



Santa Rosa Island Research Station

California State University Channel Islands

2017-18 Annual Report



Santa Rosa Island Research Station (SRIRS): 2017-18 Annual Report

A. SRIRS User Days & Partners

1. 2017-18 User Days

User Group	User Days
CSUCI Students	1,519
CSUCI Faculty/Staff	403
Non-CSUCI Students	798
Outside Researchers	211
Other Partners	238
Total	3,453

2. **CSUCI Academic Programs (20):** Anthropology, Applied Physics, Art, Biology, Chemistry, Chicano Studies, Communications, Early Childhood Studies, English, ESRM, History, Library Sciences, Mathematics, Outdoor Adventure Club, Performing Arts, Political Science, CSUCI Presidential Scholars, Project OLAS, Sociology and Student Academic Success & Equity Initiatives. (comprised 56% of all visitors)

3. Outside Organizations:

- a. **Academic (24):** Cal Poly San Luis Obispo, Colorado State University, Cornell University, CSU Fullerton, CSU Monterey Bay, San Diego State University, CSU STAR Program, Los Angeles Unified SD – Reseda High School, Pomona College, Oxnard SD – RJ Frank Middle School, Westmont College, University of Colorado, Santa Barbara City College, UC Berkeley, UC Davis, UCLA, UC San Diego, UC Santa Barbara, UC Santa Cruz, University of Michigan, University of Oregon, University of Wyoming, and Ventura Unified SD - Foothill Technology High School.
- b. **Other (13):** National Park Service Wilderness Leadership Council, California Coastal Commission, California Department of Fish & Wildlife, Cause Hanna Family, Channel Islands Naturalist Corp, Coastal Marine Biolabs, Geologic Maps Foundation, NOAA, NPS Inventory & Monitoring Program, Santa Barbara Botanic Garden, Smithsonian Institution, Torrey Pine State Preserve Docents, and United States Geological Survey.

B. SRIRS Student Research

1. Student Capstone/Independent Research Projects

a. Biology (5 Students)

- **Intertidal Ecology:** Identified new intertidal monitoring locations and developed a protocol with the objective of supplementing and expanding upon the Channel Islands National Park long-term monitoring program (*CI Faculty Mentor: Geoff Dilly; NPS Collaborators: Steve Whittaker*).

b. ESRM (6 Students)

- **Big Tree Demography (2 Students):** Santa Rosa Island ironwood (*Lyonothamnus floribundus ssp. aspleniifolius*) demography and grove delineation following removal of non-native deer and elk. (*Faculty Mentors: Brett Hartman & Linda O'Hirok; USGS Collaborator: Kathryn McEachern; SRIRS Staff: Robyn Shea*).
Santa Rosa Island Bishop Pine (*Pinus muricata*) demography and grove delineation following removal of non-native ungulates. (*USGS Collaborator: Kathryn McEachern*).
- **Santa Rosa Island Amphibians:** Baja California Tree Frog (*Pseudacris hypochondriaca*) Tadpole Abundance and Water Quality Parameters. (*Faculty Advisor: Sean Anderson; NPS Collaborator: Paula Power; SRIRS Staff: Aspen Coty and Robyn Shea*).
- **Slope Profiles in Cloud Forest Restoration Site:** Measuring Efficacy of Various Treatment Methods on Soil Retention. (*Faculty Mentors: Brett Hartman & Linda O'Hirok; USGS Collaborator: Kathryn McEachern; SRIRS Staff: Robyn Shea*).

- **Passive Restoration on Santa Rosa Island:** Analyzing percent cover of bare ground across Santa Rosa Island both during and following removal of non-native grazers. (*CI Faculty Mentors: Brett Hartman & Linda O'Hirok; SRIRS Staff: Robyn Shea; USGS Collaborator: Kathryn McEachern*).
- **Lagoon Monitoring:** Monitoring fluctuations of size and salinity over time of the Santa Rosa Island, East End Lagoons. (*NPS Collaborator: Stephen Whittaker; SRIRS Staff: Aspen Coty*).
- c. **English - Creative Writing (1 Student):** Fictional Sci-Fi Novel based on Santa Rosa Island. (*Faculty Mentor: Kim Vose; SRIRS Staff: Aspen Coty & Robyn Shea*).
- d. **Art – Memorial Mural (5 Student):** Interpretive Representation for Island Visitors. (*CI Faculty Mentor: Matthew Furmanski*).

C. Faculty Research Projects

1. Biology

- a. **Geoff Dilly:** Investigating the impacts of climate change (i.e. sea level rise, ocean acidification, etc.) on the intertidal and sub-tidal habitats of Santa Rosa Island (*NPS Collaborator: Steve Whittaker*).

2. ESRM

- a. **Kiki Patsch & Linda O'Hirok:** Establishing a sand budget for Santa Rosa Island, post removal of non-native animals. (*SRIRS Staff: Robyn Shea*).

3. Anthropology

- a. **Jennifer Perry and Colleen Delaney:** Inventorying the pre-historic and historic artifacts in and around the Santa Rosa Island ranch complex. (*NPS Collaborator: Laura Kirn; CSU Fullerton: Courtney Buchannan; SRIRS Staff: Robyn Shea*).

4. Early Childhood Studies

- a. **Annie White:** Creating and Supporting Reciprocal Family and Community Networks – 4 year study. (*CI Faculty Collaborators: Heather Castillo, Bonnie Lavin, Marianne McGrath*).

D. Additional Research Supported by SRIRS

1. **Westmont College:** Examining the herpetology ecology & evolution on Santa Rosa Island.
2. **Cornell/Smithsonian/**
 - a. Investigating song bird population structure and adaptive radiations. – *Colorado State University*.
 - b. Santa Rosa Island oak tree population dynamics.
3. **Santa Barbara Botanical Garden:** Native plant identification and seed preservation/collection.
4. **USGS:** Santa Rosa Island Cloud Forest Restoration and measuring efficacy of varying restoration methods; Big Tree Demography (*Lyonothamnus floribundus*, *Pinus muricata*); Developing a restoration monitoring project within an ecological interaction network framework to guide the ecosystem recovery process on Santa Rosa Island (*NPS Collaborator: Paula Power; USGS Collaborator: Kathryn McEachern; SB Botanical Garden: Denise Knapp*).
5. **USGS and CSU Stem Education Program:** STEM Teacher and Researcher Program (STAR), Summer Research Opportunities for STEM Educators (*USGS Collaborator: Kathryn McEachern*).
6. **Coastal Marine Biolabs:** Obtaining the unique DNA sequences of island arthropods and publishing the results within an international DNA Barcode database. (*Collaborative with Reseda High School and Foothill Technology High School*).
7. **National Park Service:** Wilderness Advisory Committee – Interpretation and Implementation; Historic Ranch Complex – Site Delineation and Excavation.
8. **NOAA, NPS and The Nature Conservancy:** Cultivating Santa Barbara Channel Stewards – Community-Based Marine Debris Removal.
9. **NOAA:** Crossing the Channel: Natural Systems & Stewardship (BWET Logic Model). – *Oxnard School District*.
10. **UCSD:** Examining the phenotypic and genetic difference of ant species across the California Channel Islands.
11. **NPS – Inventory & Monitoring Program, Mediterranean Coast Network:** Document and quantify changes in water quality and stream conditions on Santa Rosa Island over time.
12. **University of Colorado:** Wilderness First Responder training for Pre-Med Students.

E. Plans for future work with this initiative

1. Academics

- a. **K-12:** Maintain current experiential STEM curriculum, aligning with NGSS science and engineering practices, and continue to develop partnerships with local school districts and partners.

- b. Undergraduate:** Continue developing service learning courses and research connections across academic programs. Create an interdisciplinary field school that teaches both environmental science and archeological field methods.
- 2. Grants/Funding:** Apply for grants in order to further support and expand upon the SRIRS programming.
- 3. Research:** Further cultivate research collaborations across a wide array of academic, non-profit, and professional organizations.
- 4. Operations:** Continue to improve upon available infrastructure and user guidelines to ensure visitor safety and cultural and natural resource preservation.