

Annual Report September 1, 2007- September 1, 2008  
Ted R. Bradley Herbarium (GMUF)  
George Mason University

**Note from Director:** This report covers my third year as director of the Ted R. Bradley Herbarium.

**STATISTICS**

**Loans Out, made after September 1, 2007 - (2)**

- North Carolina State University (NCSC) 11 sheets *Canavalia* (1), *Parkinsonia* (5), *Styphnolobium* (syn. *Sophora affinis*, *S. japonica*) (5) (April 24, 2008).
- University of North Carolina (UNC), 25 sheets of *Taenidia* and 4 sheets of *Pseudotaenidia* (May 9, 2008).

**Loans Outstanding, made prior to September 1, 2007- (5)**

- MU, Willard Sherman Turrell Herbarium, Miami University, Ohio. Loans of Bahamian vascular plants to support development of a new Flora of the Bahamas:
  - 1) 123 sheets pteridophytes (September 29, 2005).
  - 2) 31 sheets of Commelinaceae and Liliaceae (April 4, 2006).
  - 3) 10 sheets Agavaceae, Smilacaceae (June 19, 2006).
- University of North Carolina (UNC), 34 sheets *Philadelphus* (April 1, 2007).
- Virginia Commonwealth University (Greg Plunkett)/Virginia Natural Heritage Johnny Townsend), +400 sheets *Dichantherium* (May 2, 2007).

**Loans Returned - (0)**

**Loans Received - (2)**

- UT/LL University of Texas at Austin, 10 sheets of *Trichocline*, *Chaptalia*, *Leibnitzia* for GMU MS Thesis of K. Baird.
- ARIZ University of Arizona, 23 sheets of *Leibnitzia*, *Chaptalia* for GMU MS Thesis of K. Baird.

**Exchanges Out - (0)**

**Exchanges In - (1)**

- BKL, Brooklyn Botanical Garden. 26 sheets. (May 12, 2008).

**Gifts - (0)**

**Requests for Information (2):**

- *Epipactis helleborine*, Wojciech Adamowski, Institution Unknown. (Feb 15, 2008).
- *Carex flava* record, Leo Bruederle, University of Colorado (May 2, 2008).

**Herbarium Visitors: External - (6)**

- From: NOVA, Smithsonian, American Chestnut Foundation.

## **Herbarium Visitors: GMU faculty/students/staff - (33)**

**Herbarium Volunteers: (3)**, Marianne McKone-Leonard, Erica Locher, Andrew Jenkins

## **Classes using collections – (2)**

- BIOL345 Fall 2007 (6 students)
- EVPP335 Spring 2008 (16 students)

## **MANAGEMENT HIGHLIGHTS**

### **Public outreach within the herbarium facility:**

- Two herbarium and campus plant tours were given to GMU students and faculty during Earth Week. The following advertisement was posted to the GMU community: “Environmental Science and Policy Professor Andrea Weeks will provided a guided tour to the plants and trees native to Mason's Campus. Learn about the interesting—and sometimes exotic—botany that makes Mason beautiful. Tour is limited in size—be prepared to walk on muddy ground.” (April 21 and April 22, 2008)
- The herbarium and campus plant tours were chronicled in the *GMU Gazette*: “Natural Walk Introduces Community to Another Side of Campus” by Colleen Kearney Rich: <http://gazette.gmu.edu/articles/11945/> (May 6, 2008)

### **Raising external visibility of the collections:**

- Attended the Virginia Botanical Associate’s annual meeting Charlotte, VA (September 8, 2007).
- A native plant rescue was organized on campus by A. Weeks with support from the Sustainability office and approval of Facilities. The area was an oak-hickory forest on the site of the proposed GMU Hotel-Conference Center. Volunteers were solicited from the campus community and outside GMU: native plant clubs, local parks’ offices, and regular visitors to the herbarium. <http://gazette.gmu.edu/articles/12376/> 45 volunteers attended, handouts with information about the herbarium were distributed. (8 am – 12pm. August 23, 2008).
- Volunteered to host a herbarium field-trip event September 12 for the 2008 conference of the Virginia Native Plant Society: <http://www.vnps.org/events/2008/07/vnps-2008-annual-meeting.html>. The following advertisement was posted in their brochure and website: “Join herbarium director, Dr. Andrea Weeks, for a tour of the Ted R. Bradley Herbarium on the campus of George Mason University. This research facility houses over 60,000 dried and pressed plant specimens, including a synoptic collection of Northern Virginia flora that is used by students, scientists, and natural resource professionals as a reference collection for ongoing floristics projects. Gain insight into archival specimen preparation, curation, and how the "business" of taxonomic work gets done! Notable specimens and the extensive reference-text collection will be available for

viewing, as well. (Directions to herbarium will be sent with registration confirmation).”  
The brochure was sent to over 2000 VPNS members.

**Library:** Nine new reference works were added to GMUF library: Flora North America Vols. 4, 5, 19, 20, 21, 24, 27; ICBN - Vienna Code; A tour of the flowering plants, with CD-ROM.

**Physical Infrastructure:**

- New closed-cell silicone-foam gasket material was custom-ordered from McMaster-Carr Inc.: 8 rolls of Extreme-Temperature Silicone Foam Rubber Adhesive Backed Strips, 3/16” thick, 3/4” wide and 18 feet long roll, black color (\$38.14/ roll). It was installed in the 7 cabinets that had no or decaying foam gaskets.
- The dilapidated bin boxes holding fruit specimens were replaced.
- The following supplies were added to the herbarium: University of California-style Mounting Paper, Display Envelopes, Missouri Botanical Garden Genus Covers, Species Folders - Acid-Free, Rancho Santa Ana Genus Covers, Humidity Indicator Strips, Bin Boxes, Missouri Botanical Garden Type Glue, Polyurethane Foams.
- A used Mac G3 computer was added to the Research Collection space.

**Progress on Databasing Collections:**

Undergraduate Marianne McKone-Leonard began a GMU Undergraduate Student Apprentice Program in September: “Assessing Virginia’s plant biodiversity heritage: a case example using Asteraceae (Sunflower Family).” Marianne used the databasing program to enter 500 records from the collections.

**Grant Writing Activities:**

In preparation for future grant writing, a request was made to the GMU libraries for help in finding all MS theses and dissertations that have used GMUF as a research source.

**Space Planning Activities:**

- During Fall 2008, I learned that the Herbarium would be moved out of Krug Hall and into the new addition to S&T I and II by 2011.
- In December 2007, I conducted a space and equipment audit on the herbarium (see Appendix) and outlined the possibility of improving the facilities with external grants. This was forwarded to the department chair and Nancy Conwell, director of facilities and special project planning.
- I volunteered for the ESP Department space committee in the capacity of helping plan collections-space, only: February 5, 2008.
- During the kick-off presentation May 5, 2008, the need for dedicated herbarium space was mentioned by COS Dean Vikas Chandhoke.
- July 22, 2008, I resent this space-audit document to Nancy Conwell, Cathy Wolfe, and two architect-facilitators from Perkins+Will, the company overseeing the space planning. I received the following confirmation email from Nancy Conwell: “This sounds like a wonderful opportunity to pursue. Kudos for getting input from your peers in this matter. I will circulate to the Steering Committee to review and comment. At this point, there are no floorplans/blue prints for any renovations or additions...so this data would not be available until Spring 2009...”

APPENDIX:

## Natural History Collections and Teaching Prep Room Space

This document contains information about 1) the current spaces on campus that house natural history teaching collections 2) suggestions for centralizing these resources around a shared upper-division teaching laboratory in the S&T I renovated building.

This document was compiled by Dr. Andrea Weeks with input from faculty members Drs. Edwards, Forkner and Kraus.

### Current Square Footage:

912 sq. ft.	Herbarium Research Collection, Krug 15
384 sq. ft.	Herbarium Teaching Prep Room for BIOL 342, BIOL 344, BIOL 345, BIOL 520, BIOL 534 and research collection, Krug 16
400 sq. ft.	Mammal and Insect Teaching Collection & Prep Room for BIOL 332, BIOL 333, BIOL 538, BIOL 622, Robinson B369
500 sq. ft.	Fish and Invertebrate Teaching Collection & Prep Room for BIOL 331, EVPP 536, EVPP 546, Krug 11
12 sq. ft.	Bird Teaching Collection for BIOL 537; two cabinets in Dr. Rockwood's research lab, King 3038

### From Dr. Cody Edwards, regarding mammal teaching space needs

One thing that we need is space for a dermestid beetle colony. This room needs to be separate from the collection. This wouldn't need to be a large space (<100 sq. feet?), but it would be helpful if it included a sink and hood (although neither would be "deal killer"). I would like us to move the birds in with the mammals and insects (Larry has said he would be agreeable to this), so an increase in sq. footage (over what we have now) would be essential. Along with a sink and hood, it would be nice if there was room for freezer(s), a computer, and a large table (for prepping specimens).

### From Dr. Rebecca Forkner, regarding invertebrate teaching space needs

Current floor and storage square footage

I estimate that we have <400 square feet of floor space for the insect/invertebrate collection. However, this includes Cody's mammal collection as well as many things left behind by Emsley, Schaffer, and others. Right now, we have less than 200 square feet of storage space for the insects, and even less than that for the invertebrates.

Future needs.

It may sound weird, but storage space and prep space are much more important to me than actual floor space. Insect storage cabinets cannot be on the compressible shelving that we talked about for your herbarium needs, and any invertebrate collection will have

a large number of liquid-filled containers. Also, a sink.

To run upper level labs for insects and invertebrates, we also need cabinet spaces for large five gallon buckets of dissection specimens - squid, molluscs, etc. And I mentioned yesterday that I need a room for live cultures of insects, spiders, annelids, etc. Since I haven't taught any classes yet, I don't know what we already have in King. As I see it, assuming that my teaching needs and research will be separate, this is what we need:

1) One room, about 400 square feet, for a teaching insect collection. This room needs to have space along the walls for insect cabinets, a small sink, and room for a small flammables storage cabinet for alcohol, phenol, and other relaxing fluids and toxic preserving and curating chemicals. It also needs a desk-height center bench area for dissecting scopes and microscopes and for display of insect specimens, as well as bookshelf space for dichotomous keys.

2) A second room, about 200 square feet, for live insect cultures. This room needs to be centrally located - meaning not along outside walls of the building - with solid, air tight, sealed doors and no widows (so insects that might escape don't fly toward light), and NOT easily accessible from nearby classrooms or in an area of high traffic (like near the building entrance). Storage space needs to be under-the-counter space for cages, containers, pet food, etc., bench space should be sufficient to hold several terraria and include a large sink, and at least one wall should have open shelving for large containers (shoe box size) and small terraria. This room also needs an autoclave and access to a walk-in cold room for overwintering specimens and for specimen curation (rotating specimens into the freezer works in place of naphthalene and paradichlorobenzene as a preservation method). This room needs to have the capacity to put the lights on a diurnal timer or needs to have a couple diurnal growth chambers.

3) A third room for the invertebrate collection, about 350- 400 square feet, with bench space sturdy enough for a few large aquaria, and either a large sink or a floor drain area, plus storage space for the preserved specimens as well as formalin and alcohol. If this is too much in addition to what is needed for insect teaching labs, and if Richard Kraus is okay with combining fish and invertebrate collections, that would be fine with me. The needs for an invert collection are pretty similar to those for curating fish.

And, since it's Christmas and I'm in the mood to ask Santa for all the things I never got as a child...

If there is any chance that we can put the upper level lab classroom along an outside wall of the building, so that I can turn one of the windows into a small apiary display, that would make my year.

For the upper level lab classroom itself, we already talked about access to a prep room, but if we can, I would like to be able to have bench space in the lab itself for small terraria and aquaria with live specimens.

**From Dr. Richard Kraus, regarding fish/invertebrate teaching space:**

- 1) Floor space = 500 sq. ft.
- 2) Shelf space = 400 sq. ft.
- 3) Special requirements: no windows (light damages a collection), and space should have a sink and fume hood.
- 4) High density rolling shelf storage system would require less floor space and is a worthwhile investment.

**From Dr. Andrea Weeks, regarding herbarium spaces**

The heavy weight of herbarium cabinets usually requires an engineering team to confirm that floors are sturdy enough to withstand the load. Cabinets can also be mounted on a rolling compactor system to save space but needs to be engineered into the floor. Compactorizing also requires similar cabinet shapes, which we do not have. I'd like to convert our 32 drafty "NPS style" cabinets to match our 19 other "Lane style" cabinets. The NSF biological research collections program could help fund these improvements.

The herbarium prep room needs to be adjacent to the research collections and the teaching spaces.

What follows is a detailed description of space and storage needs:

**Research collection Krug 15**

24 ft deep X 38 ft long = 912 sq. ft.,

Herbarium Cabinets (19) "Single Door Lane Style", each 2.5 ft wide X 7 ft tall X 19 in. deep

Herbarium Cabinets (32) "Double-Door NPS Style", each 55 in wide X 44 in tall X 22 in deep

Cabinetry: floor cabinets: 20 ft long X 30 in deep (along north wall)

16 ft long X 30 in deep (along west wall)

floor cabinets description: double doors, ¼ drawers, black-top counter

wall cabinets: 20 ft long X 12 in deep (along north wall)

14 ft long X 12 in deep (along west wall)

wall cabinet description; double doors, interior adjustable shelves

Current use: stores herbarium research library, journals, teaching slides, herbarium supplies.

Bookshelves: (3) metal, 3 ft. wide X 4 ft tall, 3 shelves each. Filled with books

Filing cabinets (2)

Desks: (2)

Tables: (4), 30 in. deep X 4.5 ft, black lab top surface

Sinks: (2), one standalone, one incorporated in counter-top (don't need these in here)

## **Prep Room Krug 16**

24 ft deep X 14 ft wide = 384 sq. ft.

Herbarium Cabinets (2\*) "Single Door Lane Style", each 2.5 ft wide X 7 ft tall X 19 in. deep

\* one of these is an electric dryer.

Herbarium Cabinets (4) "Double-Door NPS Style", each 55 in wide X 44 in tall X 22 in deep

Cabinetry: floor cabinets: 16 ft long X 30 in deep (along south wall)

wall cabinets: 16 ft long X 16 in deep X 48 in tall (along south wall)

Current use: stores herbarium teaching supplies, herbarium supplies.

Ultra-Low Freezer: (1), 56 in wide X 34 in deep X 6 feet tall

Microscope cabinets: (2), 36 in wide X 7 ft tall X 18 in deep

Filing cabinet: (1)

Desks (1)

Tables: (2) 42 in X 72 in

Sinks: (1) standalone – sink is necessary