

We empower university students from all disciplines to solve the environmental challenges of the North Bay.



@SSUCEI

www.sonoma.edu/cei

Center Director
Dr. Claudia Luke
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2018

GET READY. FIND SOLUTIONS.



Dr. Luke was honored by the North Bay Leadership Council this year with the environmental stewardship award.



Dr. Claudia Luke

Center Director

Climate change is becoming a daily reality that deeply affects our lives. At the Center for Environmental Inquiry (CEI, Center), we are addressing this challenge head on by training a workforce with the skills and experience to create a safe, healthy and sustainable future for the North Bay and beyond.

This year, we helped students tackle tough sustainability issues related to air, water, fire, biodiversity and education. Working with community partners - including those affected by the North Bay fires - students gathered new information and brought new ideas to the table. No matter what their academic degree, these students will graduate from Sonoma State University (SSU) prepared to address these environmental challenges.

Please join me in celebrating some of the many solutions they discovered in 2018.

AN ENVIRONMENTALLY READY SOCIETY

138 Projects 1,510 Students 54 Faculty

93 Partnering Organizations 1,595 Community Members

The Center brings together students, faculty, businesses and community members to find solutions to North Bay sustainability challenges. We work with faculty to engage students across all disciplines in regional projects as part of classes, internships and degree programs. We give students skill-building experiences on 4,200 acres of wildland preserves and sites throughout the North Bay.

This year, 1,510 students in 26 departments participated in Center programs. We sparked interest in fire studies by co-hosting the Living with Fire Symposium on campus with more than 400 faculty, students, community and organizational partners. We launched an annual public workshop series to increase first-hand understanding of sustainability issues in our region. We boosted immersive learning by adding a new campsite at one of our preserves and increased funding for student projects by 50%. Throughout the year, we continued to explore new collaborations that will allow us to reach all students in all disciplines.



TRIAL BY FIRE

North Bay Fires and Changing Landscapes

Large wildfires are five times more common today than 45 years ago. **How will our local wildlands survive these changes?**

Students are working on five research projects to study the resilience of animals and plants to fires. Their results suggest some species declined while others flourished. This information is helping land managers better understand how lands may be changing.

Students:

C. Cimmiyotti, A. Moore, M. Tator, J. Peelen, S. Carter, Liberal Studies 302B, Geography, Environment & Planning 423, Science 120

Faculty:

W. St. John and Drs. J. Law, M. Shott, N. Rank, M. Clark, M. Kozanitas, L. Bentley, D. Girman

500%

Increase In Fire Frequency
In Last 45 Years

199K

Acres Burned In North
Bay Fires In 2017

FIRE

““ The students are gathering data that helps us **better manage the land.**

- **Melanie Parker**
Sonoma County
Regional Parks

FLOOD FUTURES

Solutions on Copeland Creek

Flood frequency is predicted to increase with climate change. **How can we stay safe?**

This year, students and faculty began long-term modeling and monitoring of Copeland Creek, which jumped its banks in 2017 and flooded downstream communities. Public agencies and community groups are using the results to design engineering solutions.

Students:
J. Gebauer, I. Russo

Faculty:
Drs. O. Anfinson,
M. Goman

20% | Increase In Heavy Downpours
In Last 50 Years In The U.S.

17% | U.S. Urban Lands In
High-Risk Flood Zones

90% | U.S. Natural Disasters
That Involve Floods

“The students’ studies are **boosting our understanding** of why flooding occurs on Copeland Creek.

- Susan Haydon
Sonoma Water

THE AIR WE BREATHE

Asthma in Sonoma County

Air pollution affects respiratory health throughout the world. **How do we identify local sources of these pollutants?**

Students designed a new low-cost air quality monitoring station that can be deployed throughout the county and beyond to better understand how air, wind and agriculture affect our ability to breathe.

Students:
J. Cao, J. Urbina, R. Jergenson

Faculty:
Drs. C. Halle, F. Farahmand

15% | Asthma Increase In U.S. In Last Decade

1 in 10 | People In Sonoma County Have Asthma

#1 | Reason For Children's Missed School Days

AIR



“We’re enthusiastic about installing the **student prototype** at City Hall.

- **Darin Jenkins**
City Manager,
Rohnert Park

EARTH EDUCATION

Summer School in Anderson Valley

Disadvantaged students often lose academic skills over the summer. **How can we boost retention?**

Decades of research show that learning out-of-doors boosts academic skills. Trained SSU student naturalists collaborated with teachers in Mendocino County to infuse outdoor learning into the K-8 summer school curriculum.

Students:
R. Jensen, M. Freed,
E. Rosa, J. Ly

Staff:
S. DeCoursey

96% | Students Who Learn Better Outside

2x | Increase In Student Attention Span After A Lesson Outside

18 | Duration Of Outdoor Learning Benefits In Months

EDUCATION



“Our students learned so much outside. I’m going to incorporate outdoor learning into my school-year activities.

- Charlotte Triplett,
Anderson Valley
Elementary School

LOSING GAME

Feral Pig Impact in Mendocino County

Feral pigs can cause damage that leads to local extinction of native plants and animals. **How can we maintain biodiversity in our wildlands?**

Students and citizen scientists are mapping pig damage and studying pig behavior using wildlife cameras at the Galbreath Wildlands Preserve. The Center uses the information to develop a pig-control program that benefits native species.

Student:
E. Lieberman

Faculty:
Dr. J. Baldwin

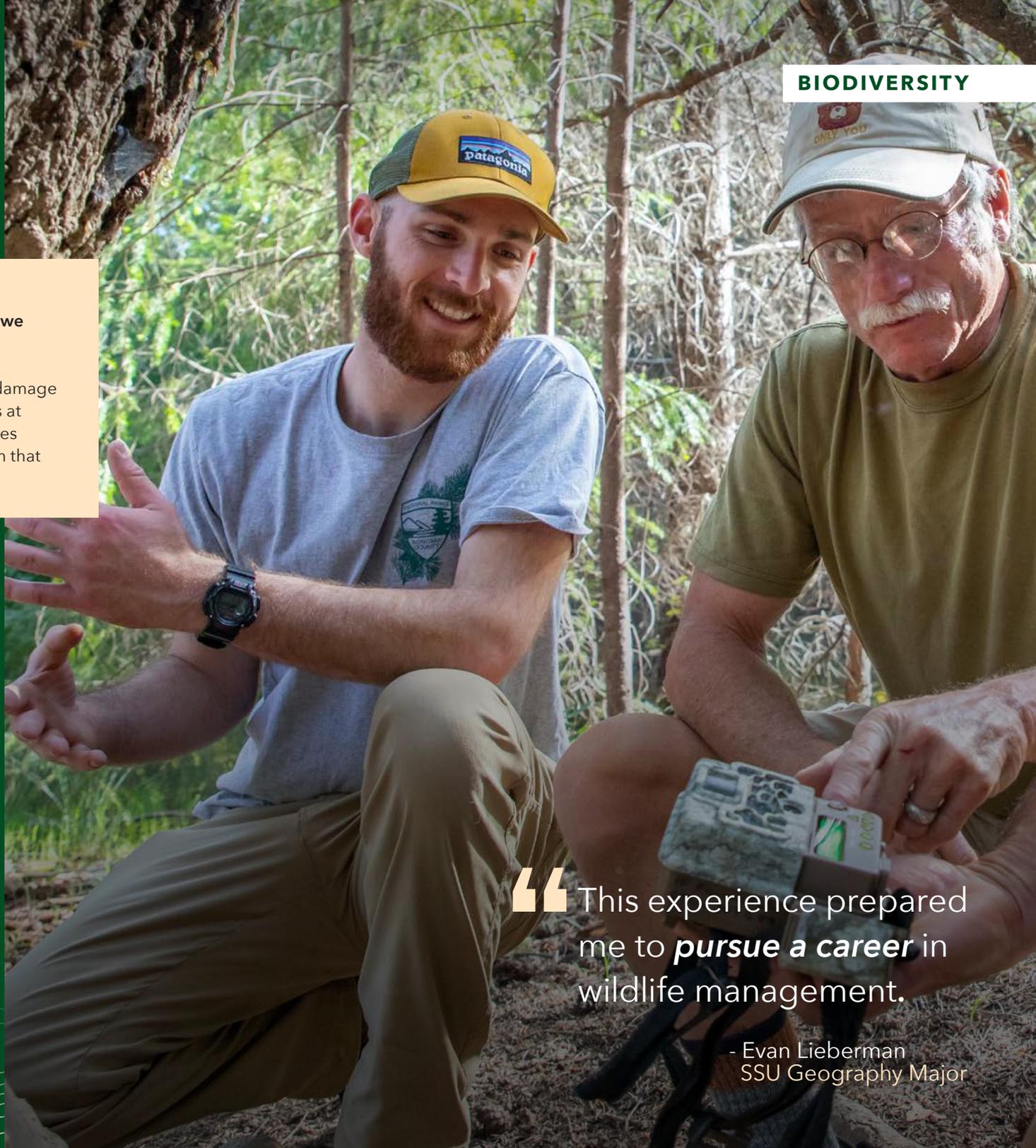
Community Members:
P. Gordon, A. Balestracci

\$1.5 BIL. | Cost Of Pig Damage In U.S. Per Year

250 | U.S. Listed Species Impacted By Feral Pigs

1769 | Year Pigs First Released In California

BIODIVERSITY



“ This experience prepared me to **pursue a career** in wildlife management.

- Evan Lieberman
SSU Geography Major

PROJECTS & LANDS

Students in 26 departments worked on 138 projects with faculty advisors. They studied at SSU's preserves and sites throughout the North Bay.

To the right:

Descriptions of select student projects

Total Projects

20

Fire

31

Water

10

Air & Climate

41

Biodiversity

13

Technology

4

Education

19

Restoration

Lands (in acres)

3,670

Galbreath Wildlands Preserve

40

Los Guillicos Preserve

450

Fairfield Osborn Preserve

Biodiversity

Hope Ablaze: An Outdoor Performance Exploring Species Loss

Drs. J. Law and A. MacNab, Hutchins School, and Theatre Arts

Transmission Of Sudden Oak Death Disease

Drs. N. Rank, M. Kozanitas and D. Rizzo, Biology and UC Davis

Habitat Needs Of Threatened Red-Legged Frogs

Dr. D. Girman, Biology

Restoration Of Riparian Communities On The Osborn Preserve And Ssu Campus

S. DeCoursey, (CEI); W. St. John, (GEP)

Air & Climate

A Low-Cost Sensor For Understanding Air Pollution Sources

Dr. C. Halle, (CEI)

Ability Of Wetlands To Sequester Greenhouse Gasses

Dr. M. Goman, (GEP)

Characterization Of Local Climate Variability

Dr. N. Hobson, Mathematics & Statistics

Water

Determinants Of Landslide Susceptibility

Dr. L. Waters, Geology

Development Of A Pilot-Scale Microbial Fuel Cell For Treating Winery Wastewater

Dr. M. Cohen, Biology

Making Water Resources An Integral Part Of County Planning

Dr. T. Jacobson, (GEP)

Fire

Post-Fire Sediment Contaminants In The Laguna De Santa Rosa

Dr. J. Guilford, Geography, Environment & Planning (GEP)

Fire Prevention And Biodiversity In Power-Line Rights-Of-Way

Dr. C. Halle, Center for Environmental Inquiry (CEI)

Impacts Of Fire-Fighting Activities On Cultural Resources

Dr. Thomas Whitley, Anthropology

Effects Of Seed Genetics On Post-Fire Restoration Efforts

Dr. Lisa Bentley, Biology

Education

Writers In Wilderness: Boosting Academic Achievement In K-8 Students With Outdoor Learning

S. DeCoursey, (CEI)

Using Social Robots To Teach Children About Water

Dr. J. Sullins, Philosophy

Technology

Automated Identification Of Species In Wildlife Camera Imagery

Drs. G. Gill & C. Halle, Computer Science and CEI

Alertnorthbay: An Early-Warning System For Detecting Fires In Sonoma County

Dr. G. Kent, University Nevada Reno

Shake Alert: A Statewide Early-Warning System For Earthquakes In California

Dr. J. Merritt, UC Berkeley

FACULTY & PARTNERS

54 faculty partnered with 93 organizations to create exceptional experiences for students to learn outdoors and find solutions to environmental challenges in the North Bay

Faculty

Owen Anfinson, Geology

Jeff Baldwin, Geography, Environment & Planning

Lisa Bentley, Biology

Glen Brassington, Psychology

Grace Brown, Mathematics & Statistics

Elizabeth Burch, Communication Studies

Matthew Clark, Geography, Environment & Planning

Mike Cohen, Biology

Vanessa Dodge, Geography, Environment & Planning

Paul Draper, Theatre Arts & Dance

Scott Eberle, Psychology

Steve Estes, History

Farid Farahmand, Engineering Science

Gurman Gill, Computer Science

Derek Girman, Biology

Michelle Goman, Geography, Environment & Planning

Jackie Guilford, Geography, Environment & Planning

Nathan Haenlein, Art

Chris Halle, Center for Environmental Inquiry

Heidi Herrmann, Geography, Environment & Planning

Natalie Hobson,

Mathematics & Statistics

Claudia Holt, Psychology

John Isom, Geography, Environment & Planning

Tom Jacobson, Geography, Environment & Planning

Elizabeth Jones, Early Childhood Education

Melina Kozanitas, Biology

Justine Law, Liberal Studies

Lynne Lyle, Early Childhood Education

Alexis Macnab, Theatre Arts & Dance

Mike Moore, Geography, Environment & Planning

Nicole Myers, Geology

Mark Perri, Chemistry

Bruce Peterson, General Education University Studies

Jeremy Qualls, Physics

Nathan Rank, Biology

Talena Sanders, Communication Studies

Nanette Schonleber, Early Childhood Education

Scott Severson, Physics

Martha Shott, Mathematics & Statistics

Wendy St John, Geography, Environment & Planning

John Sullins, Philosophy

Laura Waters, Geology

Richard Whitkus, Biology

Thomas Whitley, Anthropology

Adam Zegelbaum, Counseling

Richard Cobb, UC Davis

Neil Driscoll, UC San Diego

Daniel Fernandez, CSU Monterey Bay

Eric Hongisto, University of San Francisco

Graham Kent, University of Nevada, Reno

Carolyn Mehan, Pennsylvania State University

Jonah Merritt, UC Berkeley

Dave Rizzo, UC Davis

Francis Trail, Michigan State University

Partners

Ag + Open Space Sonoma County

AlertNorthBay

AmeriCorps National Civilian Community Corps

AmeriCorps Watershed Stewards Program

Analytical Sciences, LLC

Anderson Valley Land Trust

Anderson Valley Unified School District

Apple Blossom Elementary

Baseline Consulting

Bellevue Elementary

Binkley Elementary

CalFire

California Conservation Corps

California Department of Fish & Wildlife

California Department of Water Resources

California Fire Science Consortium

California Geologic Survey

California Lichen Society

California State Parks - Annadel

Charlie Judson Photography

City of Penngrove

City of Rohnert Park

City of Santa Rosa

Community Foundation of Mendocino County

CSU Monterey Bay

D'Argenzio Winery

US Fish & Wildlife

Department of Transportation

Earthways, LLC

Friends of Copeland Creek

Gold Ridge Resource Conservation District

Grant Elementary

Harmony Drum Circles

Institute for Bird Populations

James Monroe Elementary

JUMP

La Tercera Elementary

Luther Burbank Elementary

Madrone Audubon Society

Meadow Elementary

Mendocino County Resource Conservation District

Michigan State University

Miwok Valley Elementary

National Audubon Society

Navarro River Watershed

North Bay Conservation Corps

Occidental Arts & Ecology Center

Osher Life Long Learning

Outward Bound

Pacific Watershed Associates

Pennsylvania State University

Pepperwood Preserve

Pacific Gas & Electric

Point Blue Conservation Science

Proctor Terrace Elementary

Rancho Cotati High School

Regional Air Quality Control Board

Re-Oaking Coalition

Santa Rosa Creek Stewardship Program

Scott Hess Photography

Shelly Benson Consulting

Sacramento Municipal Utility District

So Co Fire & Emergency Services

So Co Office of Recovery & Resiliency

So Co Sheriff's Office

So Co Technical Services

Solano Audubon Society

Sonoma County Forest Conservation Working Group

Sonoma County Office of Education

Sonoma County Regional Parks

Sonoma Water

Sonoma County Youth Ecology Corps

Sonoma Master Gardener

Sonoma Mountain Preservation Group

Sonoma Mountain Ranch Preserve

Sonoma Resource Conservation District

Sonoma State Facilities

Strawberry Elementary

The Nature Conservancy

Tim Dye Consulting

TREE Fund

UC Cooperative Extension

UC Cooperative Extension Sudden Oak Death Program

UC Davis Bodega Marine Reserve

UC San Diego California Institute for Telecommunications & Technology

University of Nevada, Reno

University of San Francisco

US Forest Service

US Geological Survey

Utility Arborists Association

West Side Elementary

Western Weather Group

Wildlife Conservation Society

DONORS & VOLUNTEERS

Donors*

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Graton Rancheria Tribal
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Company - Santa Rosa
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of the Community
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Chuck & Cathy Williamson
Terri & David Yost

Guides

\$25–999

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Nirmal & Gwen Dhese
Dougherty Family Fund
of the Community
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County
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Legacy & Endowed Gifts

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Marthe & Stephen
Norwick
Georgette Skellenger
Daphne Smith

Volunteers

Galbreath Preserve

Andy Balestracci
Lisa Bauer
Alice Bonner
Pam Callaghan
Johanna Cummings
Brittany Davis
Lori Dudzik
Nancy Armstrong-Frost
Curtis Frost
Peter Gordon
Jill Hannum
Kerry Heise
Bob Helms

Thank you for helping
create an engaged
and environmentally
ready society!

Charlie Judson
Alan Keller
Linda MacElwee
Sandy Mailliard
Debby Mefferd
Jade Paget-Seekins
Mark Rawlins
Tina Walter

Osborn Preserve

Paublin Aguilar
Claire Anderson
Bonnie Betts
John Branscome
Janet Calhoon
Patricia Castaneda
Makayla Freed
Diane Fritz
Emma Forester
Kara Haley

Leela Hammond
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Megan Wilson
Kendra Wolf
Amanda Young

Campus

Annemarie Brown
Vic Liptak
Tania Montes

OPERATIONS

Revenue / Endowments

38% Corporations & Agencies
36% SSU/CSU
14% Individuals
9% Endowments
4% Other
Total: \$646K

Staff

Dr. Claudia Luke, Center Director, WATERS Lead
Dr. Chris Halle, Nature!Tech Lead
Suzanne DeCoursey, Education Manager

Student Employees

Jimmie Cao
Zak Erickson
Makayla Freed
Dustin Howland
Robyn Jensen
Jaime Johnson
Justin Ly
Victor Madrid
Richard Mitts
Taylor Moran

Expenditures

72% Programs
7% Lands & Facilities
14% Marketing & Communications
7% Operations
Total: \$576K

Anne Reeves, Marketing & Brand Strategist
Margot Rawlins, Galbreath Program Coordinator
Kerry Winingar, Osborn Outreach Coordinator

Kyle Peele
Sharon Picton
Celia Ringold
Emily Rosa
Brandon Russell
Vincent Schartz
Javier Urbina
Desirae Varga
Kendra Wolf

*Based on gifts received between July 1, 2016 and June 30, 2018

INVEST IN THE FUTURE

Your gift helps empower every SSU student to develop the skills they need to create a resilient future. Together, we can:

Boost the number of student projects by providing supplies they need to study air, water and wildland challenges.



Give students first-hand experiences investigating environmental challenges by supporting travel to sites in the North Bay.



Strengthen student commitment and passion by offering immersive overnight experiences at SSU preserves.

We can create an empowered generation ready to address today's environmental challenges and prepared to face tomorrow's.



In the end we will conserve only what we love; we will love only what we understand; and we will understand only what we are taught.

– Baba Dioum

The Center is a public/private endeavor. More than half of our funding comes from the generosity of private individuals, partners and organizations.

