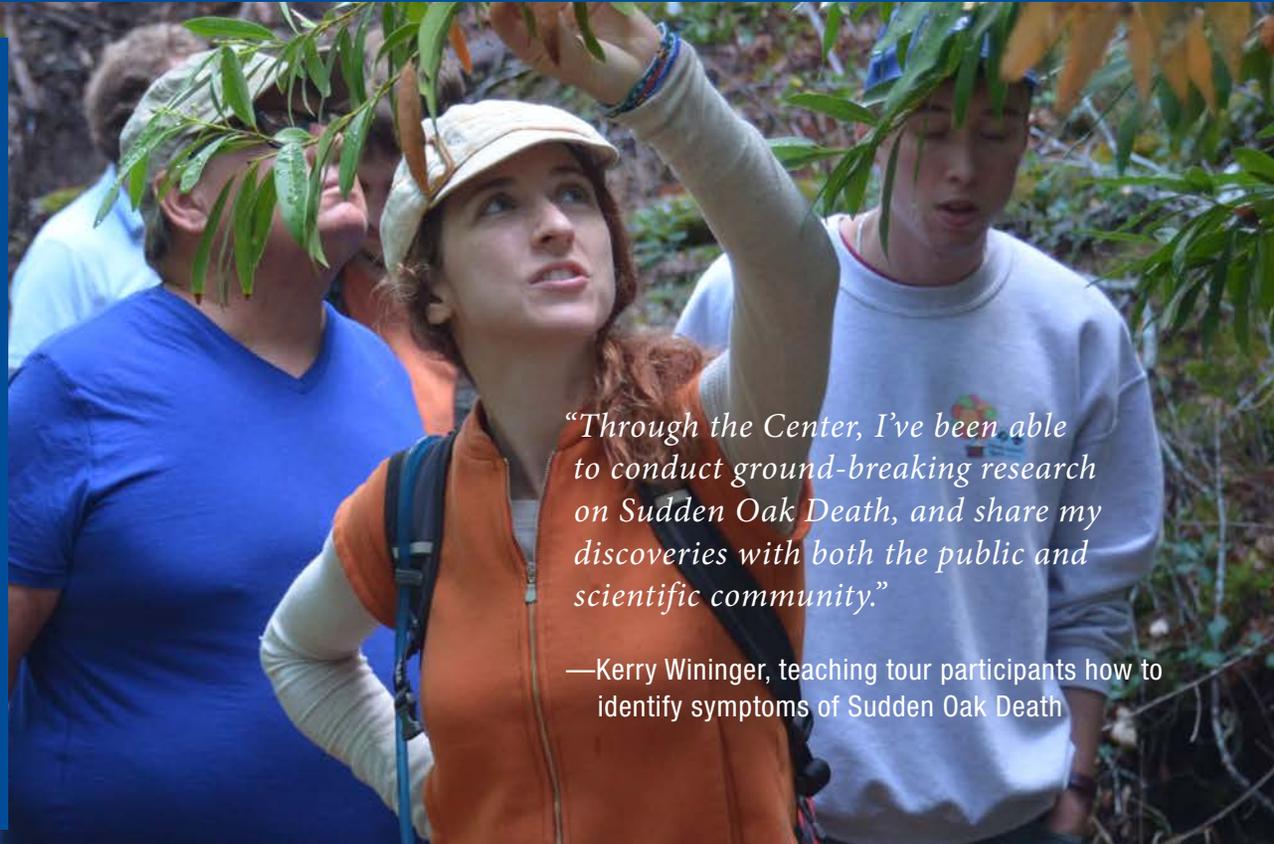
Professor Farid Farahmand and Jarrett Baglietto presenting the flood warning system at the 'Global Tech Jam' event

REAL WORLD CHALLENGES

One of the best ways to prepare for the future is to work on real-world challenges. It's an approach to education that we embrace at SSU—and one that is helping students in more ways than you might realize. Just ask SSU graduate student Kerry Winger.

Kerry has been studying Sudden Oak Death, a disease that is causing dramatic declines in oaks across California. We supported Kerry's work through partnerships established with Pacific Gas and Electric Company and other local organizations. "It's been an incredible experience," says Kerry, a candidate for Master of Science in Biology. "I've been able to conduct my own unique research on interactions between insects and the disease, present my findings at major conferences, and meet with international thought leaders."

Partnerships around real world challenges are helping students grow, both academically and professionally. And they are also helping our partner organizations answer critical environmental questions. It's a true win-win that attracts more and more partners each year.



"Through the Center, I've been able to conduct ground-breaking research on Sudden Oak Death, and share my discoveries with both the public and scientific community."

—Kerry Winger, teaching tour participants how to identify symptoms of Sudden Oak Death

IN 2016, 64 ORGANIZATIONS WORKED ON ENVIRONMENTAL CHALLENGES AS PART OF CENTER PROGRAMS

Aerotestra
Austin Creek Elementary
Bellevue Elementary
Biella Elementary
Bodega Marine Reserve
California Department of Fish and Wildlife
California Geological Survey
California Lichen Society
California Regional Environmental Education Committee
City of Rohnert Park
City of Santa Rosa
D'Argenzio Winery
Dew Mobility
Dunham Elementary
Evergreen Elementary

Goldridge Resource Conservation Service
Grant Elementary
Gravenstein Elementary
Green Flash Consulting
Hidden Valley Elementary
Hopland Research Extension Center
IBM
Jack London Elementary
KZYX
Laguna de Santa Rosa Foundation
Madrone Audubon Society
Mendocino County
Mendocino County RCD
Miwok Valley Elementary
Monte Vista Elementary
National Audubon Society

National Resource Conservation Service
Occidental Arts and Ecology Center
Outward Bound
Pacific Gas and Electric Company
Pacific Watershed Associates
Penngrove Elementary
Pepperwood Preserve
Pollinator Partnership
Proctor Terrace Elementary
Rancho Adobe Fire District
Rancho Cotati High School
Richmond College Prep
Roseland Creek Elementary
Sacramento Municipal Utility District
Santa Rosa Junior College
Smart City SGA/R20
Social Advocates for Youth

Sonoma County Agricultural Preservation and Open Space District
Sonoma County Sustainable Tourism Observatory
Sonoma County Water Agency
Sonoma Land Trust
Sonoma Mountain Ranch Preserve
Strawberry Elementary
Sustainable North Bay
The Nature Conservancy
Tree Farm, Eldorado
United Arborists Association
University of North Carolina
US Fish & Wildlife
US Forest Service
Vintners Square
Wilson Elementary
Yorkville Highlands Growers and Vintners Association

INNOVATIVE, HANDS-ON PROJECTS

Outdoor learning and real world challenges are a powerful mix—one that often leads to innovation. Just ask Ken Rau, a double major in Philosophy and Psychology, and Jorge Casanova, a double major in Philosophy and Environmental Science.

Working under the guidance of Philosophy professor John Sullins, Ken and Jorge created a Lego-based robot to monitor micro environments in tree canopies at SSU's Fairfield Osborn Preserve. Their design exemplified philosophical values such as leaving a small footprint, stewarding nature without overt control, and making something to capture the imagination of visitors to the preserve, especially the many school children who visit each year.

These kind of hands-on projects improve learning retention and help students develop 21st century job skills, such as communication and creative problem solving. They can also help students find a job: Jorge landed an internship with Sonoma Clean Power Company.



“Working on this robot was a unique opportunity for me to mix both my majors”

—Jorge Casanova, Double Major in Philosophy and Environmental Studies

IN 2016, STUDENTS WORKED ON OVER 40 REAL WORLD PROJECTS WITH COMMUNITY PARTNERS, INCLUDING:

- Antibiotics in wastewater
- Excess nutrients in stream sediments
- Sustainable water solutions in K-12 schools
- Philosophical values that drive water use choices
- Douglas fir dominance along streams
- Environmental sensor-to-screen network
- Automated early flood warning system
- Computer software for studying rainfall and fire
- Clay sculptures in a rainy world
- Nature tours for elementary schools
- Habitat restoration at five sites in west county
- Water monitoring system for wells and storage
- Animal response to climate change
- Animal response to utility corridor management
- Computer program design to study CO2 and temperature across the US
- Biotreatment of winery wastewater
- Solar optimization for sensors
- Image processing for autonomous outdoor vehicles



Students Ken Rau, Jonah Baumgartner, and Jorge Casanova showing off the robot at this year's Symposium on Research and Creativity, with Nature!Tech lead Chris Halle

2016: A YEAR OF GROWING PARTNERSHIPS



Students participating in an Outward Bound program at the Galbreath preserve

This year, we continued to grow our programs to provide transformational experiences for students of all ages.

Our first Nature!Tech Conference, for example, sparked five new long-term partnerships with technology companies. Thanks to the generosity of Pacific Gas and Electric Company and the Green Music Center, this conference explored topics such as nature as a model for innovation, drones for gathering data, phone apps to eliminate litter, and more. Our new partners include the drone company Aerotestra and Seventh Generation Advisors and Region 20, as part of the Smart City Initiative.

We also infused new ideas and expertise into programs by forging a new partnership with Outward Bound California. Outward Bound is known for



Nature!Tech Conference



Jeff Kirschner, CEO of Litterati.org, speaking at the Nature!Tech Conference

providing transformational leadership training in the outdoors. Thanks to the generosity and vision of Jim Kuhns, one of our donors and volunteers, we kick-started a collaboration with a training for Sonoma State students in our Naturalist Training program. They not only learned about themselves and each other, but are using what they learned to teach elementary school students.

And to top off the year, one of our most active partners, the Sonoma County Water Agency, awarded the Center a new three-year, \$339K contract to expand the Center's Waters Collaborative. The new award increases the number of faculty and students we can support, and includes special projects in water research, restoration, and water use planning.

2016: A YEAR OF PLANNING



Architectural rendering of planned Galbreath cabins

Over the last six years, participation in the Center's programs increased by nearly eight fold. As a result, we are actively working on expanding capacity so that all students at SSU have the opportunity to work on a real-world environmental challenge before they graduate.

Our near-term goal is to provide more students with overnight experiences at both the Fairfield Osborn and Galbreath Wildlands preserves, our two most active sites. At the moment, we have very limited overnight capabilities. However, thanks to the generosity of donors Bill and Joan Roth, Daphne Smith, and Bob Johnson, we have begun to make more overnight stays possible.

Longer term, we have a vision to build a 21st century learning facility at the 3,670-acre Galbreath, which is located less than an hour from campus. This year we completed a facility plan with RIM Architects—as you can

see, they are beautiful! More importantly, they are innovative. The buildings not only demonstrate the latest principles in sustainability, but also use biophilic design to connect people to each other, and smart technology to teach visitors how their actions affect the earth's resources.

The facilities at the Galbreath will enable us to grow our programs and reach all SSU students, no matter what their major, to prepare them for the environmental challenges that they are sure to face in the future.

A BIG THANK YOU TO OUR VOLUNTEERS!

The Center is grateful to have the support of many volunteers. They help us do all kinds of things, from organizing events to creating signs to conducting research at our preserves. A big thank you, among many, to the following people:

John Branscome
Kurt Feichtmeir and Gerald Reis
Michelle Friend
Diane Fritz
Nick Geist
Tom Gillespie
Michelle Goman
Peter Gordon and Tina Walter
Wayne Haydon
Janet Henker
Jim Kuhns
Pamela Lanier
George and Kit Lee
Jason McGuire
Kyle Rabellino
Nathan Rank
Osborn Program Naturalists
Mark and Margot Rawlins
Garrett Shipway
Ana Torres
Ryan Williamson
Kerry Winger

2016: A YEAR OF SPREADING THE MESSAGE



*Students at the
Fairfield Osborn
Preserve*

The Center's approach to environmental education is unique. Importantly, it is a great way to build connections between the University and the community. This helps the community benefit from the University's research expertise, it helps students get real world experience, and it helps enhance learning and research for everyone involved.

This year, we were pleased to be invited to speak at a number of events. These included:

- The IE Sonoma Conference, an event which explores innovation in education
- The Sustainable Enterprise Conference, a high-profile event which looks at sustainability trends in Sonoma County and beyond

- The annual meeting of the Organization of Biological Field Stations, a network of over 200 national and international university field sites

In addition to these events, we also shared our approach and our plans with the communities surrounding our preserves.

There is a lot of excitement about working together to create an environmentally ready generation – we hope to see you at one of our events next year!



Director Claudia Luke speaking at IE Sonoma

WE COULDN'T DO THIS WITHOUT YOU

Through the generosity of donors to the Center for Environmental Inquiry, Sonoma State students gain valuable career skills and work on finding solutions to our toughest environmental challenges. Thank you for investing in an Environmentally Ready Generation!

ANNUAL CUMULATIVE GIVING JANUARY 1, 2012-NOV 1, 2016

Visionaries \$100,000+

Bob and Sue Johnson
Marthe Norwick
William and Joan Roth

Pioneers \$50,000+

Pacific Gas and Electric Company

Explorers \$10,000+

Ana Roth
Jessica Roth
Maggie Roth
Daphne W. Smith

Naturalists \$1,000+

Mike and Paula Aja
DOF Media LLC
Susan Norwick Horrocks and Keith Horrocks
Barbara and Jake Mackenzie
Jacques and Barbara Schlumberger
Chuck and Cathy Williamson
Terri and David Yost

Guides \$250+

Harold and Christine Alderman
Jon and Vina Breyfogle
Joe and Judy Brumbaugh
Ruth Burke
California Rare Fruit Growers, Inc. - Redwood Empire Chapter
Tom Cavers and Sol Garay
Scott Eberle
Jean Falbo
David Walls and Lucia Gattone
Mark Giampaoli
Google Matching Gifts Program
Paula Hammett and Bruce Hope
Judith Hunt
Sharon and AJ Janulaw
Richard Karas
Linda and Jim Kuhns
Cynthia Morrow
Dan and Robbie Rhodes
Jean Schulz
John Sheey and Laura Szujewska
Jo-Ann Smith
Catherine Tornabene

Stewards \$25+

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Susan Barnes
Philip Beard
John and Brenda Blom
Thomas Bold
John Branscome
Michelle and Kim Covington
Nirmal and Gwen Dhesi
Yvette Fallandy
Norman Feldman
Lisa Feldman
Dorothy Freidel
Paul Geiger
Louise Hallberg
Ronald Hayes and Jo Ann Puglisi
Bryant and Diane Hichwa
Vin and Margo Hoagland
Karen Johnson
Lucy Kortum
Bill and Sue Krawetz
Gerbrand Kroon
Laguna De Santa Rosa Foundation
George and Kit Lee
Stephen Lewis
Gary Marker
Kristi and Brian McWilliams
Frances and Glenn Minervini-Zick
Cazeaux Nordstrum
Rebecca Olsen
Laura Owens
Diane and Hugh Paleczny-Stevenson
Bruce Peterson
Raymond Rapp
Margot and Mark Rawlins
Bruce Reinik
Mike and Sue Riley
Joe and Eileen Tenn
Raye Lynn Thomas
Pamela Valdes Lanier
Susan Warner
Water Resources Planning
JJ Wilson
Andrew Wright and Lisa Fitkin
Bernier Zinyards



Bob Johnson, his daughter Terri Yost, and grand daughter Kristi McWilliams at the Galbreath Wildlands Preserve. Over the last few years, the Johnson family has been instrumental in helping us grow our programs, from providing students with transportation to supporting the development of our facility plans to volunteering to speak about the late Fred B. Galbreath and his belief in the importance of environmental education. We cannot thank them enough for their support!

FOREVER GRATEFUL

These special friends have recognized the value of ...

Land: protecting lands to train an environmentally ready generation

Galbreath Wildlands Preserve
Fred and Jean Galbreath

Fairfield Osborn Preserve
Ana Roth
Jessica Roth
Maggie Roth
William and Joan Roth

Los Guillicos Preserve
State of California

Endowments: creating reliable sources of funding in perpetuity for environmental education

Fred and Jean Galbreath
Marthe Norwick
Georgette Skellenger

Legacy Circle: leaving a legacy or planned gift through living will or trust

Fred and Jean Galbreath
Bob and Sue Johnson
Georgette Skellenger
Daphne W. Smith

YOUR HELP MAKES A DIFFERENCE!

The Center is a public/private endeavor managed through SSU's School of Science and Technology. More than half of our funding comes from the generosity of private individuals and organizations. Please follow the web address below to make a donation, making sure that you select the Center for Environmental Inquiry.

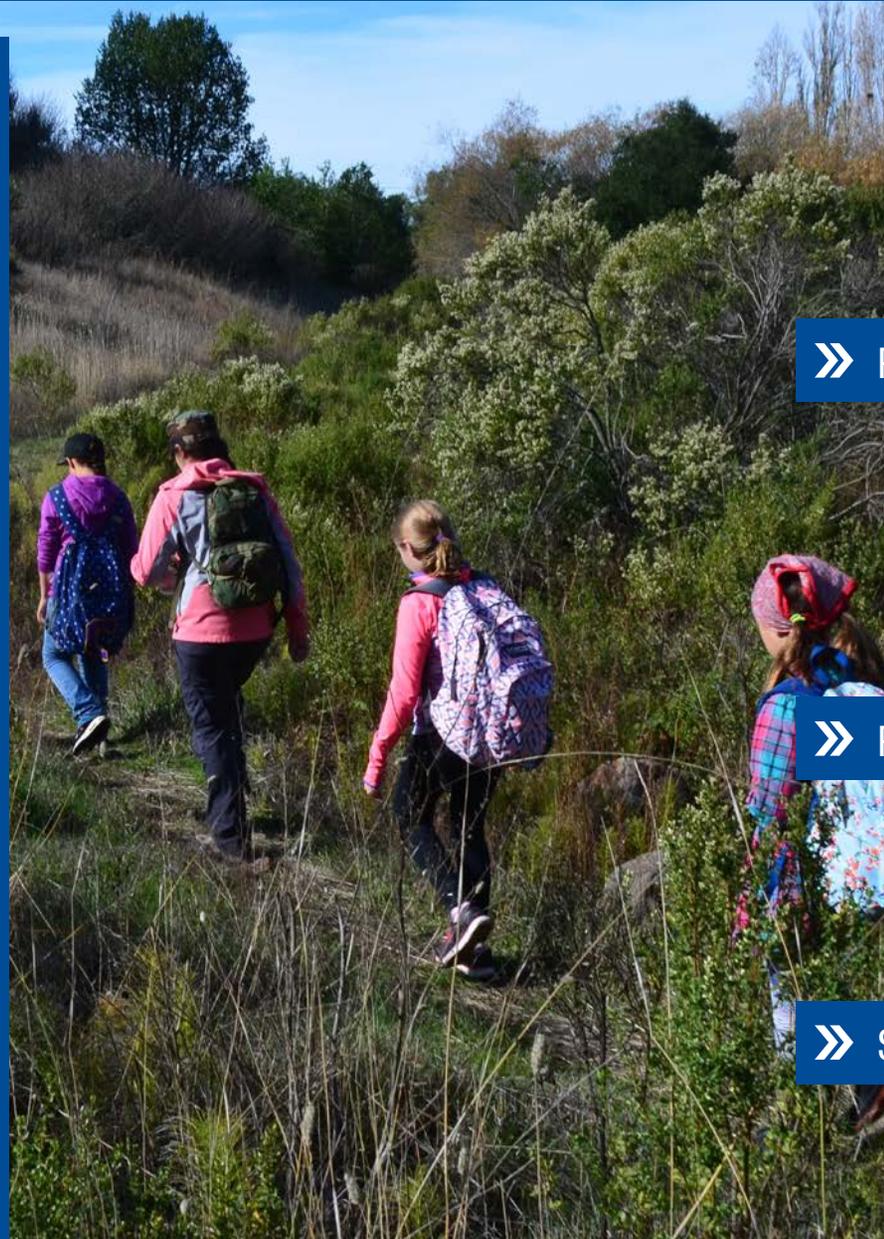
Website: sonoma.edu/cei/donate/

Email: nature@sonoma.edu

Facebook: SSU Center for Environmental Inquiry

Phone: 707-664-3416

Address: 1801 East Cotati Avenue
Rohnert Park, CA 94928



An elementary school class participating in a tour led by SSU students

» PARTICIPATE

- Connect with faculty experts through the CEI
- Visit the preserves for education, art or research
- Attend tours and events
- Become a naturalist or steward

» PARTNER

- Propose issues / questions to be studied
- Share data or knowledge
- Sponsor work in areas of interest

» SUPPORT

- Connect us with potential supporters or partners
- Volunteer to help run events
- Donate



ABOUT US

Sonoma State's Center for Environmental Inquiry prepares students to take on the complex environmental issues of our time. Working side by side with community partners, students get professional-level experience addressing real-world challenges. These high-impact educational experiences help them succeed in college while also providing them with the skills, motivation, and understanding to address environmental challenges throughout their careers. The Center's innovative programs take place in and around SSU's three preserves.



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