

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



@SSUCEI

[www.sonoma.edu/cei](http://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.

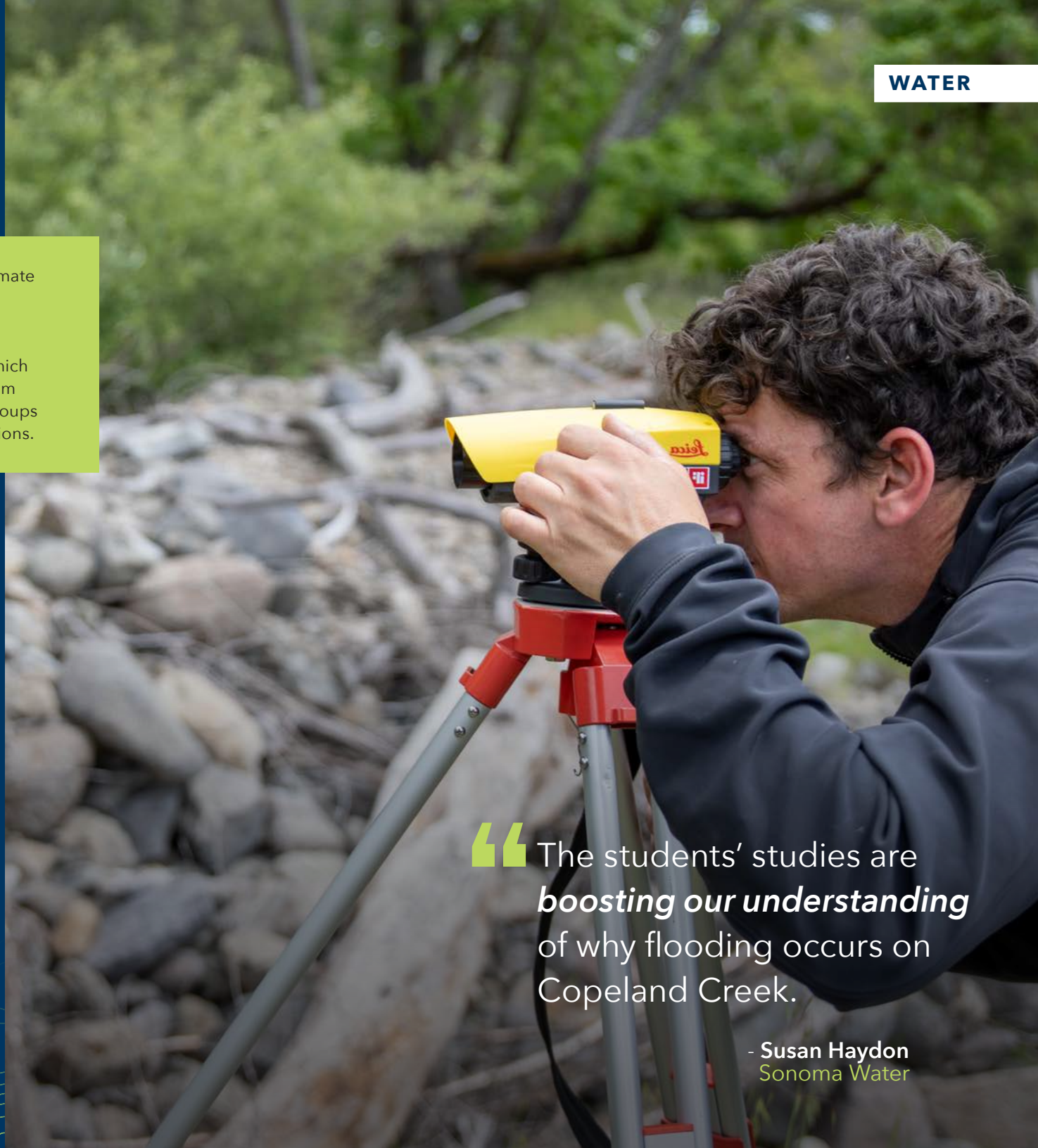
**17%** | U.S. Urban Lands In  
High-Risk Flood Zones

**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

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

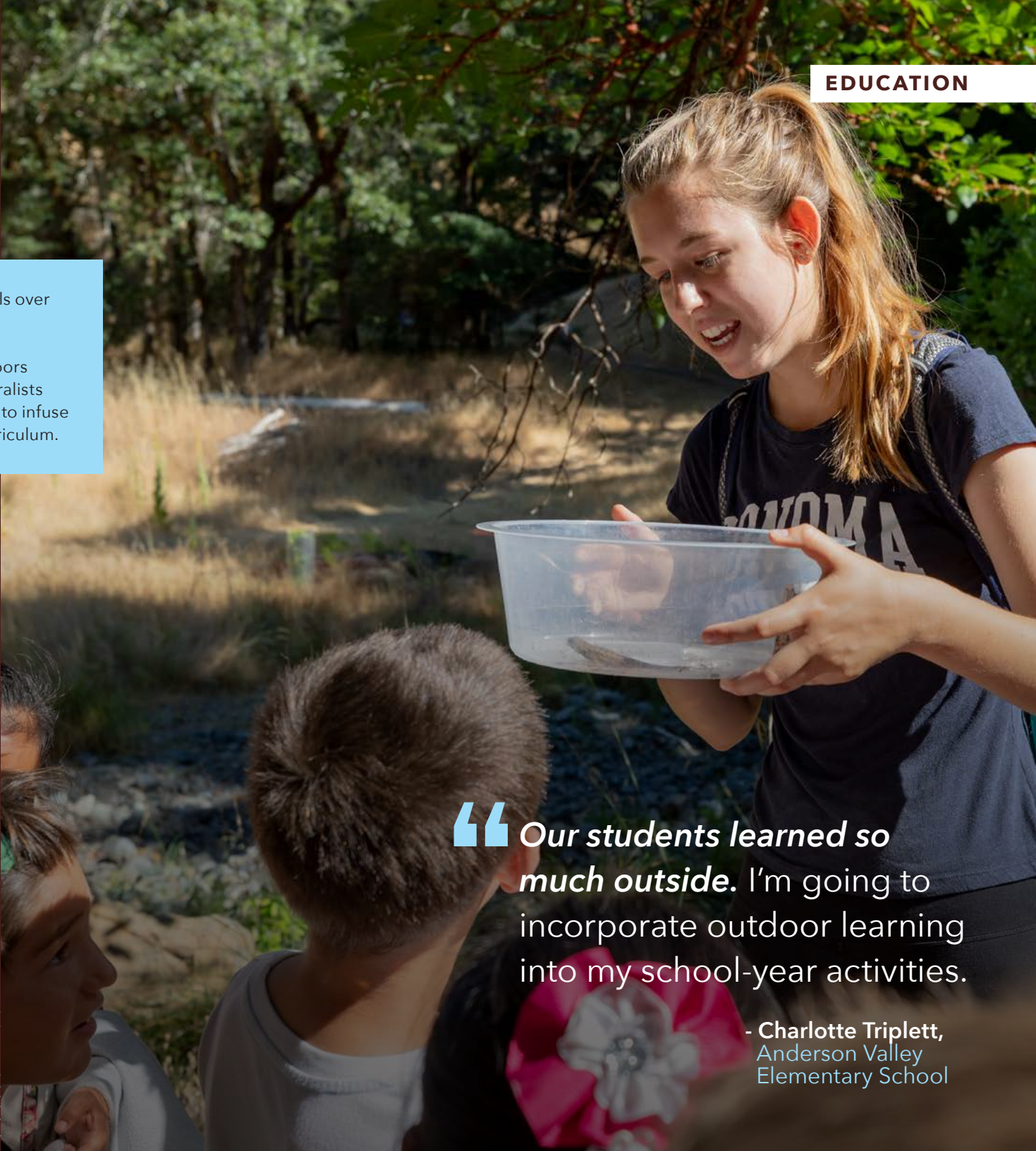
2x

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

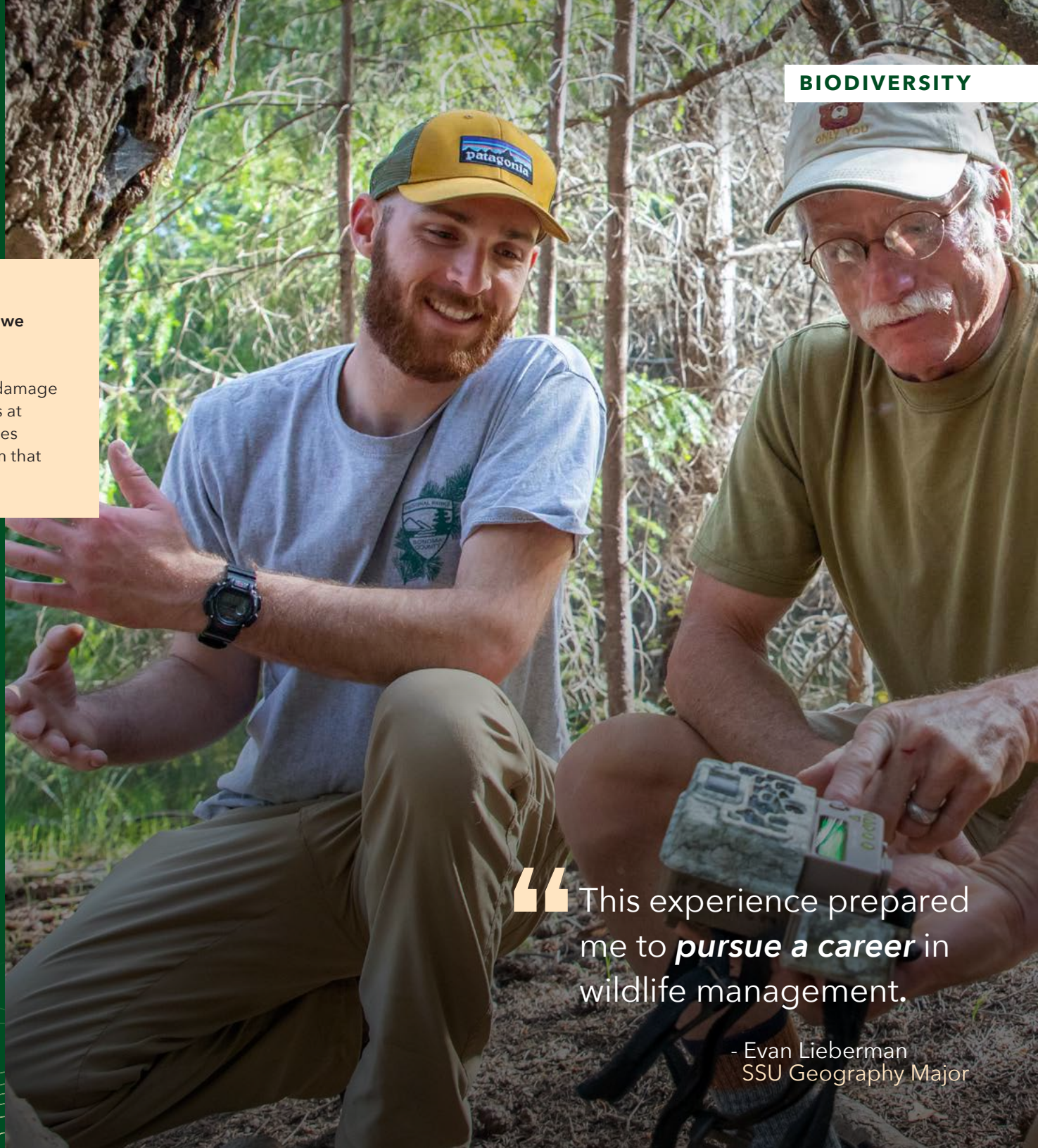
**Community Members:**  
P. Gordon, A. Balestracci

**\$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 Zagelbaum,  
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\*

### Visionaries (Lifetime) \$100,000 & Above

The Federated Indians of  
Graton Rancheria Tribal  
Council  
Fred & Jean Galbreath  
Robert & Sue Johnson  
Marthe & Stephen  
Norwick  
William & Joan Roth  
Daphne Smith

### Benefactors

#### \$20,000–99,999

Alexander & Brenda Leff

### Pioneers

#### \$5,000–19,999

Jim & Linda Kuhns  
Clark & Carol Mitchel

### Explorers

#### \$1,000–4,999

Mike & Paula Aja  
Bill Imada  
Milo Mitchel  
Susan Norwick Horrocks &  
Keith Horrocks  
Pacific Gas & Electric  
Company - Santa Rosa  
Pearson Family Fund  
of the Community  
Foundation of Mendocino  
County  
Janis & Warren Watkins

Chuck & Cathy Williamson  
Terri & David Yost

### Guides

#### \$25–999

2 Anonymous  
Leonard Anable  
Dorothy Bottorff  
John Branscome  
Jon & Vina Breyfogle  
Ruth Burke  
Sahara Chaldean  
Wendy Cole  
Michelle & Kim Covington  
Robert & Jan DeWitt  
Nirmal & Gwen Dhesi  
Dougherty Family Fund  
of the Community  
Foundation of Sonoma  
County  
Earthways, LLC  
Scott Eberle  
Paul & Dorothea Geiger  
Richard & Sandra Karas  
Laguna de Santa Rosa  
Foundation  
Butch & Vivien Lindley  
Lynn Lozier  
Barbara & Jake Mackenzie  
William McMillan &  
Kimberlee Shelton  
Kristi & Brian McWilliams  
Chuck & Kati Quibell  
Margot & Mark Rawlins  
Robbie Johnson Rhodes &

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

Dan Rhodes  
John Sheehy & Laurie  
Szujewska  
M. Shimokochi & Anne  
Reeves  
William Sterling  
Hugh Stevenson & Diane  
Paleczny-Stevenson  
UBS Employee Giving  
Programs  
Richard Whitkus

### Legacy & Endowed Gifts

Fred & Jean Galbreath  
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

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  
Patricia Hatfield  
Janet Henker  
Al Janulaw  
Sharon Janulaw  
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Elias Lopez  
Justin Ly  
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Nicole McGloin  
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Nicolette Michel  
Al Myers  
Anna Myers  
Becky Olsen

Jesica Rodriguez  
Emily Rosa  
Paolo Solari  
Shay Stalnaker  
David Stark  
Virginia Hotz-Steenhoven  
Jon D. Steenhoven  
Kate Symonds  
Ariella Tiber  
Cheryl Ulrich  
Mike Weihman  
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 Wininger**, 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.*

