



2019 ANNUAL REPORT

SOLIDLY PLANTED, GROWING FAST

The 2018–19 year marks our five year anniversary. In 2014, we celebrated the beginning of the Norris Center at UC Santa Cruz with a generous endowment gift from the David and Lucile Packard Foundation. Since then we nearly doubled our endowment due to several generous donors while creating a vibrant natural history program that furthers the legacy of Ken Norris and natural history education at UC Santa Cruz. As we continue to grow and pass new milestones, we are committed more than ever to igniting passion for nature amongst all UCSC students and supporting their path from inspiration and education to leadership and positive action in their post-UCSC lives.

Ken Norris once noted that he “was a naturalist down to my toes and fingertips—teetering between art and science, seeking synthesis.” This year, we achieved greater synthesis among many strands here at UCSC and the broader community. Whether launching a new collaboration with our Natural Reserves to conduct new biological surveys and create comprehensive collection resources, pairing more undergraduate artists with researchers across campus to ignite inquiry, gaining new insights into local plant/insect relationships through our work on Randall Morgan’s collections, or inspiring deeper observation and appreciation through artwork created at our magnificent natural reserves, we continued to engage our community in powerful direct experiences with the natural world. Our expanded staff and graduate student mentors this year helped us reach more students from diverse backgrounds and supported substantially more hands-on opportunities, from introductory internships to more advanced longer term paid positions.

In this report we summarize our accomplishments this year as we excitedly look forward to our next next five years.

2018-19 IN NUMBERS

1,848

**Undergraduate
Students**

423

**Alumni &
Community
Members**

85

**Quarterly
Internships &
Volunteers**

7,117

**Student &
Community
User Days**

36

Classes

27

**Paid Quarterly
Undergraduate
Positions**

2

**Graduate
Student
Mentors**

32

**Student Project
Awards &
Scholarships**

MANY OFFERINGS FOR MANY INTERESTS

In the mix of over 30 classes we supported this year were two new introductory classes funded directly by the Norris Center: Natural History of Reptiles & Amphibians and Natural History of Fungi. While the number and diversity of our introductory field-based classes continued to grow, there is still unmet demand.

Natural History of Campus (2 sections)
Curation of Natural History Collections
Natural History Illustration (2 sections)
Natural History of Reptiles and Amphibians
Natural History of Fungi
Natural History of Birds
Natural History Field Quarter
Introduction to Ecology
Freshwater Ecology
Ecological Field Methods
Mammalogy
Systematic Botany
Plant Physiological Ecology
Plant Disease Ecology
Introduction to Field Research (6 sections)
Comparative Vertebrate Anatomy (2 sections)



"This course was an amazing way to get some field experience and check out local herps."

"This is as 'active' as learning gets, and I feel so full of skill and knowledge and the ability to continue to build that knowledge for myself. I feel so much more prepared to graduate and apply to field work and work with people."

Natural History Field Quarter
2019 Student

Biodiversity in the Age of Humans
Introduction to Environmental Policy and Economics
Art 2D Foundation
Introduction to Printmaking
Leadership Through the Lens of Outdoor Risk Management
CASFS Farm Apprenticeship Program
CSUMB Science Illustration Program
COSMOS Summer Science Program
OSHER Lifelong Learning Group
Santa Cruz Forest School
Doris Duke Conservation Scholars Program
Monarch Community School

MANY HANDS FOR MANY HANDS-ON OPPORTUNITIES

Our internships expanded exponentially thanks to the organization and mentorship of our new half-time Assistant Director Alex Krohn. We more than tripled our offerings, from an average of 6 interns per quarter last year to 20-30 per quarter this year. This included two special year-long paid internships, sponsored by the Chancellor's Undergraduate Internship Program and the Professional Career Development Program. Working on a variety of topics from collections management to taxidermy to student outreach to our our new collaborative UC Natural Reserve Resurvey project, our interns formed the core of our growing community.



"I loved how much we were given flexibility to mess up and learn in actual practice. I really enjoyed the internship. It was so much fun and so interesting to skin the animals, see the anatomy once we were inside, and watch the whole animal transform throughout every step."

OUR COLLECTIONS CONTINUE TO GROW IN NUMBER AND USE

We continued to grow as an important local resource for natural history collections along the central California coast. This year, we made significant improvements to the accessibility and preservation of our collections, including new storage drawers, much improved insect pest monitoring, and better earthquake preparedness. With the help of several interns, we started a collections-wide effort to add specimen data to Arctos, an online collections management database. A diverse team of staff, interns, and volunteers made numerous additions to our bird, insect, plant, fungi, and lichen collections. Scientists used our specimens in several publications, including a revision of the fungal genus *Xerocomellus* and a new field guide to grasses of Oregon and Washington.



Our dedicated community volunteers have dramatically improved our collections over many years. This year they continued work on our plant and lichen collections while mentoring several of our staff and interns. This included taking the lead helping us contribute to a multi-institutional California-wide vascular plant phenology project.

RANDY MORGAN'S LEGACY LIVES ON

We continued to focus on the collections of Randy Morgan. Due to generous donor support of the Morgan Initiative over the last two years, we continued our progress identifying, digitizing, and analyzing the data associated with the Morgan Insect Collection. With nearly 25,000 pollinator specimens now digitized, much of his collection data is now available to the global scientific community. We supported several undergraduate projects using Morgan's data, including an analysis of how the diversity of Lycaenid butterflies have changed in Santa Cruz and a new field guide to local fly pollinator species in the Syrphidae family. With our well-developed digitization protocol, we are excited to continue digitizing and studying more of Morgan's 70,000+ insect specimens in the years to come.



Undergraduate Jessica Correa and Norris Center Director Chris Lay at their joint presentation about syrphid flies to the Santa Cruz Chapter of the California Native Plant Society

The Randall Morgan Insect Collection
Alexandra Ahmad
Environmental Studies, UC Santa Cruz

Who was Randall Morgan?

- Born in Santa Cruz county in 1947
- UC Santa Cruz alum, class of 1968
- Naturalist and conservationist, helping to create numerous parks and protected areas
- Prolific collector

Digitizing the Collection

Norris Center Staff, graduate fellow Andy Kulkowski, and dozens of volunteers and interns spent hundreds of hours over more than two years identifying, digitizing and accessioning Randy's collection. Today over 20,000 of the specimens are fully accessible online through the Symbiota Arthropod collections database, which includes arthropod specimen records from over 100 museums in North America.

Future Conservation

- Randy's collections helps us understand how plant/pollinator relationships are changing in Santa Cruz over time.
- The collection fosters better understanding of Santa Cruz's natural history and provides countless research opportunities for students, faculty, and interested community members in Santa Cruz and beyond.

What is the Randall Morgan Insect Collection?

- Collected insect specimens at 39 sites in Santa Cruz County between 1988 and 1999
- Total of 75,000 specimens with a focus on pollinators
- Worked in coastal prairie, sandhill chaparral, urban areas, grassland, maritime chaparral
- Collected pollinators and plants that they were visiting, providing a valuable research resource

Insights from Research on the Collection

Pollinator networks in the Sandhills (past and present) by Michelle Pastor

- UCSC undergrad Jesse Laine found that coastal prairie habitat hosted the highest bumblebee diversity, while sandhill chaparral habitats were much less diverse.
- UCSC undergrad Daniel Simoni studied *Bombus* phenology and plant associations. Simoni found that female and male populations peak at different times of the year, as do queen and worker bee populations.
- UCSC grad student Angelita Aschbacher studied the effects of climate stress on plant-pollinator interactions in the Santa Cruz Sandhills. Aschbacher found that climate stresses caused phenological mismatches between pollinator and plant populations, and thus, fewer plant-pollinator interactions occurred.

Thanks for Financial Support

- Institute for Museum and Library Services
- UC Santa Cruz Board Opportunity Fund
- Helen & Will Webster Foundation
- March Conservation Fund
- Nancy Burnett, Julie Packard, Joanna Miller, Tom and Tamia Marg, and many others

Undergraduate Alexandra Ahmad's poster summarizing Morgan's insect collection

A RECORD YEAR FOR STUDENT SUPPORT

This year we increased our support for a wide diversity of undergraduate projects and scholarships, ranging from students participating in research with UCSC faculty to community education projects as part of our Webster Fellows program- a collaboration with the Santa Cruz Museum of Natural History. We are especially proud to be able to offer stipends to student interns who, due to financial challenges, could not have otherwise participated in the opportunities we offer. We are strongly committed to expanding this support in the future.



Undergraduate Sara Ford Oades leads a group analyzing the causes of Monarch butterfly mortality in Santa Cruz



Undergraduate Christian Lawson examined ancient bison DNA from Russia to help piece together their lineage. A new blog page on our website describes his work and many other Norris Center-funded projects. The bison illustrations accompanying this project were created by undergraduate Ashley Ersepke.

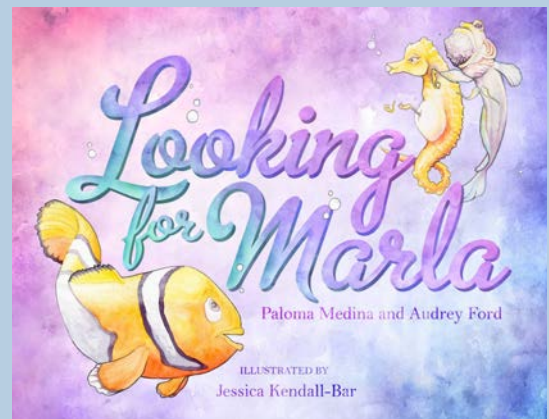
"My unforgettable experience these past 10 weeks in the Natural History Field Quarter community would not have been made possible without your generous help, support, and inspiration. I do believe in the saying, "where there is a will there is a way". This is how I felt about NHFQ, however the reality for many young people of color are financial barriers that stand between us and our dreams. So my gratitude, respect, and appreciation are beyond measure."

ART & SCIENCE INTERTWINE

Our Art-Science Initiative continued to grow this year. We sponsored two sections of our wildly popular Introduction to Nature Illustration class and five public nature art workshops. We hosted a 5-week long nature art exhibition, *Reserves of Inspiration*, a collaborative art show with our UCSC Natural Reserves partners. The show featured 3 main alumni artists and over 30 other student and alumni artists. And we sponsored another year of science/art residency projects involving undergraduate artists and faculty researchers. After 2 years of these projects, we are thrilled to have the opportunity to exhibit some of them to the public in November 2019.



Undergraduate Alejandra Rueda made banner flags to bring awareness to the many animals that will be negatively affected by a US-Mexico Border Wall.



Graduate students Paloma Medina and Jessica Kendall-Bar teamed up to reimagine a biologically accurate version of *Finding Nemo*.



Our Nature Art exhibition featuring artwork from all 5 UCSC-managed natural reserves was a huge success with nearly 1,000 visitors!

GENEROSITY IS A TEAM EFFORT

We are grateful to the nearly 200 supporters that contributed over \$110,000 to our growing programs this year. This included a Giving Day campaign that raised over \$10,000 for student stipends to lead biological survey teams as part of our Natural Reserves Re-survey project. As we celebrate our first five years, we are proud of the solid foundation we have created. As we look forward to the next five years, we are eager to blossom into a resource that reaches all parts of our diverse campus and beyond. Thank you so much for your continued enthusiastic support!

\$10,000+

March Conservation Fund
Joanna Miller
TRA Fund
Thirty Petals Fund

\$1,000-\$9,999

Fungus Federation of Santa Cruz
Google Matching Gifts Program
John and Peggy Holl
Karen Holl and Michael Loik
Kathleen Kenyon
Robert Stephens
Robert Weiner and Karen Rhodes

\$200 - \$999

Jenny and John Anderson
Linda Caplinger
Phil and Margaret Carpenter
Tamara and Gerry Doan
Alisa J. Fineman
Ted Goldstein and Jessica Bernhar
Amy Haberman
Loren and Kristen Kinczel
Jeannine Koshear
Anna Landauer
Linda Brodman
Don Moore
James J. Moore
Ingrid Parker and Greg Gilbert
Schwab Charitable Fund



Up to \$200

Elizabeth Abrams and Joe Lofreddo
Gary Adest
Aiman Akhtar
Miranda Allen
Jean and Frank Andrews
Susan Arnold
Emily Barnett
David and Melca Belanger
Eli Jackson Bernstein
Joseph M Blasher
Michael and Frances Bolte
Dawn Breese
Christi Bricknell
Dennis Brooks and Thien Tran
Adam Bryant
Jennifer Burle
Linda Burman Hall and Tim Shea
Jack Carter
Marie-May Carlson
David and Janet Carle
Kevin Condon
Jessica Correa
Chice Davison
Julia and Steve Davenport
Gage and Lily Dayton
Simone Des Roches
Diane Donham
Elizabeth Evans
Walter and Janet Evans

Up to \$200 continued

Katie Excoffier

Abigail Faulkner and Hobart Guion

Kathleen and Robert Ferraro

Bartley Fong and Carolyn Kernkamp

Stacy Frank

Matt Freeman

Dan Frisch

Edith Frick

Brook Gamble

Tanya Gardner

Steven and Elise Garrett

Kyle Geib

Steve Gliessman and Roberta Jaffe

Serge Glushkoff and Mayumi Takata

Megan Gnekow

Judith Golub

Allison Gong and Alexander Johnson

Sean Hastings

Anne Hayes and Daniel Mountjoy

Rebecca Hendricks

Nicolette Hodgson

Eileen Hofmann

Robert and Christine Holo

Catherine Hsu

Jenna Hurley

Philip Johnston and Barbara Lorimer

Alex Jones

Lyubov Kaplanskaya

Al and Carole Kelley

Laurie Kiguchi and Steve Reed

Laura Krieg

Alex Krohn

Douglas Krohn

James Krohn

Meaghan Krohn

Jean Langenheim

Rosa Lara-Fernandez

Janice and Guy Lasnier

Chris Lay and Elizabeth Andrews

Renee Lebeuf

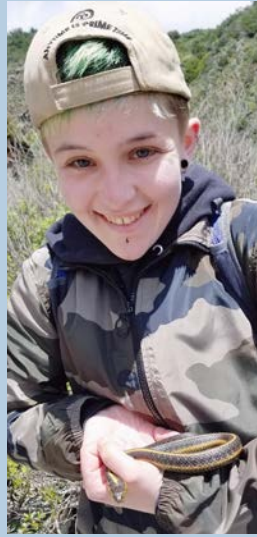
Constance Leshin

Julianna Mandler

Margaret Mcguan

Jonathan and Susan Wittwer

Sara Young



Norman Milstein and Katherine Clark

Susana Miller

Timothy Miller

Jill and Chad Misunas

Katharyne Mitchell and Matthew Sparke

Aggie Morrow

Bryan Mori

Katie and Forest Monsen

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Daniel Ness

Barbara Ness

Veronica Ness

Teresa and Dick Norris

Elena Pacheco

David Pacini

The Peattie Family Trust

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Kyla Roessler

Susan Sanford and Stephen McMillan

Paula Schneider

Susan Shane

Carol Shennan

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Parke and Claire Snavelly

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Ruth Stiles

Lesley and Erik Svenson

Paul Sweeney and Joann Deutch

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Jerry and Robynn Walters

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Trevlyn Williams

Vaughn Williams

Debra Wirkman