



THE JEPSON GLOBE

A Newsletter from the *Friends of The Jepson Herbarium*

VOLUME 23 NUMBER 2, Fall 2013

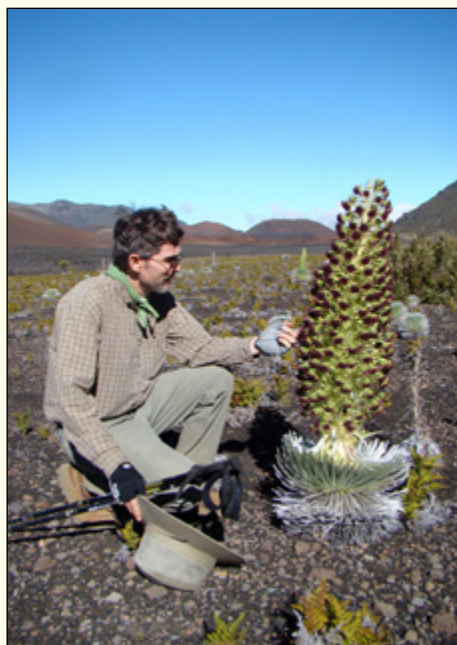
Curator's Column: Unending Synthesis

By Bruce G. Baldwin

The coming year will be the 50th anniversary of the publication of the late Lincoln Constance's seminal article on "Systematic Botany – An Unending Synthesis" (*Taxon* 13:257-273 [1964]), which has withstood the test of time as a perspective on the philosophy and goals of plant taxonomy. He predicted that new lines of evidence on plant relationships and diversity will continue to emerge and that the need to refine plant classification in light of new discoveries will remain with us for the indefinite future, if our taxonomy is to reflect our most current understanding of phylogeny. Although those views reflect mainstream thought today, at the time there was far less agreement on what taxonomists should strive for in classifying plants.

The ability for botanists to readily obtain DNA sequences and to use computers for analyzing large amounts of systematic data was seen as a hopeful prospect for taxonomy in 1964. The realization of those goals, in addition to theoretical and algorithmic advances, by the late 1980s and early 1990s can be measured in part for California floristics by much of the change embodied in the second edition of *The Jepson Manual* (TJM2), in comparison with the 1993 volume. The recently released Supplement I to TJM2 (available here: http://ucjeps.berkeley.edu/IJM_suppl_summary.html), and simultaneous revisions to the Jepson eFlora, in part

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Haleakala Crater, Maui, with the Haleakala silversword (Argyroxiphium sandwicense subsp. macrocephalum).

Photo by Sue Bainbridge

Asa Gray Award Announcement

By Mark P. Simmons, Public Relations Chair, ASPT

The American Society of Plant Taxonomists awarded Dr. Bruce Baldwin, the W.L. Jepson Professor and Curator of the Jepson Herbarium, the Society's 2013 Asa Gray Award. The award is named for Asa Gray (1810–1888), the most important American botanist of the 19th century, and recognizes outstanding lifetime achievement in the field of plant systematics.

Dr. Baldwin is an expert on the California flora and the Compositae (the aster and sunflower plant family). Dr. Baldwin has published over 150 scientific articles and led the

(Continued on page 10)

Research Associate, Jennifer Sowerwine, receives \$4 million award from the U.S. Department of Agriculture

Jennifer Sowerwine, a Research Associate at UC/JEPS, has received funding for a five-year grant entitled "Enhancing Tribal Health and Food Security in the Klamath Basin of Oregon and California by Building a Sustainable Regional Food System."

Through an integrated program of research, education, and outreach, Jennifer will be working with members of the Yurok, Karuk, and Klamath Tribes, and representatives from the Mid-Klamath Watershed Council, UC Cooperative Extension, San Francisco State, College of the Redwoods, and other stakeholders to improve access to healthy, affordable, and culturally appropriate food in the Klamath Basin.

Specifically, the project aims to address sustainable land management and food security needs in the Klamath basin that spans from the town of Klamath near the Pacific Ocean in northern California to the towns of

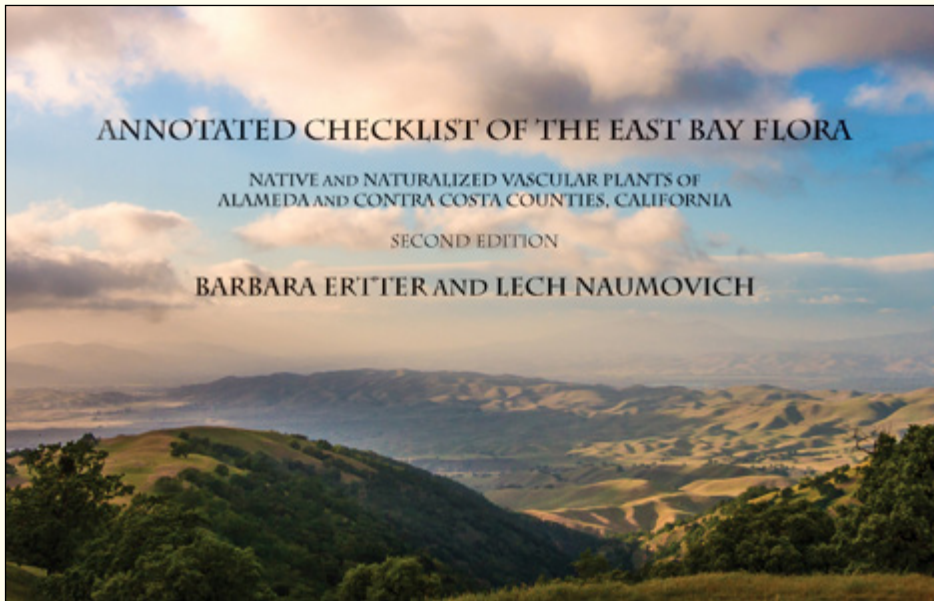
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ALSO IN THIS ISSUE

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- Oleg Polunin award; for GOD
- New staff and graduate students
- Heckard Summer Fellowship
- Vegetation Type Map Project
- Digitizing Cultivated Plant Collection
- Award from the Guggenheim Fdn
- 2013 Workshop Year In Review



New, fully updated edition of the East Bay Checklist!



By Barbara Ertter

Photo by Lech Naumovich

Since its original publication in 1997, the *Annotated Checklist of the East Bay Flora: Native and Naturalized Vascular Plants of Alameda and Contra Costa Counties, California* has been THE comprehensive summary of plants occurring spontaneously in the East Bay. It was initiated in 1990 by Dr. Barbara Ertter, Curator of Western North American Flora at the University and Jepson Herbaria, and published as a joint project of the Jepson Herbarium and East Bay Chapter of the California Native Plant Society. The original edition was prepared by Ertter and collaborator Tony Morosco; the new edition is coauthored by Ertter and restoration ecologist Lech Naumovich, supported by the Mary L. Bowerman and Lawrence R. Heckard endowment funds of the Jepson Herbarium.

Among the improvements to the new *Checklist* is an expanded introductory section that explains the concept and codings, plus a brand new descriptive summary of the geographic sections and subunits of the two-county area. Maintaining the philosophy of the previous edition, the new *Checklist* strives to balance maximum information content with maximum compactness, with the result that each entry is a single line (now in landscape rather

than portrait orientation) with coded distributional and rarity status. Keys to the codes are conveniently placed on the inside front and back covers, along with a colored map newly produced by Heath Bartosh. The map shows the approximate boundaries of the eight geographic sections used to indicate each species' occurrence, and also the extent of currently conserved lands, distinguishing between open or restricted access. The new introductory discussion of each section and subunit addresses special features, plants of particular interest, existing public access to conserved

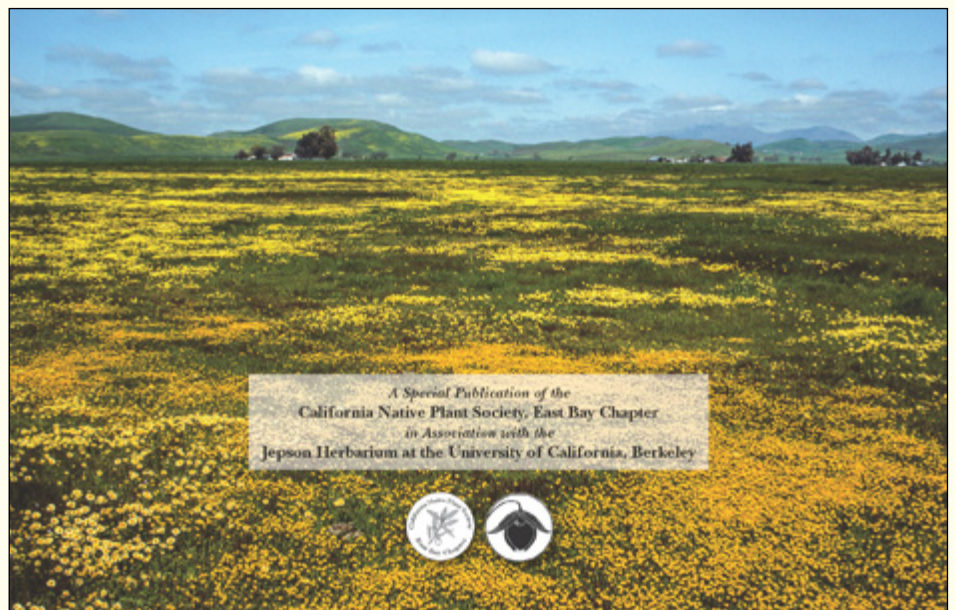
areas, and conservation threats.

The new *Checklist* includes 1,837 species, subspecies, and/or varieties, of which 1,303 (71%) are native and 534 (29%) are naturalized non-natives. An additional 172 entries address non-persisting or non-reproducing waifs. This apparent increase of 42 native and 160 naturalized plants compared to the 1997 edition is actually an under-tally, since some previous entries were deleted due to taxonomic lumping or other reasons. In some cases a back-and-forth with authors for the second edition of *The Jepson Manual* (TJM2) resulted in distributions needing to be changed in the *Jepson eFlora*.

With a few exceptions, nomenclature and family assignment for all entries match those of TJM2, with cross-references inserted to help track down current identity and placement of familiar old names. *Checklist* entries are in strict alphabetical order; an appendix shows all genera arranged by family as per TJM2.

Copies sold at East Bay Chapter CNPS meetings and Native Here Nursery for \$15 plus tax; also available on-line at ebcnps.org via PayPal for \$21.35 (includes tax and shipping to USA address). 📍

Photo by Steve Edwards






Andrew Doran Receives an Oleg Polunin Award

Andrew Doran (UC/JEPS) has been awarded a grant to travel to Charterhouse School in Godalming, Surrey and the Royal Botanic Gardens, Kew in London, where he will continue his research documenting the botanists and collections of the Charterhouse School Herbarium (GOD), the specimens from which are now housed as a separate collection in the University Herbarium.

The small but historically significant herbarium dates back to the late eighteenth century and contains specimens of plants (including algae) and fungi, mostly from the British Isles. There are also limited collections from the continent, North America, South Africa, and Middle East in addition to the Canary Islands, Hawaii, Madeira, and Saint Helena. A collection of cultivated specimens represents early introductions into the United Kingdom and some of the leading nurserymen,

botanists, and private estates of the late eighteenth and early nineteenth centuries. More information about the Charterhouse School Herbarium can be found online at ucjeps.berkeley.edu/god/ and, in the future, the specimen records will also be available. Portions of the collection can already be seen at the Herbaria@home website, a volunteer database project run by the Botanical Society of the British Isles: herbariaunited.org/atHome/. 

Andrew Doran pictured here in the Charterhouse archives with a bound folder of British ferns. Behind is a painting of Lord Baden Powell, also an old Carthusian. Andrew will be visiting the archives to research the Charterhouse botanists, particularly the Reverend Samuel Titmas, a chemistry teacher at the school.



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Thank you for supporting the Herbarium and its programs!



WELCOME NEW STAFF AND GRADUATE STUDENTS

David Baxter



David Baxter in RBG's Mediterranean Greenhouse. Photo by Natalie Iwanycki

The Herbaria are pleased to announce the arrival of David Baxter, our new IT Specialist and Curator of Biodiversity Data. A native Canadian, David became interested in informational biology during his first undergraduate course in bioinformatics at McMaster University in Hamilton, Ontario, Canada. He pursued information management work with the McMaster University Libraries (working with the university's map collection) and, following graduation, he held a summer student position as a digitization technician at the Herbarium of the Royal Botanical Gardens (RBG), Ontario. The position at RBG allowed him to learn about database and data management issues facing botanical collections. He was so interested in the work that he volunteered as a curatorial assistant for the RBG Herbarium and living collections during the following year and applied for the Master of Information program at University of Toronto.

In his first year of graduate studies, he immediately sought work at the Royal Ontario Museum Herbarium (ROM) and received a position as a georeferencing technician for the Canadensys project, which publishes Canadian natural history collections records. Once he completed coursework in database design, his herbarium duties shifted to those of database analysis and administration. His duties ranged from researching Darwin Core standards to

improving database performance to managing summer students.

For the past three years, David has either been working or volunteering in herbaria and has continued to hone his information management and curatorial skills.

David considers his position at UC Berkeley to be his "dream job" and we are pleased to welcome him as part of the UC/JEPS team and also as the Technical Editor of the Consortium of California Herbaria.

Please feel free to contact him: David Baxter (dbaxter@berkeley.edu).

Will Freyman



Will Freyman, in Zion National Park. Photo by Jeremy Horwitz

Will Freyman, a new graduate student in the Baldwin lab, is a native of the tall-grass prairies and oak savannas of Illinois. At Northeastern Illinois University in Chicago, Will studied the molecular systematics and biogeography of the genus *Rhodiola* (Crassulaceae). Will also worked as a software engineer developing visualization and analysis tools for conservation informatics. For the National Audubon Society, he developed an open source geospatial web application to help plan and assess ecological restoration projects. Passionate about conserving plant biodiversity, he has been an active volunteer working to restore the Chicago-region's native ecosystems.

At Berkeley, Will's research interests are in plant systematics, computational phylogenetics, and biodiversity informatics. He plans to apply his programming skills to botanical research through large-scale or genomic-level phylogenetic analysis, and help develop


phyloinformatics tools. As a lifelong hiker and backpacker Will is thrilled to begin fieldwork in California's vast and diverse natural areas. Will lives with his wife Sophia and their four-year-old daughter Aliya.

Adam Schneider



Adam Schneider at Los Gemelos, Isla Santa Cruz, Galapagos, Ecuador. Photo by Kaitlyn Beaty

Adam began his graduate studies in the Baldwin Lab last year, coming here from Wisconsin. He was born and raised there and went to school at the University of Wisconsin–Eau Claire where he graduated with a degree in both biology and chemistry. Although he has diverse interests, botany has been a central interest since high school. Adam enjoys the challenge of learning the diverse California flora and has taken a special affinity towards parasitic angiosperms, particularly the genus *Orobanche*, which he hopes to study for his dissertation. For one of his side projects, Adam has also recently completed a manuscript describing a greenhouse study he started at Eau Claire looking at how changes in water patterns may affect whole-plant physiology and growth.

When not at school or botanizing, Adam enjoys backcountry camping, cooking, cross-country skiing, and traveling. Some of his favorite adventures include spending a summer as a herbarium volunteer at the Charles Darwin Research Station Herbarium in the Galapagos Islands, spending a semester abroad in Ghana, West Africa, and a summer stint as a wilderness canoe guide in the Boundary Waters of northern Minnesota. 

The Lawrence R. Heckard Summer Fellowship for the Jepson Flora Project

This summer, Genevieve Walden, a current graduate student in the Baldwin lab, has been working with the Jepson Flora Project (JFP) and the Consortium of California Herbaria (CCH) to resolve possible discrepancies in either floristic or collections data.

Some of our readers may have noticed a new feature in the CCH, the option to **enable yellow flags to display possible range discrepancies**. This feature was developed because the usefulness of specimen data—particularly its usefulness to non-botanists or to analytical software—may be compromised by data errors. Therefore, the JFP and the CCH are trying both to eliminate errors and to flag specimen records about which there is uncertainty.

Records are yellow-flagged if they have geographic coordinates that lie outside the boundaries of all bioregions indicated by the Jepson eFlora for the range of the taxon associated with the record.

There are several reasons that specimen coordinates might be at variance with expectation:

(1) Erroneous or incomplete representation of range in the Jepson eFlora. Range discrepancies have been caused by oversights, by failure to incorporate the consequences of synonymy, and (especially for non-native taxa) by ongoing range expansion. These are false-positives, which will be relatively easy to correct.

(2) Incorrect coordinates. Latitude or longitude might be incorrectly recorded, converted, or transcribed. The location of the record might have been recorded incorrectly or inferred erroneously.

(3) Misidentification or other naming issues. The specimen might have been incorrectly identified initially, or there might have been a taxonomic revision subsequent to the initial identification.

(4) Cultivated plants. Some collections of cultivated plants are georeferenced to the garden in which they were collected. These localities conflict with the native range of the taxon and are marked with yellow flags.

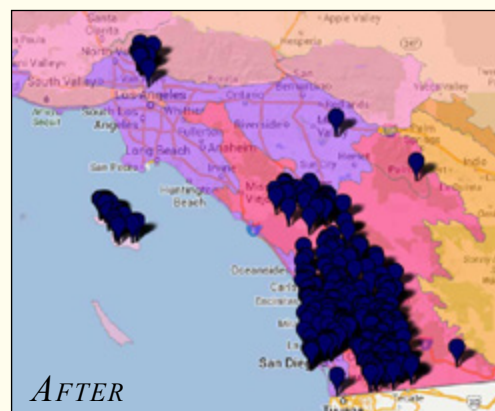
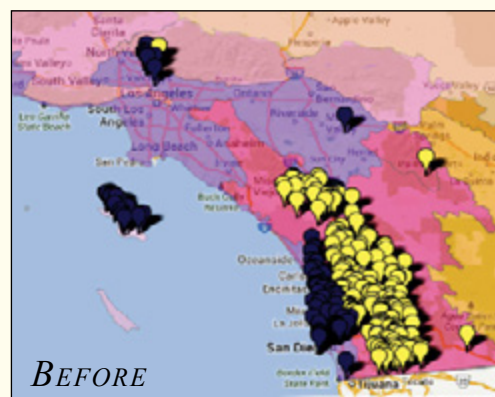
(5) Mapping errors or other software errors. Very small region units such as pieces of the Desert Mountains or offshore islets were not represented well by the mapping process and consequently may result in false positives. Records with locations close to boundaries are also troublesome.

It appears, preliminarily, that most of the yellow flags are caused by erroneous coordinates. These can often be corrected by examining the data without looking at a specimen. For example, a range recorded as 8W rather than 8E or a longitude recorded as 120 rather than 123 may place the record in an unexpected bioregion.

Assessing the possibility of misidentification or erroneous range specification will usually involve examination of specimens. It is dangerous in most cases to make inferences based on record data alone.

If you want to help investigate suspect records, you can use the CCH record comment field to indicate mapping, taxonomic, or identification causes. If you can eliminate these as sources of discrepancy, and eliminate horticulture as a possibility, please alert the Jepson Flora Project so that the eFlora distribution statements can be reassessed.

In the future, it will be possible to remove possibly suspect records from downloads so that they do not influence analyses. 🌱



*The CCH display for *Xylococcus bicolor* before and after resolution of the yellow flags. In this case, yellow flagged records were resolved, in large part, by author confirmation to add the Peninsular Ranges Subregion (PR) to the distribution string in the Jepson eFlora. The addition of PR was based on specimens at UC/JEPS and RSA (UC1595731 shown here in top image).*

The Wieslander Vegetation Type Map Project: A Resource for Studying California's Flora

By Patrick McIntyre and Sarah Hinman, UC Berkeley

Between 1920 and 1937, Alfred Wieslander, a forester at the California Forest and Range Experiment Station at UC Berkeley, mapped over 25 million acres of vegetation across California. One of his goals, as described by Wieslander in a 1935 article in *Madroño* was: “A better understanding of vegetation changes that have occurred in the past, those now in progress, or those to be expected to occur in the future.”

Wieslander's vision of creating a resource for understanding changes in California's flora continues today, as ecologists use his datasets to understand how plant distributions have changed in the last century in order to predict plant responses to global climate change. In his efforts, referred to as the Vegetation Type Mapping (VTM) project, Wieslander was systematic and thorough—his teams collected data from over 18,000 research plots in which they recorded plant species presence and abundance, with especially detailed information on trees. They also collected nearly 25,000 herbarium specimens, took approximately 3,500 photographs of vegetation, and hand-drew vegetation maps for 40% of the state. Together these resources provide a snapshot of what California vegetation was like in the early part of the 20th century.

Thanks to the hard work and dedication of multiple groups, various aspects of the VTM collection are digitally available. These efforts include the University and Jepson Herbaria specimen digitization as part of the NSF-funded SMASCH project. Berkeley's Norma Kobzina led the Marion Koshland Biosciences and National Resources Library project that scanned and databased the historic photographs, and ESPM Professors Maggi Kelly and Barbara Allen-Diaz and their labs digitized the plot data and associated maps. At UC Davis, Jim Thorne's group digitized and georeferenced the vegeta-



Lanfair Valley, *Yucca brevifolia*-desert types. New York Mountains in background have singleleaf pinon and Utah juniper.

Photographer: Albert Weislander

tion map polygons. Independently, these resources are outstanding but have even greater potential if combined. Current efforts led by the Berkeley Ecoinformatics Engine are to unify the entire collection—specimens, photographs, plot data, and vegetation maps—and make them accessible and mappable through one centralized online tool.

Here we describe some of the current curation and research involving these valuable data.

Refined Georeferencing of Herbarium Specimens

Scott Simono, an Editorial Assistant for the Jepson Flora Project, is undertaking the task of refining and correcting the VTM herbarium specimen locality data. Scott has previous experience in georeferencing, which involves assigning a geographic datum (in this case a latitude and longitude) to a known coordinate system so it can be viewed with other geographic data. Fortunately, the VTM specimens are unusual for their time in the level of location detail they provide. Nearly every specimen follows the Public Land Survey System and has Township, Range, and Section (TRS)

information. Furthermore, many have estimated distances from multiple geographic features and elevation data. After the SMASCH specimen digitization, the TRS data were converted to latitude and longitude thanks to funding from the California Digital Library to the Consortium of California Herbaria. Scott is further refining the coordinates by using the locality descriptions and elevation data to improve the precision. By reducing the coordinate uncertainty, he is improving our ability to estimate environmental conditions associated with plant species distributions in the 1930s and track how these may have changed.

Relocating and Retaking Historic Photographs

The historic photographs (see insets) of the VTM project range from scenic landscapes and mountain ranges to forest close-ups and individual plants. The majority of the photos have species lists that accompany them so viewers can visualize the habitat as well as know the species comprising it. Norma Kobzina and the Bioscience Library completed the heavy lifting by scanning each photo and digitizing the captions and ancillary data in 2002; it was difficult to interact with them in the context of the entire VTM collection. Additionally, there is great value comparing the historic photos with modern retakes as a means of visually showing the changes over the last 80 years. In order to relocate and retake the photos



Devils Peak, showing semi-barren type, timber both semi-barren lodgepole and some true fir type on the north face of Devils Peak. Photographer N.H. French



Two miles SW of Kennett, Shasta County. Open shrub type of *Arctostaphylos viscidula*. Assoc. sp.: *Pinus ponderosa*.

Photographer: Albert Weislander

as well as visualize them in concert with the specimen and plot data, the photos were georeferenced. Thanks in large part to an outstanding crew of Berkeley Ecoinformatics Engine undergraduates, the georeferencing was completed this summer.

Now that the photos are mapped, the Ecoinformatics Engine team is building a web application to facilitate retakes. When the project is complete, we hope to engage everyone from researchers to park employees to the general public to help us pair the historic photos with modern ones. To look through these photos and search for species, please visit the original Library database (www.lib.berkeley.edu/BIOS/vtm/) and if you want to map them, head over to CalPhotos (calphotos.berkeley.edu/).

Using Plot Data to Investigate Changes to California's Forests

Because Albert Wieslander's background was in forestry, and his mapping efforts were funded in part to document timber resources, the most detailed data he collected were on trees. Every tree in his research plots was identified to species, and placed in one of four size classes. This provides an amazing level of detail on what forest structure was like in the 1920s and 1930s. By comparing the VTM data with data from contemporary plots from the U.S. Forest Service, we can characterize changes to California's forests and woodlands in

the last 80 years. These comparisons indicate that today's forests have many more *small to moderate* sized trees (less than 30 cm diameter breast height), while at the same time having far fewer *large* trees (more than 60cm diameter breast height). The leading suspects for these changes are fire suppression, which has allowed small tree recruitment, and selective logging of large trees. Analyses in areas with limited logging, such as Yosemite National Park, have also documented declines in large trees. Examination of data from these regions suggests that large trees may be disproportionately vulnerable to drought—a finding consistent with a proposed role of drought stress in worldwide declines of large trees. Another finding from analyses of the VTM tree data is that oaks (especially *Quercus chrysolepis* and *Q. wislizeni*) have increased while conifers (particularly *Pinus ponderosa*, *P. lambertiana*, and *Abies concolor*) have decreased. Logging likely contributes to this pattern, but paleo-historical data has found that in warmer, drier periods in California, oaks increased while conifers declined. Given the recent introduction and spread of Sudden Oak Death in California, continued increases of oaks may be uncertain.

Find out more about the Berkeley Ecoinformatics Engine at globalchange.berkeley.edu/ecoinformatics-engine. Additional information about the initial digitization work and access to plot data can be found at vtm.berkeley.edu. The photos can be viewed, mapped, and searched by species in CalPhotos at calphotos.berkeley.edu under the "VTM" collection field. Georeferencing undergraduates include Tammy Dong, Sky Korber, Kelsey Lyberger, Jina Moon, and Hannah Yokum; they were led by Data Collection Assistant Jessica Rothery. Current funding for work on the VTM project comes from the W.M. Keck Foundation. 📍

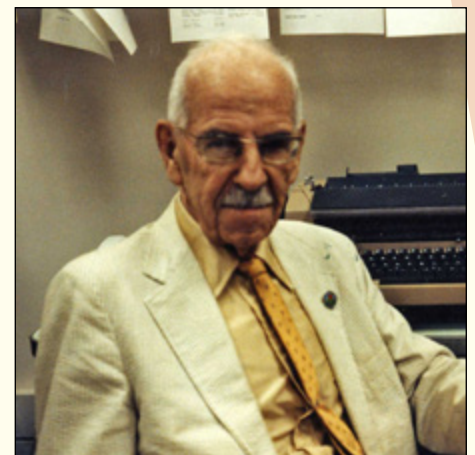
Lincoln Constance, right, taken September, 1993.

(Curator's Column, cont. from page 1)

reflect even more recent progress from studies using molecules, morphology, and other systematic data.

A major thesis of Lincoln Constance's article was the importance of taking all of the different types of available biological evidence into consideration when analyzing plant relationships and producing classifications. Science has a natural tendency to embrace new methods and types of data, but that tendency almost invariably has unfortunate consequences if previous types of evidence are ignored and results using newer approaches are interpreted too narrowly. That lesson has been learned repeatedly during the history of systematics, and it is tempting to suggest that the overall trajectory in recent years has been toward an increasingly balanced view.

As whole-genome DNA sequencing on a mass scale becomes more and more feasible for botanists, the synthetic perspective that Lincoln Constance emphasized will be especially important to realize the potential for discovery from such huge amounts of data. Field observations and collections, experimental studies, and characterization of morphology, anatomy, cytology, and chemistry will remain important components of systematic studies and the synthesis Lincoln thought necessary to produce meaningful classifications. For more about Lincoln, see <http://senate.universityofcalifornia.edu/inmemory/lincolnconstance.htm> 📍



(USDA grant, cont. from page 1)

Chiloquin and Klamath Falls in south central Oregon.

Once replete with an abundance of fresh, nutritious, locally available traditional foods including salmon, deer, elk, acorns, mushrooms, and berries, the Klamath Basin is now considered a food desert by the USDA. Tribal elders recall abundant wildlife, and other native edible foods and medicinal plants, that were dried, smoked, and canned and shared with families up and down the river. Research indicates that at least 150-200 native plant species formed the basic diet of different tribes in California, providing from sixty to seventy percent of their primary nourishment.

As Euro-American immigrants arrived in the Klamath Basin in the 1850s, homestead gardens also became an important source of vegetables and fruits, enhancing food self-sufficiency. Subsequently, there was a shift from decentralized community food production to commercially driven centralized food distribution networks. Dramatic changes to the Klamath Basin and its forests and fishery, including intense commercial fishing, hydraulic mining, clear-cut logging, fire suppression, six dams, and extensive irrigated agriculture in the Upper Klamath have pushed salmon numbers to near extinction and altered regional ecosystems, depriving tribal members access to culturally important traditional foods. Post World War II expansion of private and government ownership in the watershed has drastically reduced traditional management of forested landscapes for foods. Years of forced cultural assimilation have further disrupted traditional food systems. At the same time, many once vibrant orchards and home gardens have all but been abandoned.

The Klamath Basin provides a unique opportunity to explore strategies for rehabilitation of tribal food systems for several reasons. Firstly, because of their relative remoteness, tribes in the Klamath Basin have retained much of the wisdom and practices associated with food gathering and traditional land management, including prescribed



Cool, slow burns upslope of the Salmon River improve habitat for cultural foods such as acorns and huckleberries.

Photo by Jennifer Sowerine


burning, that had sustained their populations and spiritual connection to the world around them for thousands of years. Secondly, all three tribes share a common goal to restore the river and upslope ecosystems and are committed to working collaboratively. Thirdly, by having an explicit focus on native food systems (from production to consumption) in the Klamath Basin, this project will shed light on specific concerns that are unique to the native community.

The role of UC/JEPS

UC/JEPS will work with tribal staff to establish 2 tribal herbaria (1 Karuk and 1 Yurok) and assist the tribes in scientific collection, identification, and storage of specimens. The tribal herbaria will serve as enduring repositories of botanical and traditional ecological knowledge around plant foods, as well as an important educational resource for the tribes as they move forward with developing their K-12 and community college curriculum around Sustainable Native food systems, which are other objectives on the grant.

Botanical and mycological voucher specimens, digital images, and GIS coordinates will be collected for different food plant species and varieties. Collections will include: garden vegetables; fruit shrubs and trees in managed and abandoned orchards; traditional wild nuts including tan-

oaks, hazelnuts, walnuts, chestnuts, and pepperwood; traditional wild fruits including huckleberries, gooseberries, currants, blackberries, raspberries, and manzanita berries; traditional wild underground plant tubers; and traditional wild leafy greens. Plant collections will be obtained by seasonal food crews and on collecting trips with UC/JEPS and tribal staff. Karuk and Yurok curators will be trained and will offer at least one educational workshop for community members. Additionally, tribal youth will learn from elders how to identify culturally important food plants.

To learn more about the project, or to find out how to become involved, contact Jennifer Sowerine at: jsowerwi@berkeley.edu or visit the USDA website at: nifa.usda.gov/newsroom/news/2013news/02271_food_security.html. 



Kathy McCovey, Karuk Tribe ethnobotanist, teaching uses of plants.

Photo by Sibyl Diver

Specimens from Beatrix Farrand's Garden On Display in Maine



Mounted on the wall of the new visitor center at Garland Farm are high-resolution scans of UC/JEPS specimens collected at Reef Point Gardens, the summer home of the noted landscape architect Beatrix Farrand. The scans all have maps to show where in the garden each plant was located.

By Lois Stack, University of Maine,
Plant, Soil, and Environmental Sciences


A new exhibition featuring plants collected from Reef Point Gardens is now on display in Bar Harbor, Maine. Digital images of specimens housed in the University and Jepson Herbaria document the plants that were grown at Reef Point Garden, the summer home of Beatrix Farrand, noted landscape architect (1872-1959).

Beatrix Farrand was known for designing some of America's most famous gardens such as Dumbarton Oaks in Washington, D.C., and Santa Barbara Botanic Garden in California. From 1949-1954, Farrand's associates, Marion Spaulding and Kenneth Beckett, collected approximately 2000 samples of cultivated plants from Reef Point Gardens. The samples were dried, pressed, mounted on heavy paper, and preserved as an herbarium. This collection of carefully preserved plant materials was intended to be a resource for year-round study by landscape students.

When Farrand dismantled Reef Point Gardens in 1955, she donated

her herbarium, along with her books, prints, papers and other collections, to the UC, Berkeley. Now, the herbarium specimens are being catalogued and digitally imaged. A set of high-quality prints is currently on display at Garland Farm, the home of the Beatrix Farrand Society (BFS).

This is a noteworthy project for the Herbaria as the Farrand collection is the first group of cultivated plants to be digitized. It is an important project for BFS because the pressed plants represent an accurate record of what was actually planted at Reef Point Gardens, rather than a list of plants on a landscape plan that might not have been installed. Additionally, because Spaulding and Beckett noted specific locations of each plant when they collected the specimens, the collection can be used to understand how Farrand combined plants to create gardens.

For more information about the Beatrix Farrand Society and Garland Farm, visit www.beatrixfarrandsociety.org. To learn more about the herbarium exhibition and other 2013 programs, click on "Programs." 

THE JEPSON HERBARIUM PROJECTS & RESOURCES

The Jepson Flora Project

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Online Interchange for California Floristics

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Plant Identification

2,200,000+ Worldwide Plant Specimens

Botanical Library & Archives

Publications & Research Projects

Constancea: UC Publications in Botany

Director: Brent D. Mishler

Deep Moss: Reconstructing the early evolution of mosses from comparative genomics
Moorea Biocode Project (a complete inventory of an island ecosystem)

Systematics and ecology of *Syntrichia*

Curator: Bruce G. Baldwin

Systematics and Evolution of Calif. tarweeds and relatives (tribe Madieae, Compositae),
Chaenactis (Chaenactidiaceae, Compositae),
and *Collinsia* (Plantaginaceae).

Administrative Curator: Andrew Doran

Cultivated plants, UK flora

Curator of Ecology: David Ackerly

Ecology and evolution of California flora;
Climate change impacts and conservation strategies

Curator of Monocots: Chelsea D. Specht

Evolution and biogeography of Calif. monocots (including *Allium*, *Nolina*)

Systematics and evolution of Heliconiaceae, Costaceae, and Zingiberaceae

Floral developmental evolution in the tropical ginger (Zingiberales)

Curator of W. N. Am. Botany: Barbara Ertter
Flora of Mount Diablo & *Flora of the East Bay*,
North American Potentilleae

Trustees: Vice Chancellor Emeritus Roderic Park, Chairman; Vice Chancellor Emeritus Beth Burnside; UC Botanical Garden Director Paul Licht; Professors John Taylor and Brent D. Mishler (ex officio)

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Edith Summers


Development & Globe Editor: Staci Markos

UC/JEPS Research Associate receives award from the John Simon Guggenheim Memorial Foundation

In spring 2014, lichen enthusiasts can expect a new book, *A Field Guide to California Lichens* by Stephen Sharnoff (published by Yale University Press).

Our readers may recognize Stephen's work from the award-winning book *Lichens of North America* (Brodo, Sharnoff & Sharnoff, Yale University Press, 2001). More exceptional photographs will be included in Stephen's upcoming book that will contain color photographs and descriptions of about 500 California species. Stephen's work with lichens began in California with his late wife Sylvia, so it is fitting that

his efforts return to our exceptionally diverse state for this new book. Since the publication of *Lichens of California* (Hale and Cole, University of California Press, 1988), there have been numerous name changes and many new species discovered, so he felt a new guidebook, especially one that included more crustose species and was designed around clear color photos, would be welcomed by all those interested in lichens.

The work is supported in part by the John Simon Guggenheim Memorial Foundation. 



Letharia columbiana



Caloplaca ignea



Cladonia fimbriata



Flavoparmelia capefata


(Asa Gray award, cont. from page 1)

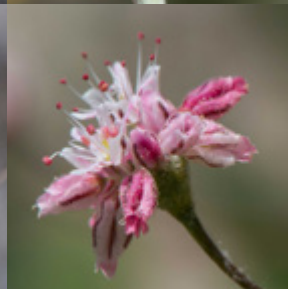
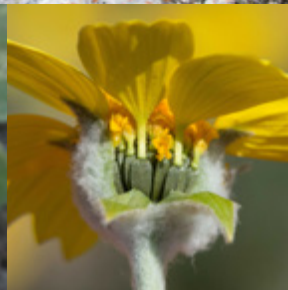
editorial committees that published *The Jepson Desert Manual: Vascular Plants of Southeastern California* (2002; <http://www.ucpress.edu/book.php?isbn=9780520227750>) and *The Jepson Manual: Vascular Plants of California, Thoroughly Revised and Expanded* (2012; <http://www.ucpress.edu/book.php?isbn=9780520253124>). Dr. Baldwin has also mentored 15 graduate students (including five current Ph.D. candidates) and 10 postdoctoral scholars.

Dr. Baldwin's nomination for this award was compiled by Dr. Daniel Crawford (University of Kansas) and included 13 supporting letters from established scientists, including members of the National Academy of Sciences. Two themes emerged from these letters that demonstrate Dr. Baldwin's outstanding qualifications for the Asa

Gray Award. First, all laud the intellectual breadth and depth of Dr. Baldwin's contributions to plant systematics. A direct quote from one letter summarizes this succinctly, "From taking the lead in the editing of the second edition of the massive and highly acclaimed *The Jepson Manual: Vascular Plants of California*... to biosystematic studies, to cutting edge molecular studies published in high impact journals, Bruce covers the spectrum of our field as well or better than any other contemporary plant taxonomist." Second, referees repeatedly praised his "generous" and "selfless" service to training the next generation of plant systematists, in serving as a research mentor to others, and in facilitating outreach through the California Botanical Society.

Dr. Baldwin earned his Ph.D. from the University of California, Davis in 1989 and joined the Department of

Integrative Biology at the University of California, Berkeley in 1994 after appointments at the University of Arizona and Duke University. In addition to his appointments at the University of California, Dr. Baldwin is also a Regular Fellow of the California Academy of Sciences and a Research Associate in Botany at the National Tropical Botanical Garden. Dr. Baldwin has previously been recognized by the American Society of Plant Taxonomists with the George R. Cooley Award (best contributed presentation, 1993) and the Grady L. Webster Plant Systematics Publication Award (best paper, with his Ph.D. student Elizabeth Zacharias, 2012). Dr. Baldwin is the only person to have been honored by the American Society of Plant Taxonomists with all three of these awards. He has contributed to the society in numerous capacities, including as president, 2008–2009. 



2013 WORKSHOP YEAR IN REVIEW

Our 19th Field Season brought many delights and surprises, including Tejon Ranch vistas (featuring *Eriogonum callistum*), finding elusive *Cryptantha ganderii* with Jon Rebman in Anza-Borrego, tackling 50 Families in the Field with Dick and Linda Beidleman, and watching moss magically come back to life with Brent Mishler. A few rare and beautiful plants made the season even better (clockwise, from center left: *Mimulus pictus*, *Monolopia*, *Eriogonum*, and *Nemacladus rubescens*). Photos by Billy Hoyer, Lynn Hori, John Game, and Jeanne Marie Acceturo.

For more photos, go to jepsonworkshops.tumblr.com



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VOLUNTEERS NEEDED TO HELP WITH COLLECTIONS MANAGEMENT

One Saturday of each month is a Group Volunteer Day

Are you interested in: a) learning more about the California flora; b) gaining first-hand experience with herbarium techniques; c) providing much-needed assistance with the specimens that are the raw data on which our knowledge of the California flora is based; d) socializing with fellow native plant enthusiasts; e) all of the above? Then have we got a deal for you!

Group Volunteer Saturday begins at 10 am and finishes up by 4 pm (participants need not stay the full time). To be added to the Group Volunteer reminder list, please call Ana Penny (510) 642-2465. We also welcome individual volunteers who can come in during our regular hours (M–F, 8–5). For more information, call (510) 642-2465.

- 🕒 September 14, 2013
- 🕒 October 12, 2013
- 🕒 November 16, 2013
- 🕒 December 14, 2013
- 🕒 February 8, 2014
- 🕒 March 15, 2014
- 🕒 April 12 (Cal Day), 2014
- 🕒 May 10, 2014

