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 ft^2 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 ft^3 −40°C freezer are essential to

VSC's integrated pest management program. The main herbarium room (760 ft^2), 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 ft^2) 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 ft^2) 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 ft^2) 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 ft^2) 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.

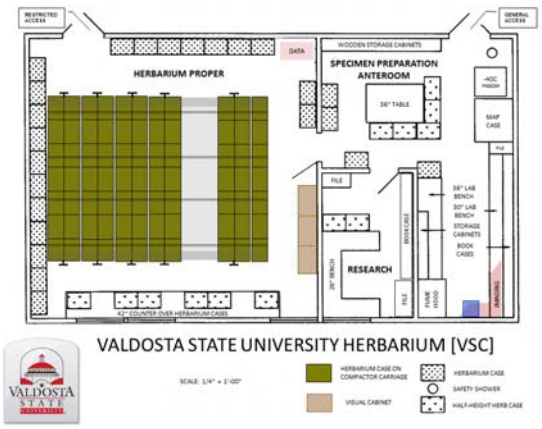

Figure 2 - The herbarium suite is compartmentalized into three separate rooms that enable isolation of incoming materials from the accessioned collection.

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.

- Richard Carter, Valdosta State University, rcarter@valdosta.edu

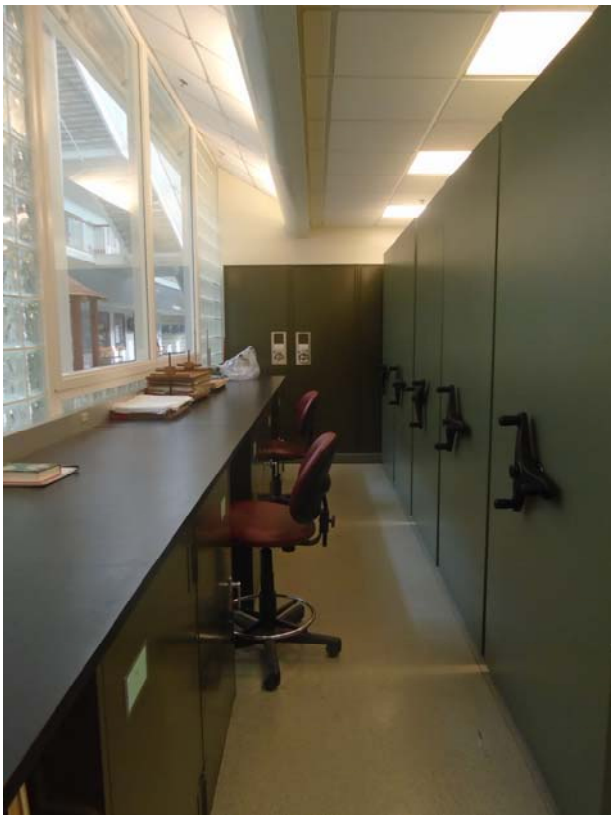

Figure 3 - The main herbarium room with high-density storage system (right) and work counter along atrium wall (left).

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

Figure 5 - Imaging station in anteroom of herbarium.

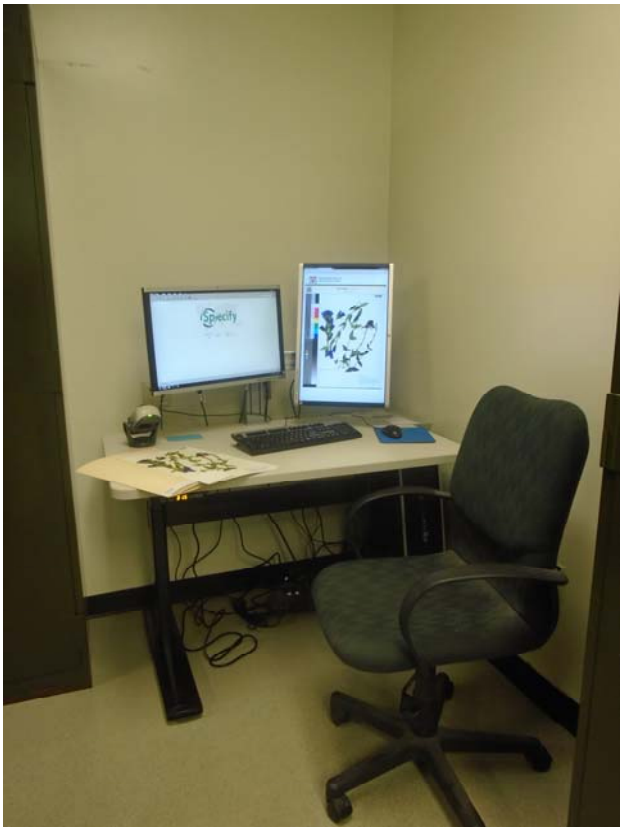

Figure 6 - Computer work station in main herbarium room.

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