

UNIVERSITY OF CALIFORNIA SANTA BARBARA
Sedgwick Reserve



ANNUAL REPORT
FY 2014-2015
July 1, 2014 – June 30, 2015

Part 1. Reserve Use Data

	UC Home		UC Other		CSU System		CA Comm College		Other CA College		Out of State College		International University		Government		NGO/Non-Profit		Profit Business		K-12 School		Other		Total	
	Users	UDs	Users	UDs	Users	UDs	Users	UDs	Users	UDs	Users	UDs	Users	UDs	Users	UDs	Users	UDs	Users	UDs	Users	UDs	Users	UDs	Users	UDs
Arts/Humanities (non-student/faculty/postdoc)	3	8	1	4	0	0	0	0	15	15	0	0	0	0	0	0	36	37	0	0	0	0	50	76	105	140
Docent	615	1104	1	1	0	0	1	1	0	0	0	0	0	0	0	0	2	8	0	0	0	0	62	70	681	1184
Faculty	71	83	5	14	6	42	1	1	0	0	3	9	17	72	0	0	4	1097	0	0	0	0	0	0	107	1318
Graduate Student	68	128	33	118	29	99	0	0	24	24	2	9	0	0	0	0	1	2	0	0	0	0	0	0	157	380
K-12 Instructor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1
K-12 Student	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	394	410	0	0	394	410
Other	11	25	1	6	0	0	1	4	0	0	0	0	0	0	51	51	79	104	12	12	1	10	1276	1434	1432	1646
Professional	101	110	6	20	0	0	0	0	0	0	0	0	0	0	0	0	55	62	114	119	0	0	30	46	306	357
Research Assistant (non-student/faculty/postdoc)	6	20	1	41	36	92	0	0	0	0	1	16	0	0	0	0	0	0	0	0	0	0	2	15	46	184
Research Scientist/Post Doc	9	76	3	6	10	21	0	0	0	0	2	13	1	54	0	0	6	13	0	0	0	0	0	0	31	183
Undergraduate Student	152	160	1	6	47	137	0	0	20	20	0	0	1	5	0	0	0	0	0	0	0	0	0	0	221	328
Volunteer	6	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	97	1	1	0	0	9	121	57	226
TOTAL	1042	1721	52	216	128	391	3	6	59	59	8	47	19	131	51	51	224	1420	127	132	396	421	1429	1762	3538	6357

Part 2. Reserve Users' Affiliation

University of California

Bren School of Environmental Science
 Sedgwick Reserve
 University of California, Berkeley
 University of California, Davis
 University of California, Los Angeles
 University of California, Office of the President
 University of California, Riverside
 University of California, San Diego
 University of California, Santa Barbara

California State University

California Polytechnic State University (CSU), San Luis Obispo
 California State University (CSU), Chico

California Community College

Antioch University
 Riverside Community College
 Santa Barbara City College

U.S. - University or College Outside of California

Cornell University
 University of Maryland, College Park
 University of Nebraska
 International University or College
 ETH Zurich

K-12 Education

Dunn School
 K-12 Schools Carpinteria
 NatureTrack Foundation

Non-Governmental Organization or Non-Profit Entity

Arts Outreach

Chumash Reservation
Las Cumbres Observatory Global Telescope Network
Pacifica Graduate Institute
Planned Parenthood
Santa Barbara Audubon Society
Santa Barbara Botanic Garden
Santa Barbara Channelkeeper
Santa Barbara Foundation
Santa Barbara Museum of Natural History
Santa Barbara Sage Hens
Santa Ynez Valley Natural History Society
Solvang Lion's Club
Wilderness Youth Project
Wildling Museum
Woodstock Property Owners Assoc

Governmental Agency or Entity

California Department of Fish and Wildlife

Business Entity

Convergence Media Productions
Google

Individual or Other Entity

SLO Women's Hikers
SLOPE
Wild Logic

Part 3. Use by Instructional Groups

Reserve use for college class instruction increased by one from the previous year. Fourteen (14) classes were held at the reserve in 2014-15 compared to 13 classes in 2013-14, and the number of students who attended increased from 194 in 2013-2014 to 378 in 2014-15. Of the 14 classes held at the reserve in this reporting period eight (8) were from UCSB, One from UC Berkeley, three (3) from Cal Polytechnic University, one from Antioch University, and one from Pacifica Graduate Institute.

University of California, Santa Barbara, CA

BIOL CS 101, Walking Biology, Claudia Tyler
ESM 299, Advanced Topics in Environmental Science, Frank W. Davis
Geography (Envst) 114A, Soil Science, Nina Bingham
California Naturalist Certification Course, Kate McCurdy
Geography (Envst) 114B, Soils and Geomorphology, Oliver Chadwick
ES/EEMB 119, Ecology & Management of California's Wildlands, Nicole Molinari
Geography 175, Measuring our Environment, Dar A. Roberts
ESM 235, Watershed Analysis, Derek Booth
Foodweb Modelling, Tonle Sap

University of CA Berkeley, Berkeley, CA

IB 297, Field Course in Paleobiology and Paleoecology, Dr. Seth Finnegan

California Polytechnic State University (CSU) Sant Luis Obispo, CA

ES 450, Fieldwork in Comparative Ethnic Studies, Assoc. Professor Kathleen J. Martin
Soil Morphology SS 321, Prof. Emeritus Lynn Moody
Biology 327/503, Wildlife Ecology and/or Population Biology, Tony A. Frazier

Pacifica Graduate Institute, Santa Barbara, CA

DPS 732, Ecopsychology: The Psyche in Nature, Elizabeth A. Perluss

Part 4. Current Research

Principal Investigator	Affiliation	Project Title	Application #	Status	Project Duration
Janneke Hillerislambers Jonathan Levine	University of California, Santa Barbara University of Toronto University of Washington ETH Zurich	California annual serpentine communities	5611	ending	Jan 2005 to Jul 2014
Romanov Mark Kate McCurdy Spencer Bruttig	University of California, Santa Barbara Sedgwick Reserve Wild Logic	Using trail cameras to document seasonal wildlife migrations at Sedgwick	30363	continuing	Jan 2015 to Jan 2017
Chandra Krintz Rich Wolski	University of California, Santa Barbara PowWow Energy	SmartFarm: Private and Local Cloud-based Sensor Systems for Simplifying and Automating Agriculture Analytics	30439	new	Jan 2015 to Oct 2017
Anita Krause Carla D'Antonio	University of California, Santa Barbara Google University of Minnesota - Twin Cities	Nutrient Network: A Cross-Site Investigation Of Bottom-Up Control Over Herbaceous Plant Community Dynamics And Ecosystem Function.	9822	continuing	Sep 2009 to Apr 2015
Jonathan Levine Simon Hart	University of California, Santa Barbara ETH Zurich	Spatial scales of species coexistence	29975	ending	Oct 2014 to Aug 2015
Bruce Mahall Shelly Cole Claudia Tyler	University of California, Santa Barbara	The role of water stress (drought) in oak seedling and sapling survival and performance at Sedgwick Reserve	1784	continuing	Jul 2006 to Oct 2014
Bruce Mahall Claudia Tyler	University of California, Santa Barbara	Santa Barbara County Oak Project	1785	continuing	Jan 1995 to Jun 2015
Shelly Cole Claudia Tyler	University of California, Santa Barbara	Valley oak seedling competition with near neighbors	22728	continuing	Nov 2010 to Jul 2014
Andy MacDonald	University of California, Santa Barbara	Tick population dynamics and Lyme disease risk in Southern California	25518	continuing	Jul 2012 to Dec 2016
Grant Canova-Parker Kate McCurdy	University of California, Santa Barbara	Using trail cameras to document wildlife using Sedgwick's water sources.	26310	continuing	Jul 2012 to Jun 2015
Patricia Holden Joshua Schimel Stefano Manzoni Sean Schaeffer	University of California, Santa Barbara	Controls over C sequestration: physiology vs. physics	26333	continuing	Dec 2012 to Dec 2015
Heather Schneider Susan Mazer	University of California, Santa Barbara	Project Baseline	26607	ending	Jan 2013 to Sep 2015
Benjamin Gilbert	University of California, Santa Barbara	Ecological Drift in Annual Plant Communities	26646	ending	Aug 2010 to Mar 2015
Brian Haggerty Outreach Coordinator	University of California, Santa Barbara	Plant phenology at Sedgwick Reserve	26715	continuing	Oct 2012 to Jun 2015
Eric Slessarev	University of California, Santa Barbara	Roots and Microbial Enzymes: Investigating an Understudied Component of the Terrestrial Carbon Cycle	28281	continuing	Jan 2014 to May 2015
Brenda Juarez Kate McCurdy	University of California, Santa Barbara	Valley Oak Restoration Techniques	29120	continuing	Dec 2013 to Jun 2015
Nina Bingham Oliver Chadwick	University of California, Santa Barbara	Landscape evolution and exhumation of rock nitrogen	29558	continuing	Jun 2014 to Dec 2014
Paul Alessio	University of California, Santa Barbara	Measuring Infiltration Rates of Historic Landslides to Determine Thresholds for Instability	30283	ending	Jan 2015 to May 2015
Patricia Holden Ying Wang	University of California, Santa Barbara	Soybean Susceptibility to Carbonaceous Nanomaterials	30474	new	Jan 2015 to Apr 2015
Jonathan Markowitz	University of California, San Diego University of Southern California (USC)	The Comparative Governance of Common Pool Resources	26024	continuing	Oct 2012 to Aug 2014
Elsa Cleland Ellen Esch	University of California, San Diego	Litter decomposition in California chaparral: Examining the effects of photodegradation and local microbial adaption across a naturally occurring precipitation gradient.	27137	continuing	May 2013 to May 2016
Andy Lentz	University of California, Los Angeles	Phenology of Quercus lobata on the Sedgwick Reserve in the Figueroa watershed	19460	continuing	Jan 2009 to Jun 2015
Victoria Sork	University of California, Los Angeles	Sampling to create a reference genome for valley oak	29876	continuing	Sep 2014 to Jun 2015
Jonathan Levine Nathan Kraft	University of California, Irvine University of California, Los Angeles University of California, Santa Barbara University of Maryland, College Park	Functional trait correlates of annual plant coexistence	28374	continuing	Nov 2013 to Aug 2017
Stella Copeland Susan Harrison	University of California, Davis	Statewide Sites Data Collection Susan Harrison Lab	29128	one time	Apr 2014 to Mar 2015
Alexandra Weill	University of California, Davis	Variation of fire-adapted traits in space and time: what can Ceanothus tell us about shrubland resilience in the face of shifting fire regimes?	31091	ending	Apr 2015 to Sep 2015
Elsa Cleland Laurel Brigham	University California, San Diego	UC Climate Initiative Fellowship--Carbon Turnover Rates Along a Gradient	30933	ending	Apr 2015 to May 2015
Elsa Cleland Joseph Waterton	University California, San Diego	The potential for native and exotic plants to adaptively evolve their phenologies in response to climate change: a test with Stipa pulchra and other widespread species sampled from a latitudinal gradient in California	30816	new	Apr 2015 to Jun 2018
Erin Riordan Kelly Easterday	University California, Berkeley	Climate Change Modeling	31034	continuing	Oct 2014 to Apr 2016
John Hygelund Lorna Boyd	Las Cumbres Observatory Global Network	Sedgwick Observatory	20689	continuing	Jan 2010 to Jun 2015
John Hygelund	Las Cumbres Observatory Global Network	Development of the Global Network of Robotic Echelle Spectrographs	25763	continuing	Aug 2012 to Aug 2015
Walt Koenig	Cornell University	Reproductive Phenology of Valley Oaks (Quercus lobata)	1702	continuing	Sep 1980 to Dec 2016
Don Miller	California State University (CSU), Chico	Three novel Tamalia (Hemiptera, Aphididae, Tamalinae) species associated with leaf galls on Arbutus, Arctostaphylos, and Comarostaphylis shrubs (Ericaceae) in North America	31394	one time	May 2015 to June 2015
Emily Taylor Tony Frazier Natalie Claunch	California Polytechnic State University, SLO	Rattlesnake Ecology	30688	new	Jan 2015 to Oct 2015

Part 5. Publications

- Ashley, M. V., Abraham, S. T., Backs, J. R. & Koenig, W. D. Landscape genetics and population structure in Valley Oak (*Quercus lobata* Née). *Am. J. Bot.* 102, 21242131 (2015).
- Atwell, A. Plasticity in Female Mate Choosiness: A Result of Variation in Perceived Predation Risk and the Interaction of Female Age and Male Density. *Dissertations and Theses in Biological Sciences* (2014).
- Baker, B. The Way Forward for Biological Field Stations Change needed to ensure survival and scientific relevance. *BioScience* 65, 123-129 (2015).
- Bieryla, A. et al. KELT-7b: A hot Jupiter transiting a bright $V = 8.54$ rapidly rotating F-star. *arXiv preprint arXiv:1501.05565* (2015).
- Christie, J., DeMarco, E., Hiroyasu, E., & Kreger, A. Wild Pig Management on Tejon Ranch. Bren School Group Project report to the Tejon Ranch Conservancy.
- Cleland, E. E., Esch, E. & McKinney, J. Priority effects vary with species identity and origin in an experiment varying the timing of seed arrival. *Oikos* 124, 3340 (2015).
- Cokus, S. J., Gugger, P. F. & Sork, V. L. Evolutionary insights from de novo transcriptome assembly and SNP discovery in California white oaks. *BMC Genomics* 16, 1-19 (2015).
- Dawson, R. I. et al. Large eccentricity, low mutual inclination: the three-dimensional architecture of a hierarchical system of giant planets. *The Astrophysical Journal* 791, 89 (2014).
- Delfino-Mix, Annette; Wright, Jessica W.; Gugger, Paul F.; Liang, Christina; Sork, Victoria L. 2015. Establishing a range-wide provenance test in valley oak (*Quercus lobata* Née) at two California sites. In: Standiford, Richard B.; Purcell, Kathryn L., tech. cords. Proceedings of the seventh California oak symposium: managing oak woodlands in a dynamic world. Gen. Tech. Rep. PSW-GTR-251. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station: 413-424.
- Friberg, M., Schwind, C., Roark, L. C., Raguso, R. A. & Thompson, J. N. Floral Scent Contributes to Interaction Specificity in Coevolving Plants and Their Insect Pollinators. *J Chem Ecol* 40, 955-965 (2014).
- Ge, Y., Schimel, J. P. & Holden, P. A. Analysis of Run-to-Run Variation of Bar-Coded Pyrosequencing for Evaluating Bacterial Community Shifts and Individual Taxa Dynamics. *PLoS ONE* 9, e99414 (2014).
- Ge, Y. et al. Soybean Plants Modify Metal Oxide Nanoparticle Effects on Soil Bacterial Communities. *Environ. Sci. Technol.* 48, 13489-13496 (2014).
- Godoy, O., Kraft, N. J. B. & Levine, J. M. Phylogenetic relatedness and the determinants of competitive outcomes. *Ecol Lett* 17, 836-844 (2014).
- Hartman, J. D. et al. HAT-P-44b, HAT-P-45b, and HAT-P-46b: Three Transiting Hot Jupiters in Possible Multi-planet Systems. *The Astronomical Journal* 147, 128 (2014).
- Homyak, P. M., Vasquez, K. T., Sickman, J. O., Parker, D. R. & Schimel, J. P. Improving Nitrite Analysis in Soils: Drawbacks of the Conventional 2 M KCl Extraction. *Soil Science Society of America Journal* 79, (2015).
- Kerr, P. H. The Megophthalmidia (Diptera, Mycetophilidae) of North America including eight new species. *Zookeys* 29-83 (2014). doi:10.3897/zookeys.386.6913
- Kivlin, S. N. & Treseder, K. K. Soil extracellular enzyme activities correspond with abiotic factors more than fungal community composition. *Biogeochemistry* 117, 23-37 (2014).
- Kraft, N. J. B., Godoy, O. & Levine, J. M. Plant functional traits and the multidimensional nature of species coexistence. *PNAS* 112, 797-802 (2015).
- Kraft, N. J. B., Adler, P. B., Godoy, O., James, E. C., Fuller, S. and Levine, J. M. (2015), Community assembly, coexistence and the environmental filtering metaphor. *Funct Ecol*, 29: 592599. doi:10.1111/1365-2435.12345

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Lin Y, Prentice SE, Tran T, Bingham NL, Chadwick OA, and King JY. Modeling deep soil properties on California grassland hillslopes using LiDAR digital elevation models. *Geoderma Regional*, in press

Lin, Y., King, J. Y., Karlen, S. D. & Ralph, J. Using 2D NMR spectroscopy to assess effects of UV radiation on cell wall chemistry during litter decomposition. *Biogeochemistry* 125, 427436 (2015).

Lin, Y., Scarlett, R. D. & King, J. Y. Effects of UV photodegradation on subsequent microbial decomposition of *Bromus diandrus* litter. *Plant Soil* 395, 263271 (2015).

Lister, T., Knight, M. M., Snodgrass, C. & Samarasinha, N. H. LCOGT Network observations of spacecraft target comets. in American Astronomical Society Meeting Abstracts 225, #137.22 (2015).

Martin, C. Costs of Female Mating Behavior in the Variable Field Cricket, *Gryllus lineaticeps*. *Dissertations and Theses in Biological Sciences* (2014).

McCurdy, K.E. and C. Tyler. Establishing Valley oaks (*Quercus lobata*) in Groasis® Waterboxxes - a head start for an oak woodlands next generation? 7th California Oak Symposium: Managing Oak Woodlands in a Dynamic World Poster Session - Regeneration & Restoration. Visalia, CA Nov. 3 6, 2014.

Mori, K. et al. Integrated watershed modeling for simulation of spatiotemporal redistribution of post-fallout radionuclides: Application in radiocesium fate and transport processes derived from the Fukushima accidents. *Environmental Modelling & Software* 72, 126146 (2015).

Pearse, I. S., Baty, J. H., Herrmann, D., Sage, R. & Koenig, W. D. Leaf phenology mediates provenance differences in herbivore populations on valley oaks in a common garden. *Ecol Entomol* 40, 525531 (2015).

Platt, A., Gugger, P. F., Pellegrini, M. and Sork, V. L. (2015), Genome-wide signature of local adaptation linked to variable CpG methylation in oak populations. *Mol Ecol*, 24: 38233830. doi:10.1111/mec.13230

Sork, V. L., Smouse, P. E., Grivet, D. & Scofield, D. G. Impact of asymmetric male and female gamete dispersal on allelic diversity and spatial genetic structure in valley oak (*Quercus lobata* Née). *Evol Ecol* 29, 927945 (2015).

Spiegel, S. A. The Ecological Basis for Grassland Conservation Management at Tejon Ranch, California. eScholarship (2015).

Tan, A. J. Microscale Topographic Influence on Grassland Primary Productivity on Semiarid Hillslopes. (MS Thesis, University Of California, Santa Barbara, 2014).

Trumbore, S., Czimczik, C. I., Sierra, C. A., Muhr, J. & Xu, X. Non-structural carbon dynamics and allocation relate to growth rate and leaf habit in California oaks. *Tree Physiol* tpv097 (2015). doi:10.1093/treephys/tpv097

Travis, J. T. Microscale Topographic Influence on Grassland Primary Productivity on Semiarid Hillslopes. (2014).

Tyler, Claudia; Moritz, Shelly Cole 2015. *Quercus lobata* seedlings and conspecific neighbors: Competitors or allies? In: Standiford, Richard B.; Purcell, Kathryn L., tech. cords. Proceedings of the seventh California oak symposium: managing oak woodlands in a dynamic world. Gen. Tech. Rep. PSW-GTR-251. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station: 425-431.

Wang, Y. Comparative Effects of Carbonaceous Nanomaterials on Soil-Grown Soybeans (University Of California Santa Barbara 2015 ERI Summer Fellowship Report (2015).

Part 6. Narrative

CURRENT RESEARCH

Forty-two (42) research projects were handled by the Reserve staff during the fiscal year. A listing of the research projects can be found in Part IV: Current Research FY2014-15.

In 2014-2015, researchers spent 2575 days working on 26 projects for an average of 99 days per project. This reflected fewer overall projects and an average of 20 more days per project over the previous fiscal year. As in previous years, the majority of research

conducted at Sedgwick was done during day-only visits. UCSB researchers had both the most projects (18 projects and 1169 days of use). The highest level of use was contributed by the Los Cumbres Observatory Telescope Network, which reported use of the BOS telescope on 90% of viewable nights (1263). This use was largely by remote operation of the BOS observatory. Researchers from other UC campuses were the second most frequent users with 7 projects and 69 user days. The remaining projects were completed by out-of-state universities (5 projects, 47 user days), and by International universities (4 projects and 27 user days).

Publications (36) were found using Google Scholar search functions and Zotero publication management software and expending considerable time tracking current and past researchers.

UNIVERSITY LEVEL INSTRUCTION

Reserve use for college class instruction increased by one from the previous year. Fourteen (14) classes were held at the reserve in 2014-15 compared to 13 classes in 2013-14, and the number of students who attended increased from 194 in 2013-2014 to --- in 2014-15. Of the 14 classes held at the reserve in this reporting period eight (8) were from UCSB, One from UC Berkeley, three (3) from Cal Polytechnic University, one from Antioch University, and one from Pacifica Graduate Institute.

PUBLIC OUTREACH

Public outreach continued to be active on the reserve during the fiscal year. There were 3399 users totaling 4488 user days.

Public Use Groups:

The field station was used by fifty-three (52), public/non academic groups during the fiscal year, an increase of four (4) groups in the previous reporting period. Some of the visiting groups were: the Woodstock Home Owners Association, the Wilderness Youth Project, The Fund for Santa Barbara Board, the Santa Barbara Foundation THRIVE workshop, Nature Track Foundation, Santa Barbara County Search and Rescue, five (5) UCSB departmental retreats (Housing & Residential Services, Administrative Services Directors Retreat, OFAS Staff Retreat, MAT Faculty Retreat, and KITP Retreat), Wine-Tech Food Conference, Boy Scout Troop 4 Service Project, the Wildling Art Museum, the Santa Barbara Natural History Museum, the Santa Ynez Valley Natural History Society, Chumash Wellness Circle, and Las Cumbres Observatory Global Telescope.

Walking Ecology Public Lecture Series:

The Walking Ecology lecture series resumed in November and was well attended by the public and docents, with an average of 45 attendees per lecture. The topics in the seven (7) lectures this fiscal year included: *History of Sedgwick Reserve* by Carol Gibbens, *Crows & Birds* by Corina Logan, *Oaks of Sedgwick* by Claudia Tyler, *Soils of Sedgwick* by UCSB professor Oliver Chadwick, *Grasses of Sedgwick Reserve* by UCSB professor Carla D'Antonio, *Bees* by entomologist Anna Howell, *Astronomy* by SB Astronomy Organization, and *Botany of Sedgwick Reserve* by Bob Cummings.

During the fiscal year, over one thousand visitors learned about the Reserve's rich cultural history and had opportunities to see historical preservation in action. The Walking Ecology lecture series started out with Carol Gibbens's well attended Reserve history talk and tour of the field station and barn; 160+/- guests attended the 5th annual Barn Dance. One-hundred (100) elementary school students toured the barn in search of barn owls and to learn about ranching life in early California. Seven (7) Midland high school students participated in an equestrian overnight campout in the barn. Horseback riding was limited to 100 user days.

Dark Skies Event:

Sixty astronomy enthusiasts, donors and friends of the Reserve were treated to a night of the Reserve's most valuable asset: the dark night sky. They enjoyed Santa Ynez Valley's finest wines, beer, and food. Despite heavy rain earlier in the day, the weather was cooperative and a few adventurous guests walked up to the Byrne Observatory on Lisque Mesa. Unfortunately, a cloud cover prevented the Santa Barbara Astronomical Unit from making use of their telescopes that evening. The highlight of the evening was the Q & A period between the guests and Lars Bildsten, UCSB's Kavli Institute of Theoretical Physics and LCOGT's Wayne Rosing. Docent and WE Watch member, Nancy Emerson, delivered a passionate address to the audience about preserving the night sky. Finally, the guests were thrilled to watch the video of the night sky in the Santa Ynez Valley which was filmed in the Santa Ynez Valley, including the Reserve, by Tyler Rocheleau, a student from Brooks Institute in Santa Barbara.

K-12 Program:

K-12 education continued at the Reserve, facilitated by Nature Track. Students from eight (8) elementary schools visited during the fiscal year. Approximately three hundred seventy-nine (379) students from Santa Barbara and Santa Ynez Valley schools visited the reserve for nature education activities. The number of class visits was two less, and 129 students less, than the previous fiscal year.

Public Hikes:

Docent-led interpretive public hikes began in November and continued through June 2015 for a total of seven public hiking days in this fiscal year. One hike on the schedule was cancelled due to rain. Overall, approximately three hundred (300) hikers participated in the public hikes.

Docent Activities:

Throughout the 2014-15 year, docents participated in a number of activities totaling 993 user days, including eight (8) Walking Ecology lectures, the Lake Cachuma Christmas Bird Count, eight (8) docent-training lectures, eight (8) public hikes and three (3) private hike for retreats of various organizations. Additionally, docents worked in the native plant nursery, planted native plants and weeded around the field station, maintained hiking trails, and completed weekly bird counts.

The Sedgwick Reserve Phenology Project, a part of the larger California Phenology Project, is now in its 4th year. Eleven (11) dedicated Sedgwick docents/phenologists recorded data along an established phenology trail, consisting of 24 plants of 6 different species: Valley Oak, California Live Oak, California Buckwheat, Blue Elderberry, Coyotebrush and Toyon. Phenologists user days totaled over 402 for the fiscal year.

In the fall of 2014, five (5) docents completed the California Naturalist certification program offered through the Santa Barbara Botanic Garden. Their Capstone projects enhance native plant knowledge and restoration efforts at Sedgwick reserve, wildflowers of the reserve, and a slideshow presentation of the reserve pond's denizens and cattail eradication activities.

The valley oak restoration project continued in the fiscal year. Docent Oakievolunteers watered the seedlings in the field every two weeks for a total of ninety-six (96) user days. Fourteen (14) plantings that failed to survive were replaced in the spring quarter.

The birding team conducted weekly counts totaling 52 for the year.

STEWARDSHIP

For the fourth year in a row, there was below average rainfall at the Reserve. The seasonal rainfall total was 9.25 inches, recorded by the DRI weather station located on the ridge north-west of the Tipton Meeting House. Mean annual rainfall for the Santa Ynez Valley is 15.81 inches.

The Reserve's aquifer was measured by the USGS in October 2014 to be 31 feet below surface and in March 2015 to be 32 feet below surface. By comparison, in wet years the aquifer reaches the surface, but averages 20 feet below surface. The USGS has been sampling the aquifer since 1950 (65 years).

Various projects were completed this fiscal year: Depredation efforts yielded 26 feral pigs using a baited trap (carried out by reserve staff and 1 volunteer).

Boy Scout troop #4 completed their required service hours at the reserve by planting dozens of native plants grown in the reserve's native plant nursery along the new hedgerow bordering the farm.

Farm and grazing leases were discontinued until the drought is over.

Weed management: Tumbleweeds in the farm were disked under with the new disking attachment on the tractor. No goat grass found growing at the reserve. Steward, Valentin Navarro removed weeds manually along all the roadsides and the pond.

There is a significant increase in the number of Blue oaks (*Quercas douglisai*) and Valley oaks (*Quercas lobata*) dying in place and falling over in wind events. In Fall 2014, two large Valley Oaks fell - one in Windmill Canyon and one near the Director's residence.

DEVELOPMENT

The fundraising year at Sedgwick began on a high note in July with the 5th Annual Barn Dance, a friend-raising celebration that was begun in 2010 to commemorate the completion of the Barn restoration and the donor who made it possible. This year, red "ranch" bandanas were given to participants and record numbers of guests were treated to tri-tip and square dancing on a hot summer night.

January was marked by the agreement with long-time Sedgwick friends, Judy and Jack Stapelmann to gift a second residence to the Reserve, a similar structure to the manager's pre-fab house that was gifted in 2009. This house will be situated next to the manager's house and will provide a residence for the reserve steward.

In an effort to maximize development opportunities and collaborate effectively among environmental and ecological science units on campus, Sedgwick donors and friends were invited to an event in February at the Bren School that highlighted fire in a Strategic Environmental Research Initiative (SERI). The evening included an art installation that was constructed at the Center for Environmental Communication and Education (CECE) and dinner at the Bren School. This was the first in what is hoped will be a continuing effort to build on donor interests in the environment that will benefit these departments and units including the Natural Reserve System.

Sedgwick staff participated in a UC NRS system-wide effort to identify funding priorities for the next five years, in preparation for a UC NRS \$50 million fundraising campaign that will be officially launched in 2016. Key Sedgwick donors have been targeted to participate in campaign leadership, but all gifts to the campaign will be credited to individual reserves that donors wish to support.

Work on the building project that encompasses the renovation of the Sedgwick Reserve Ranch House began in March. A Building Committee was assembled that includes Sedgwick and NRS management, docents, faculty familiar with the reserve and the UCSB NRS development officer. The latter is charged with keeping the donor up to date on progress relating to established milestones and an agreed upon payment schedule. It is anticipated that the renovation will be completed in the fall of 2016.

Reserve personnel also participated in events to highlight the ecological and environmental sciences at UCSB (including the NRS). These events included Earth Day Santa Barbara and UCSB's All-Gauche Weekend, both held in April. Exhibits focused on the 50th anniversary of the Natural Reserve System and educating new audiences about the NRS.

In May, an event, Dark Skies and Bright Stars at Sedgwick Reserve, was held to inform and educate neighbors and SYV residents about the campaign to have the reserve designated as a Dark Skies Preserve, a worldwide initiative. About 80 people were enthralled to hear Observatory donor Wayne Rosing talk about his work with Las Cumbres Global Observatory and at Sedgwick.

An annual fundraising solicitation was emailed in to the Constant Contact mailing list in December, and hard copy solicitations were mailed to key donors. This effort, along with various donations throughout FY15 elicited a total of \$409,589 in contributed funds.

FACILITIES

In 2014-15, facility rentals generated \$8,296.19 in invoices, a decrease of \$2,724.51 from the previous fiscal year. Annual maintenance on all reserve vehicles was completed.

Other facility projects included:

Final work on the maintenance barn was completed including painting and electrical hook-up. An awning was built over the western windows to shield the building from afternoon sun and stewards moved cabinetry into the space.

The native plant nursery was relocated in an area adjacent to the historic barn. Gates were installed and rodent-proof fences and a water tie-in were completed.

The electrical upgrade, including relocation of the main electrical panels and solar inverters to a single site adjacent to the parking area, was completed. Installation of a new water main to field station buildings was completed, and a fire hydrant was installed at the ranch house.

Plumbing in the studio apartment had to be redone, as the old pipes in the building could not withstand the pressure of water coming in new lines from Woodstock.

In July, 2014 water to all Sedgwick facilities became potable. An agreement with the Woodstock Home Owners Association provides metered water to the Reserve but cannot be used for landscaping or irrigation. Water is still being pumped from the shared ag well to fill the field station cistern, keep the pond full and for outdoor landscaping water.

Road projects were completed including resealing the paved road, grading of main entrance road, addition of road base to a designated parking area, grading west of the studio to improve drainage and improvement of the road that connects the barn, maintenance shop and residential access areas.

ADMINISTRATION

In the fiscal year, Kate McCurdy reached her 9th anniversary as director of the reserve. Assisted by two part-time (40% time) outreach coordinators, the director managed multiple reserve users including researchers (297 users and 2453 user days) university level classes (351 users and 559 user days); K-12 groups (396 users and 421 user days); and docents, volunteers, NGO groups, and other public users (2464 users and 2891 user days). Users in 2014-15 totaled 3,543 compared to 2013-14 total users 3,668, a decrease of 125 users.

March and June 2015 use were the months of greatest use. University level instruction showed an increase of 93 users and 187 user days over 2013-14.

Two additional part-time staff members were hired in the spring quarter: Meighan Diethofer was hired to assist the director with writing a management plan. Jessica Boone, funded by a donation funds, was hired to create GIS mapping of the reserve.

Outreach coordinators generated weekly news bulletin sent to Sedgwick administrators, docents and volunteers. A bi-annual newsletter was generated for the general interest list over 3,000 recipients.

Reserve maintenance continued to be supported by a crew of part-time stewards Valentin Barbosa-Navarro, Gloria Larios, George Granger, and Brian Guerro. Eric Massey is a full-time steward.

Part 7. NRS Campus Committee Roster

Sally Holbrook, Committee Chair*; Environmental Studies and Ecology, Evolution and Marine Biology

Patricia Holden, Director, UCSB NRS*; Bren School

Susan Swarbrick, Associate Director*; UCSB Natural Reserve System

*Ex Officio members serve on the Committee by virtue of their position with the NRS (Director, Associate Director, Committee Chair, Faculty Advisor)

Sedgwick Reserve

Vacant, Faculty Advisor*;

Chandra Krintz, Representative; Computer Science

Community Representatives

Chet Work, Land Trust of Santa Barbara County

Mary Meyer, California Department of Fish and Game

Eamon O'Byrne, The Nature Conservancy

Student Representatives

Marissa Bills, Undergraduate Representative; Associated Students

Nate Emery, Graduate Representative, Graduate Student Association