

The Vasculum

The Society of Herbarium Curators Newsletter
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FROM THE EDITOR

With this issue, *The Vasculum* begins its 11th year as the official publication of SHC. And, I must say that working on the newsletter over the past several days has been a welcome alternative to shoveling snow! During the past 10 years, one of our constants has been “The Wired Herbarium” by Eric Ribbens. Eric has decided to take a well-deserved break, and I trust that our readers will take a moment to personally extend their thanks to him. And, thanks to all of our contributors, including those in the present issue. Keep the submissions coming!

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Cardamine concatenata (Michx.) O. Schwarz (Brassicaceae) - © C.K. McMullen

SHC NEWS

2016 SHC Symposium, August 4 - Mark Your Calendars!

At the 2015 SHC meeting in Edmonton, Canada, the membership expressed interest in changing the format of the 2016 SHC meeting to a symposium to encourage broader discussion about issues related to herbarium management, sustainability, and visibility. The inspiration for this symposium is based on the extremely successful [Entomological Collections Network](#) annual meeting that attracts 200-300 people annually to discuss collections management and related issues.

Thanks to the strong response from SHC members and the broader herbarium community, we are now planning a symposium to be held as a half-day morning session the Thursday following the close of Botany2016 (August 4, 2016) in Savannah, Georgia. The American Society of Plant Taxonomists is also partnering with SHC to help make this possible. Talks will focus on 1) successful models for communicating the importance of herbaria to decision-makers within universities, governments and other institutions, and 2) digital herbarium “big data” resources: their curation and use in research. We expect to provide registration details in March to help participants plan their travel schedules. In the meantime, please mark your calendars for this upcoming event.

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Allium cernuum Roth (Amaryllidaceae) - © C.K. McMullen

HERBARIUM NEWS

Featured Herbarium: VSC - The Valdosta State University Herbarium

The Valdosta State University Herbarium (VSC), a division of the Biology Department of Valdosta State University, is a regional collection of more than 71,000 voucher specimens documenting biodiversity in Georgia's coastal plain (Fig. 1). Established in 1906 by an act of the state legislature, Valdosta State accepted its first class in 1913 as South Georgia State Normal College, a teacher's college with a two-year curriculum. In 1922, it adopted a four-year curriculum and the name Georgia State Woman's College. Subsequently, in 1950 it was renamed Valdosta State College upon becoming coeducational, and again in 1993 as Valdosta State University when it was designated a regional university. Located in Valdosta - the Azalea City - in central-south Georgia, Valdosta State University is a comprehensive institution of the University System of Georgia, with an enrollment of more than 10,000 students. The Biology Department offers a diverse curriculum for B.A., B.S., and M.S. degree programs serving more than 600 majors. Bailey Science Center houses the biology and chemistry departments and provides modern laboratory facilities that support teaching and learning, and research by students and faculty. In addition to the herbarium and numerous laboratories, the Bailey Science Center includes greenhouses and an electron-microscopy facility, and Valdosta State owns and maintains an outdoor laboratory, a 170 acre field station less than 10 miles from the main campus.

VSC is the second largest herbarium in Georgia, and its primary geographical scope is Georgia and the southeastern United States, particularly the Coastal Plain Region. It has significant holdings of many historic and contemporary collectors of the Southeast and has grown primarily through research efforts of its curators and exchange with other herbaria, and to a lesser extent from collections of students and occasional contributions from state agency botanists, consultants, and amateurs. Although his predecessor, Dr. Beatrice Nevins accumulated a teaching collection of about 1,000 specimens, VSC was founded as a research collection in 1967 by Dr. Wayne R. Faircloth, Professor of Biology (1961–1996). Less than 1% of VSC holdings were collected before 1920, although some specimens obtained through exchange date to the 19th Century, including VSC's oldest, a C.W. Short specimen of *Kalmia hirsuta* collected in "E. Florida" in 1837. Generally, the accession rate has been 1,000–2,000 sheets/year, with nearly two-thirds of the collection added since 1980. VSC is the primary repository of vouchers collected by former curator Wayne Faircloth and by Richard Carter who became curator in 1984 when Faircloth stepped down to become Department Head. Faircloth's vouchers document his floristic research primarily in the coastal plain, with emphasis on

central-south Georgia, and those of the present curator, obtained over the past 30 years, support his biodiversity research in the coastal plain of southeastern and more recently southwestern Georgia. VSC is rich in holdings of pteridophytes, resulting from Faircloth's taxonomic specialization and interest, and it has extensive holdings of graminoids, especially Cyperaceae, the major taxonomic focus of the present curator. VSC is unique for housing the only bryophyte collection in Georgia, about 4,100 vouchers accumulated by Dr. R.K. Lampton in the 1940s-1970s, and acquired in 1978 when Lampton retired and Valdosta State accepted transfer from West Georgia College.



Figure 1 - The Valdosta State University Herbarium houses more than 71,000 voucher specimens.

Situated on a beautiful campus featuring Spanish mission-style architecture, the herbarium is housed on the ground floor and is visible from the atrium of Bailey Science Center. When occupied in 2001, this modern facility more than doubled the space allocated for VSC. The herbarium space totaling about 1,500 ft² is compartmentalized into a suite of three separate rooms that enable isolation of incoming materials from the accessioned collection (Fig. 2). In the herbarium suite, relative humidity is maintained below 60% and constant temperature at 20°C through a dedicated climate-control system. The compartmentalized space, the dedicated climate-control system, and a 22 ft³ –40°C freezer are essential to

VSC's integrated pest management program. The main herbarium room (760 ft²), equipped with a high-density storage system (Figs. 2, 3), houses 100 full-height herbarium cases, six short herbarium cases supporting a long work counter (Fig. 3), and three visual cabinets for storage and display of carpological materials (Fig. 4). The specimen preparation anteroom (420 ft²) has a large stone-top work table, several large wooden storage cabinets, four full-height and five short herbarium cases, wall-mounted book cases, fume hood, and two stone-top laboratory benches with chemical and supply storage cabinets. This room also houses the freezer and a map case containing legacy topographic, county, and highway maps. The curator's research space (140 ft²) includes a large book case along one wall, two short herbarium cases, two large filing cabinets, and a large desk. An imaging station consisting of copy stand, 25MP camera, dedicated desktop computer, barcode scanner, and high-capacity data storage device is located in the anteroom (Fig. 5), and a computer work station with adjustable height work table, desktop computer, and barcode scanner is located in the main herbarium room (Fig. 6). The curator's research space also houses a work station with desktop computer and barcode scanner. All computers and data storage drives are connected through a network managed by the Valdosta State University Division of Information Technology. Additionally, two large closets (136 ft²) located near the herbarium suite along the main corridor are used for storage of materials and supplies and to house a plant dryer, and a faculty office (142 ft²) is provided nearby. The herbarium library is rich in floristic manuals and other references useful in routine plant identification and the taxonomy of special groups, e.g., sedges, pteridophytes, and bryophytes.

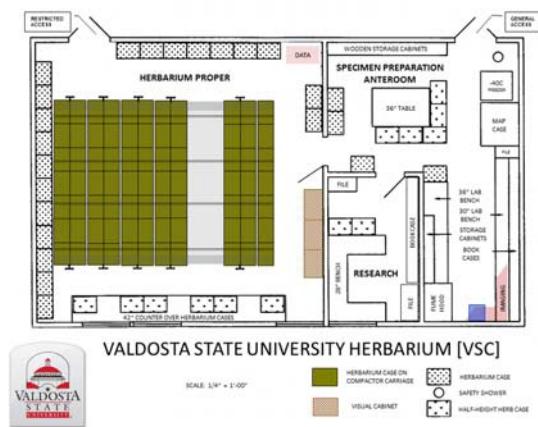


Figure 2 - The herbarium suite is compartmentalized into three separate rooms that enable isolation of incoming materials from the accessioned collection.

The VSC faculty curator has normally received a one-fourth course reduction below the normal load of 12 contact hours/week for herbarium administration, curatorial

activities, and supervision of student assistants, a precedent established when Wayne Faircloth was curator and subsequently negotiated upon initial employment. Herbarium operating expenses are derived from grants and contracts secured by the curator, occasional year-end allocations from the Biology Department and the College of Arts and Sciences, and Valdosta State University Foundation accounts dedicated for herbarium use. Salaried personnel (one part-time curator), postage, and long distance phone are covered by the department's general operational budget. Over the past three decades, sources of funding obtained by the curator to support field work and procurement of vouchers include the Department of Defense, Nature Conservancy, Georgia Department of Natural Resources, US Fish & Wildlife Service, US Army Medical Research Agency, and Georgia Botanical Society. During 2011-2014, through funding from the National Science Foundation (DBI 1054366), VSC digitized its holdings to create a database linked to high-resolution specimen images (Fig. 7). VSC images and data are currently being served via the Internet through the *Consortium of North American Bryophyte Herbaria* (<http://bryophyteportal.org/portal/index.php>) and the *Valdosta State University Virtual Herbarium* (<http://herb.valdosta.edu>), the latter a locally funded cooperative initiative between VSC and the Valdosta State University Odum Library. In 2015, the National Science Foundation (DBI 1458264) funded installation of a high density storage system, including 41 new cabinets, thereby increasing VSC specimen storage capacity by 35%. VSC has benefitted greatly from interactions with a number of its curator's associates: Robert Kral, Professor Emeritus, Vanderbilt University, well-known authority on the southeastern flora with taxonomic specialization in Cyperaceae, Xyridaceae, Eriocaulaceae, and various other groups; Gil Nelson, Florida State University, botanist with diverse interests in southeastern flora, ferns, trees, nature photography, and herbarium digitization; Wilson Baker, Tallahassee, Florida, ecologist specializing in longleaf pine-wiregrass ecosystems; and Frankie Snow, South Georgia State College, natural history of southern Georgia, particularly rock outcrops, and archeology.

Community outreach is a vital aspect of VSC, and student assistants and volunteers are involved in outreach activities whenever possible. The curator regularly makes presentations on the herbarium and plants to a variety of groups both on and off campus, and herbarium tours are provided for university courses, school groups (K-12), clubs, and other organizations. During the five-year period 2010 to 2014, VSC hosted an average of seven tours/year involving an average of 154 participants/year, and visitors included local and visiting researchers, private consultants, governmental agency personnel, and undergraduate and graduate students from various departments and other institutions. VSC outreach activities also include plant identification and data services, submitted in person or by phone, e-mail, or regular mail. This service is a professional courtesy provided to

university faculty, agricultural scientists and cooperative extension personnel, staff and researchers at other governmental agencies, and the general public. During 2010–2014, VSC filled an average of 60 requests/year for plant identifications and 11 miscellaneous requests/year for data or plant materials, and specimens were loaned to researchers at other institutions at the rate of 101 sheets/year and were accessioned into VSC at the rate of 1,824 sheets/year, and exchange specimens were sent to other institutions at the rate of 1,005 sheets/year. VSC specimens are used for teaching in a variety of courses at Valdosta State, support research by Valdosta State faculty and students as well as researchers at other institutions via loans and exchange, and are regularly cited in published research articles. More information on VSC may be found at the following website: <http://ww2.valdosta.edu/~rcarter/HERB/Herbindex.htm>.

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Figure 4 - Three visual cabinets allow storage and display of carpological materials.



Figure 3 - The main herbarium room with high-density storage system (right) and work counter along atrium wall (left).



Figure 5 - Imaging station in anteroom of herbarium.

Oklahoma State University Herbarium (OKLA) Goes APGIII!

For as long as anyone at Oklahoma State University can remember, angiosperm specimens in the OKLA vascular plant herbarium were arranged according to Cronquist's system. In December 2015, approaching a century since the herbarium's inception, the OKLA crew bravely took on the task to modernize the family arrangement according to the linear APGIII sequence (APG 2009; Haston et al. 2009).

OKLA was founded in 1920 and is located on the main campus of Oklahoma State University in Stillwater, Oklahoma. The herbarium houses over 152,000 vascular plant specimens, 300 of which are type collections, and an additional 2,600 bryophytes and lichens. About 30% of the specimens were collected in Oklahoma and there is a strong representation of collections from Texas, Kansas, other US states, and Mexico. There are taxonomic emphases on *Physalis*, *Asclepias* and other Apocynaceae, Poaceae, and Asteraceae. The herbarium has been an important source and site of deposition of material for floristic studies in Oklahoma, Texas, and Kansas, production of an in-progress Flora of Oklahoma, and molecular systematic research. The systematists, ecologists, and floristicians who use the herbarium must all rely on current taxonomic concepts. Thus, the herbarium was due for a reorganization to reflect current phylogenetic classification.

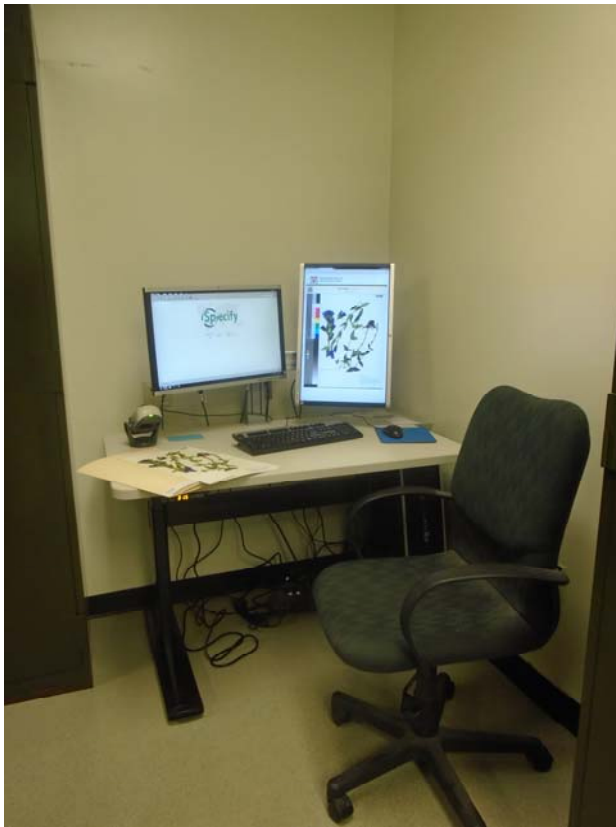


Figure 6 - Computer work station in main herbarium room.



Figure 7 - High-resolution images of VSC specimens are publicly available through the Valdosta State University Virtual Herbarium.

OSU PhD student Angela McDonnell spearheaded the reorganization, starting in February 2015 (Fig. 1). The APGIII classification is phylogenetic and takes the form of a nested hierarchy represented as a branching tree. Thus, a linearized version (Haston et al. 2009) was published to aid in herbarium organization. Angela first surveyed each of the 127 cabinets holding angiosperm collections and then 1) identified families in need of splitting, merging or needing more significant reorganization, 2) estimated the space needed for each family, and 3) mapped how specimens would be rearranged and distributed throughout the cabinets. With a crew of five (Fig. 1) and busy academic schedules to consider, we decided to plan the big shift after the end of the fall semester in December 2015. Following four days of hectic, back straining, assembly-line work, the crew was looking at a brand new organization. Getting started involved the difficult decision of which cabinets to empty first and where to put specimens awaiting their new homes. We had only three cabinets that could be fully emptied to act as “swing space”. Because the ANITA grade and magnoliids remained near the beginning of the sequence, the first steps were easy. Then, the monocots moved from the end to near the beginning of the arrangement. Still, not too tricky. After beginning to fill in the old monocot space with Apiales and Asteraceae, things began to get hairy and lab benches in adjoining teaching rooms were filled with carefully (usually) ordered stacks of folders.

We ended up working towards the middle and had to make some adjustments along the way. At times it seemed the calling out of every scientific name included a reference to a song of some sort (Think “straight out of *Comptonia*”). The process was smooth, thanks to a thorough pre-mapping and redistribution of extra shelves in each cabinet. Overall, an estimated 35 new families were added, and approximately 16 families were completely subsumed. The first cabinet in each aisle has a directory to the families, with older names cross-referenced to aid in easy searching.

It’s a joy to search and file specimens with the new arrangement. Each time you look for a family, you are revisiting its place in evolutionary history and have the opportunity to discover its relatives in the cabinets next door. In addition, narrowing down the potential families of an undetermined specimen is now easier and more educational considering evolutionarily related plants are close together. For example, if I have a specimen with a showy zygomorphic corolla of five fused petals, I will probably think it belongs somewhere in the Lamiales. Time to explore that section. Parts in three’s? Let’s browse the monocots! Previously many closely related families were in different sequences, interrupted by distantly related groups, or even in separate aisles. The new arrangement will provide easier navigating and a greater educational experience for newer members of our botanical community and seasoned users alike. We hope it will not only be a more useful, up-to-date structure for the herbarium, but also a learning tool for staff, researchers, students, and visitors using the collections at OKLA.



Figure 1 - The Oklahoma State University Herbarium crew: (from left) Mark Fishbein, Lindsey Worcester, Angela McDonnell, and Frankie Coburn. Not pictured: Danny Fuller.

References:

Angiosperm Phylogeny Group. 2009. An update of the Angiosperm Phylogeny Group classification for the orders and families of flowering plants: APG III. *Botanical Journal of the Linnean Society* 161:105–121.

Haston, E., J. Richardson, P. Stevens, M. Chase, and D. Harris. 2009. The Linear Angiosperm Phylogeny Group (LAPG) III: a linear sequence of the families in APG III. *Botanical Journal of the Linnean Society* 161:128-131.

-Frankie Coburn, Mark Fishbein, and Angela McDonnell, Oklahoma State Univ., francis.coburn@okstate.edu

Alabama’s Newest Herbarium

Founded in 2010 by Dr. Wayne Barger (State Botanist for the AL Department of Conservation and Natural Resources), the Herbarium of the Alabama Natural Heritage Section currently houses 3,600 fully databased and digitized specimens with several hundred more awaiting assimilation. Of the approximately 3,951 plant species that are known to occur in Alabama (Kartesz 2016), approximately 2,351 unique taxa have already been collected from the state. The collections are a result of the numerous floristic inventories conducted by the Natural Heritage Section staff, mostly on state-owned properties which contributes directly to the state’s under-collected flora. This inventory work is mandated by the Department of Conservation, with the tract/county level data contributing directly to the all-biota database established by the Natural Heritage Section in hopes of documenting all species that occur in Alabama. Special emphasis has been placed on documenting species’ occurrences on state-owned properties, primarily conservation lands such as Forever Wild Tracts and State Parks. The mission statement, and ultimately what the strength of this small herbarium collection will be, is to “house high-quality, representative specimens of *every species* of plant that occurs within the state of Alabama.” While no type specimens are held in the ALNHS herbarium, many exceedingly rare and state record species are represented in the collections (Fig. 1).

Alabama currently is ranked as the seventh most plant biodiverse state in the US (behind CA, TX, FL, AZ, OR, and trailing NM by only 8 species) (Tab. 1). Consequently, the herbarium collection continues to grow quickly. Utilization of an “herbarium species needed” list aids in the complementation of the herbarium collection and greatly reduces duplicate collections.



Figure 1 - ALNHS holds many rare and state record species, including this representative specimen of *Pellaea glabella* Mett. ex Kuhn (Smooth Cliffbrake Fern) new to Alabama.

The herbarium staff consists of Dr. Barger as the Curator of Collections along with one energetic student summer worker for each of the last three years (Sam Bickley, Kevin Carr and Chris Taylor). Many professionals from various areas of expertise have offered insight and assistance with identification/verification of species throughout the course of compiling the collection (Brian Holt, Dan Spaulding, Dan Brunton, and Curtis Hansen to name a few). The digitization of the ALNHS collection was performed at Jacksonville State University, with technical assistance from Dr. Jimmy Triplett. Specimen imaging will continue for future collections (Fig. 2). Plans for the digitized images include establishing a link to the “Plant Life of Alabama” (www.outdooralabama.com) on the departmental website so that the State’s biodiversity can be shared with the public.

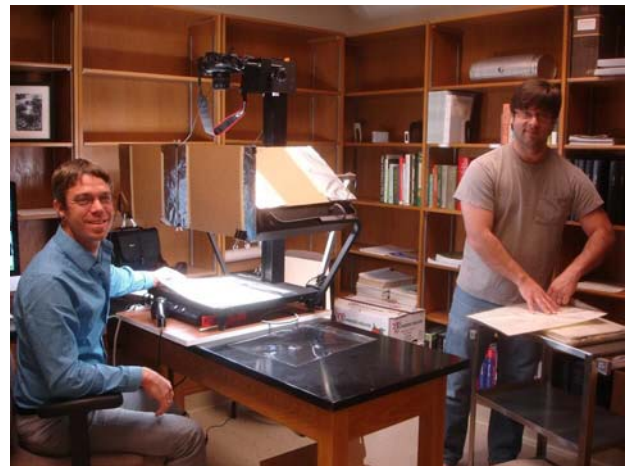


Figure 2 - Imaging of specimens by Wayne Barger (left) and Brian Holt (right) at Jacksonville State University.

Herbarium	Holdings
Auburn University (AUA)	80,000
University of Alabama (UNA)	79,300
Jacksonville State University (JSU)	60,000
Troy University (TROY)	31,000
Anniston Museum of Natural History (AMAL)	17,000+
University of South Alabama (USAM)	16,700
University of North Alabama (UNAF)	11,000
University of West Alabama (UWAL)	10,000+
Samford University (SAMF)	5,000
University of Alabama-Huntsville (HALA)	5,000
AL Natural Heritage Section (ALNHS)	3,600

Table 1. Collection numbers taken from the Alabama Plant Atlas website (<http://www.floraofalabama.org/>) on 1/18/2016 show the holdings for the major herbaria located in Alabama.

The ALNHS herbarium collection is housed on the 4th floor of the Folsom Administration Building behind the Alabama state capitol building in downtown Montgomery (Fig. 3). Currently, the collection is held in four cabinets, with two more slated for delivery this summer. Specimens are organized alphabetically by family, genus, and species within divisions; nomenclature follows that of Weakley (2015). Herbarium sheets are individually stored in archival quality, acid-free plastic bags within genus folders (Fig. 4). Replicate and duplicate specimens are generally not held and are gifted to nearby herbaria (Auburn University, Jacksonville State University, and the Anniston Museum of Natural History). The typically implemented practices for integrated pest management, freezing of specimens, and idealized environmental conditions are employed as closely as possible. An Olympus SZH10 dissecting microscope is employed for identification of specimens as necessary. The herbarium is open for all scientists and the general public to visit by appointment only due to the small size of the staff within the Heritage Section. The *Index Herbariorum* acronym designation of “ALNHS” contributed to the official de-

sign of the herbarium logo, a fruiting *Alnus serrulata* (Tag Alder) (Fig. 5). As a side note, this species has been documented in every county of Alabama.



Figure 3 - View of part of the herbarium work area.

Future work for the herbarium staff includes a continuation of inventories in collaboration with botanists from across the southeast and within the state. Growth of the herbarium will slow as it moves forward. However, utilizing alternative specimen drying techniques and focusing on specimen collections that illustrate various anatomical features for selected species throughout flowering/fruitletting stages will continue to improve the collection (Fig. 6).

References:

Kartesz, J.T. 2015. Floristic Synthesis of North America, Version 1.0. Biota of North America Program (BONAP). (In Press).

Weakley, A.S. 2015. Flora of the Southern and Mid-Atlantic States. (Working draft of 21 May 2015). University of North Carolina Herbarium, Chapel Hill, NC. www.herbarium.unc.edu/flora.htm



Figure 4 - View of ALNHS herbarium cabinets.



Figure 5 - ALNHS logo.



Figure 6 - Illustration of the emphasis on rapid drying techniques and improved specimen preservation in *Cactaceae*.

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Accounting for Specimens

Last fall, I spent a day in the University and Jepson Herbaria Archives at the University of California, Berkeley reviewing a very small portion of their collection of the papers of John and Sara Lemmon, Oakland, California botanists and plant collectors. I first encountered them on a herbarium sheet at New York Botanical Garden, a sheet mounted by the noted 19th-century botanist [John Merle Coulter](#). The sheet also had a plant of the same species, now *Xanthisma spinulosum*, that was collected by Aris Donaldson on General George Armstrong Custer's 1874 expedition to the Black Hills of South Dakota two years before his last foray. It was the latter I was interested in at the time (a story for another day), but I did discover then that the Lemmons knew Coulter well enough that when they married, he put a note on the nuptials in his journal, *Botanical Gazette*.

After that, I encountered references to the couple on a number of occasions and learned that Sara (1836-1923) was instrumental in having the golden poppy named the state flower and that John (1831-1908) was a member of the collecting party that included [Joseph Dalton Hooker](#),

[Asa Gray](#), and [John Muir](#) during Hooker's 1877 visit to Northern California. So when I had an opportunity to visit San Francisco, I decided to go to Berkeley. Since my time was limited, I decided to focus on letters between the Lemmons and Coulter and also to look at the few notebooks in the collection. I found a letter, dated February 9, 1881, at the end of which Coulter writes: "By the way, did I send a copy of the *Gazette* in which I had given a notice of your marriage? Why don't you subscribe? Such a botanical community as you are now ought to have a botanical family paper." This is not the only entrepreneurial note in the letter. Coulter also reports that in the same issue, he ran Lemmon's advertisement for his catalogue of available specimens.

Notebooks - In addition to the letters, I examined three notebooks, all from the 1880s, and all providing small but interesting windows into 19th-century California botany, which was still in its infancy. They are reminders that botany entails community, and in the 19th century, building community was often difficult considering the distances involved and the lags in communication. The pace is definitely different from science today. The first notebook lists plants sent for identification to Joseph Hooker and Asa Gray in December 28, 1880. The notes on the first species listed are relatively long, but they eventually end up being just names. Lemmon sent conifers and other specimens to [Daniel Cady Eaton](#) at Yale in February 1881 and to [Sereno Watson](#) at Harvard in March. There is no indication on what he received back in terms of information, presumably that was recorded elsewhere.

The second notebook is tiny; it deals with a trip the Lemmons took in March 1880 to "Arizona and beyond." It notes who they met along the way, suggesting that others had an interest in the same plant-hunting areas. However, there isn't much more than a list of towns in the notebook, Fresno, Modesto, Bakersfield, etc.—nothing on the plants collected—again that information must be cached somewhere else, perhaps with the plants the pair brought back with them. On another trip out west I drove through the San Bernardino Mountains, the area in which the Lemmons collected *X. spinulosum* in 1880 and which is now a national forest. While a good road runs through it, there is still the feel of wilderness, and I want to think that I got a sense of what John and Sara experienced in this terrain with early morning vistas like this one (Fig. 1).

Collectors - The third notebook is a treasure trove of information on the Lemmons' work in amassing plant specimens and sending them to collectors both in the United States and in Europe. This book is where John kept his accounting of what he had sent over the two years ending in March 1884. It makes sense that March would be a good time for such work. It was before the collecting season would get seriously underway and after he had the winter to prepare and send the specimens from the year before. He used a plain composition

book, not a ledger. He does not list the plants, and then in a separate column list to whom he sent each species. Instead, he has a separate list of plants for each recipient. The eminent Swiss botanist, [Alphonse Pyramus de Candolle](#) received 328 species and three French collectors over 350 each. Closer to home [George Vasey](#) at the United States Department of Agriculture was sent 279 plants and 221 went to [John Donnell Smith](#), a former Confederate Army captain who spent his later years doing botanical research.



Figure 1 - San Bernardino Mountain's at dawn.

Most of the other collectors received well less than 100 specimens. Many of these men are well known in 19th-century botanical history; [Charles Christopher Parry](#) got 12, [Thomas Meehan](#) 12, [William Canby](#) 21, [Isaac Comly Martindale](#) 14, and [George Engelmann](#) 11. The shorter lists are interesting in that they contain many of the same plants, including *Penstemon lemmonii* and *Dalea lemmonii*, obviously plants to which Lemmon was partial. He also dealt with several institutions including the British Museum (301 specimens), Kew Gardens (16), the California Academy of Sciences (131), UC Berkeley (108), and Mills Seminary (104) in Oakland, which later became Mills College. There is no indication of what Lemmon charged for his specimens, but at the end of the book there is "Statement for March 1884" with the names of the collectors and the number of specimens they each received.

While it is obvious that plant collecting is an arduous way to make a living and was even more so before automobiles and other present-day comforts, the work hardly ended when the collector returned to home base. There was sorting, label creation, packaging, and sending off parcels, as well as keeping careful account of what had been sent. Lemmon's notebook is a reminder of this chore. When we see specimens in a herbarium, there are many layers of work that went into procuring them, and also keeping them from being lost, as names change and

labels have to be updated. This page from Lemmon's notebook indicates just how time-consuming the logging of specimens could be (Fig. 2). Perhaps there was, however, some pleasure in the process. As he entered each name, he might have thought about the plant and even about where and when he encountered it. This memory may very likely have involved his wife, who may have been the one who made the discovery, created the label, and packed the parcel containing it.



Figure 2 - Page from a Lemmon notebook in the University and Jepson Herbaria Archives, University of California, Berkeley.

I am grateful to have had time at the University and Jepson Herbaria Archives and to have had the patient assistance of archivist Amy Kasameyer. She pointed out that the Herbarium had applied for a grant to digitize the Lemmon collection, so perhaps in the near future we will have easier access to this treasure of American botanical history. I also want to thank Nicole Tarnowsky of the New York Botanical Garden for showing me the Coulter sheet with the Donaldson and Lemmon specimens.

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NAME THAT PLANT

Donna Ford-Werntz (WVA) submitted the greatest number of answers for the latest quiz that appeared in the July 2015 issue of *The Vasculum*. Donna listed the following as possible genera: *Cladonia*, *Pinus*, *Polystichum*, *Panicum/Dichantherium*, *Potentilla*, *Gaultheria*, *Quercus*, *Solidago*, *Aralia*, and *Menispermum*. It might be fun to look back at the photo and determine if you can see what Donna saw!

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