Successfully managing small collections:
What has and has not changed in 10 years

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University of Northern Colorado Herbarium (GREE), Spring 2005
Two undergraduate work-study, three graduate students,
three adult volunteers, and the speaker

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Successfully Curating Smaller Herbaria and Natural History Collections in Academic Settings

NEIL SNOW

Although most natural history museums and herbaria are small (fewer than 50,000 specimens), digital and online technologies are greatly increasing their value to society. By generating and disseminating new knowledge, these smaller facilities embody the mission of higher education. Natural history museums confront a recurring problem, however: a lack of personnel to assist with collections management. Even small collections require more than a single curator to oversee daily operations. Moreover, newly appointed curators typically underestimate curatorial complexities and challenges, the foremost of which are inadequate budgets and insufficient professional time allotted for curation. Creating numerous horizontal linkages from the facility within and outside the institution is considered important for the long-term viability of smaller facilities. In this article I discuss several situations that new curators are likely to encounter, and present recommendations for administrators regarding realistic budgets and curatorial allocations, including what they can expect in return for sustained institutional support.

Keywords: systematics, museums, herbaria, management, biodiversity

Most of the hundreds of academic institutions in

- Facilitating collaborative projects between universities

Outline

Curation, Administrative Support, and Outreach:

Part 1: What has not changed (or changed little) since 2005

Part 2: What has changed (at least somewhat) since 2005

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Part 2: What has changed (at least somewhat) since 2005

What has not changed:
Work satisfaction

1. We create, manage, disseminate, and preserve large amounts of scientific data

What we do is scientifically important

2. Privilege of training the next generation of professionals in taxonomy, plant sciences broadly, museum curation, and related fields

Our facilities embody the mission of a university

What has not changed:
Multidimensional importance of small collections

Teaching

Pittsburg State Univ:, Spring 2014: > 250 specimens

used in Gen Biology, Plant Taxonomy, & Medical Botany

Documenting local and regional flora:

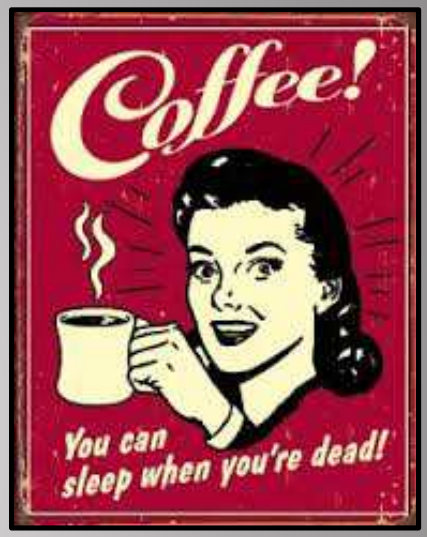
Emporia State Univ. in Kansas (ca. 40,000 specimens)

39 county unicates (Kansas) for *Diplachne fusca* subsp. *fascicularis*

Research: regionally, nationally, globally

Specimens used in research in-house and externally in form of loans

What has not changed:
Numerous time-consuming tasks



Databasing:

set-up; student learning curves and retention; quality control; **specimen labels (making, proofreading, cutting and inserting)**

Annotating specimens and updating information in database

Processing backlogged specimens (> 90 boxes, Fall 2013)

Mounting and filing specimens

Maintaining a current website

Reorganizing to follow APG III and modern generic and specific classifications

What has not changed:

Little or no FTE for curation

(Corollary: relatively little departmental financial support)

Considerable variation here

1. Some positions link plant taxonomy (or plant ecology) position to herbarium curation; others do not

2. FTE ranges from 0 to at least 0.2 FTE (= 8 hours a week) or often course reduction instead of FTE specifically for curation

What has not changed:
Being relevant and visible to your Department

Student activities should be highly visible;

curators should actively create such opportunities

Administrators may not fully appreciate the important roles herbaria play in the university and society at large

Easy for administrators / chairs to advocate on behalf of the herbarium if they know of these activities

Work-study students Susan and Sam
Fall 2013

Preliminary Overview of Plant Collections in the T.M. Sperry Herbarium, Pittsburg State University

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ABSTRACT

The T.M. Sperry Herbarium at Pittsburg State University was founded 68 years ago in 1946 by its namesake and longtime faculty member, Dr. Theodore M. Sperry. To assess the relative strengths of its holdings, we tabulated information from selected variables from all herbarium specimens in eleven families of vascular plants and two families of bryophytes. Variables of interest for the present study included the total number of specimens collected for each family, their geographical origin, and the decade of each collection. Geographical variables included all 50 US States, Canada, MesoAmerica + South America, and the Old World. Our null hypotheses were that the greatest number of specimens would originate (in order) from: Crawford County, Kansas (the location of Pittsburg State University), Kansas at large, Missouri, Oklahoma, and Arkansas, given the proximity of those three other states. Our results partially supported the null hypotheses regarding geographical origins. Following trends reported previously for the T.M. Sperry Herbarium, but based on a much smaller sampling size, our null hypothesis was that three peak decades of herbarium growth would include the 1960s, 1970s; and 1990s. Our results suggest that more specimens were originally collected in 1980s than the 1990s. The overarching goal of the study was to assess the relative strengths of the T.M. Sperry Herbarium as a repository of plant data in southeast Kansas, Kansas overall, the Gorilla Nation region (i.e., the adjacent areas of northeast Oklahoma, southwest Missouri, and northwest Arkansas), and determine where new opportunities lie for vegetative studies to help address areas of current critical interest.

INTRODUCTION

What is a herbarium? A herbarium is a collection of dried plants used for purposes of research, teaching, extension, and other purposes of outreach. Herbaria are also important centers of data on plants and plant resources.

Pressing and drying plants for storage in herbaria dates back at least to the 1400s in Europe, where the practice was closely tied to a burgeoning interest in knowledge of the medicinal uses of plants, building on earlier traditions of all aboriginal peoples and other cultures worldwide (e.g., Ibn Sina [= Avicenna] 1025; Lewis & Lewis 2003).

Why are herbaria important? Herbaria serve many important functions (Snow 2005; Funk 2004; Simpson 2010). Teaching is among the more important functions for herbaria associated with colleges and universities, including the use of collections for courses such as: Introductory Botany/Plant Biology, Plant Systematics, Bryology (study of mosses), Mycology (study of fungi), Lichenology, Horticulture, Grass Systematics, Plant Anatomy, Plant Morphology, Plants and People, Native Plants, Medical Botany, Economic Botany, Ethnobotany, Plant Ecology, Range Ecology, Forestry, Horticultural Sciences, Woody Plant Identification, and Aquatic Botany.

A second major function of herbaria is to support research, including basic and applied taxonomic research by specialists in various families or genera of plants.

A third critical function of herbaria is to house voucher specimens associated with research. A voucher specimen provides one of the critical elements of the repeatability criterion in science (Snow & Keating

MATERIALS AND METHODS

Eleven families of flowering plants and two families of bryophytes were tabulated for the following geographical origin by each US State, Canada, New World (apart from US and Canada), and the Old World, reflecting the primary geographical divisions currently being implemented in the Sperry Herbarium. The second variable noted was the decade the specimen was collected, given high levels of variation in plant collecting in North America since the 1830s (Prather et al. 2004a-b).

The families sampled included two families of bryophytes (nonvascular plants): Dicranaceae (mosses), Lejeuneaceae (liverworts); and among anglosperms (flowering plants): the monocot families Commelinaceae (Spiderworts) and Juncaceae (Rushes); and the Eudicot families Papaveraceae ([including Fumariaceae] Popples), Campanulaceae (Harebells), Salicaceae (Willows), and the herbaceous (non-woody) families Scrophulariaceae, Lindernlaceae, Plantaginaceae, Orobanchaceae, and Phrymaceae. The last five of these families were used as a subset to estimate the percentage of specimens from Crawford County (seat of Pittsburg State University) as a percentage of Kansas overall.

A total 2516 specimens were sampled across the thirteen exemplar families. Assuming 60,000 specimens of plants for KSP (Thiers 2013), this sample size represents 4.2% of the total collections. The following figures summarize these results. Specimen totals were tabulated initially on paper, summed numerically by hand, and entered into an Excel© spreadsheet and auto-summed by columns.

Graphs concerning geographical origin and decade or origin were carried out using Excel© software.

RESULTS

Our results are presented primarily by Figures, which summarize the number of specimens taxonomically, numerically, and/or geographically.

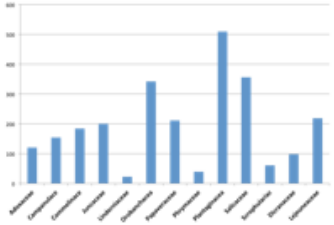


Figure 1. Total number of specimens sampled by family.

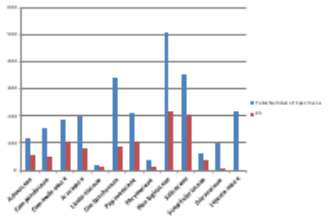


Figure 2. Total number of specimens per family represented by Kansas collections.

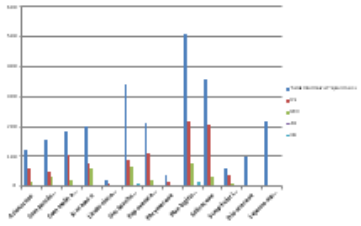
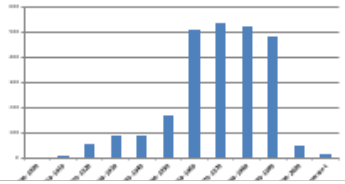
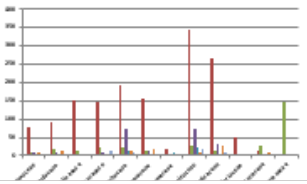
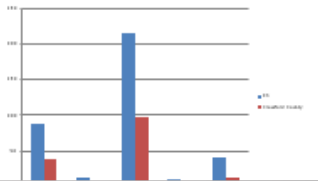


Figure 3. Breakdown of collections geographically by family with respect to the "Gorilla Nation" region.







DISCUSSION

Part 1: Geographical Origins. The largest number of specimens in the sample size originated in Kansas, as expected (Figs. 2, 3, 9), representing 39.1% of the sampled specimens.

Within Kansas, the largest percentage (41.3%) of specimens originate from Crawford County (Fig. 6)., the home of PSU. Many also come from Neosho County, based on collections by W. Holland over many decades.

Among adjacent states (AR, MO, OK), Missouri, with 341 specimens (= 13.6% of total), was the second most frequently represented state (Figs. 3, 8, 9). Several states (Fig. 8) had more collections than Arkansas (30 specimens) and Oklahoma (48) (i.e., Alabama (144); Colorado (90); Mississippi (85); Texas (78); New Mexico (63); and North Carolina (56)). Regionally, AR and OK are thus under-represented, even though they are close to southeast Kansas and harbor high levels of plant diversity.

Part 2: Decade of Origin. Prather et al. (2004a) documented high variability in plant collecting activities by decade since the 1830s. These authors were concerned that collecting rates have declined substantially in most of North America after an overall period of peak collecting in the 1970s.

Our results (Fig. 4) show strongly that the peak collecting decades were the 1960s through the 1990s. This contrasts with the findings of Prather et al. (2004a; Fig 2), who reported the 1960s as substantially the most active decade for the Sperry Herbarium. Critically, however, Prather et al. (2004a) only tabulated specimens collected *regionally* among participating herbaria, whereas our study, because the Sperry Herbarium is not data based, counted all specimens within the exemplar taxa.

The percentage of specimens from KS, however, *does* reflect the collecting trends as presented in Prather et al. (2004a) by decade (Fig. 7 and especially Fig. 9). In other words, the 1960s were the peak of collecting in KS, overall. Thus, despite their sample size being 10 times smaller (Prather et al. 2004a), they correctly documented the declining trend in collecting, which our larger sample size corroborates. One unexpected finding was the proportional increase in collections from Missouri during the 1980s and 1990s (Fig. 9).

Potential bias and error. What best approximates "random sampling" in an herbarium is unknown. However, although our analyses were not statistical, we chose a wide variety of taxa hoping it would reflect "random" sampling. Our selection of several families and including (by design) Eudicots, Monocots, exclusively woody families (e.g. willows) and bryophytes, seems on balance to approximate a random sampling of specimens.

CONCLUSIONS

Our study demonstrates that holdings of the T.M. Sperry Herbarium are rich from southeast Kansas, Kansas at large, Missouri, the Central US, the Southeast, and (surprisingly given its size) the Old World. Notable Old World collections include specimens collected shortly after the cessation of World War II in the United Kingdom by T.M. Sperry, and his numerous collections in the 1950s from the Democratic Republic of the Congo (then the Belgian Congo). Dr. Ralph Kelting also collected in the United Kingdom. While we did not numerically investigate the number of "unicate" specimens – those who no duplicates deposited at other herbaria – we are confident that the T.M. Sperry Herbarium has many unduplicated collections not found in other herbaria.

T.M. Sperry Herbarium
2013 Annual Report

Department of Biology
Pittsburg State University

From the Director, Dr. Neil Snow

I commenced as Director of the T.M. Sperry Herbarium in August of 2013 as an incoming Assistant Professor of Biology. It is an honor to take the reins of this important facility. I hope to make the herbarium a more useful facility for undergraduate and graduate students, faculty, municipal planners, environmental consultants, and the public at large.

Annual reports are not an entirely new tradition. In 1989 and the early 1990s, Dr. Steven Timme produced several "Annual Herbarium Activities Reports." This followed many years after probably the first substantive paper on the herbarium, entitled *The Kansas State Teachers College Herbarium*, by Sperry, written for *The Educational Leader* in 1951.

The goal of the Annual Reports will be to summarize activities in the Sperry Herbarium to our many students, faculty, alumni, and professional colleagues.

I want commend the excellent assistance provided in the herbarium from undergraduate students in 2013. These included **Samantha Young**, who graduated in December 2013, and is now working on her MS degree here at Pitt State, and **Susan Martin**, who is studying Construction Management with an emphasis in Building Information Modelling. Both have continued working during the Spring semester.

Herbarium Background: The T.M. Sperry Herbarium was founded in 1946 by its namesake, Dr. Theodore M. Sperry, a Professor of Biology at Pittsburg State University from 1946– 1974. Ted, as he was known by colleagues and friends, was active in the Biology Department at Pittsburg State University until his passing in 1993.

The State Grass of Kansas, Little bluestem
(*Schizachyrium scoparium*) (Photo: Matt Lavin)

The Herbarium's official 3-letter abbreviation in *Index Herbariorum* is **KSP** which at one time stood for Kansas-State-Pittsburg.

Herbarium size: Current estimates are of about 60,000 specimens. Given the number of cabinets (44), approximate average number of specimens typical in cabinets and that most cabinets are > 80% or full, and estimates of unmounted and unaccessioned bryophyte packets in several dozens of boxes, the figure of 60,000 figure seems reasonable.

The previous Director, Dr. Timme, was a bryologist (mosses, liverworts, and hornworts), and the collections of bryophytes may be 5,000 or greater. Our bryophytes in the process of being digitized (label data photographed and then converted into a digital format) by bryologists at the Missouri Botanical Garden.

Current Herbarium Organization: It is uncertain exactly what family classification scheme KSP has been using, but it is similar to one developed by Dr. Arthur Cronquist and was codified into his 1981 magnum opus "*An Integrated System of Classification of Flowering Plants*". Families are filed phylogenetically, based on perceived evolutionary relationships, an approach that will be continued.

We are currently reorganizing the collections at the familial level to follow (in most cases) the classification of **the *Angiosperm Phylogeny Group III* (APG III)**, as codified by Dr. Peter Stevens at the Missouri Botanical Garden (see: http://www.mobot.org/MOBOT/Research/APweb/welcome.html)

As of January 2014, and in accordance with APG III, the Sperry Herbarium includes about 175 vascular plant families. However, based on our analysis, approximately 25 families need to merged (or partially merged) into other families, or split apart (or partially split apart) into smaller families. We have not yet assessed the bryophyte holdings.

Funding for Sperry Herbarium: Snow's appointment at Pitt State was supported generously with start-up funding from the "K-INBRE", the Kansas Ideas Network for Biomedical Research Excellence" (grant no. P20 GM103418, from the National Institutes of Health). The majority of this support has been directed at enhancing the herbarium. It has enabled us to purchase a large number of badly needed items and supplies to help update KSP, including many recently published volumes that are useful or nearly required to reliably identify plants regionally.

Acid-free genus folders and species covers: Since most genus folders were not of archival quality, we purchased several thousand new genus folders and species covers.

Biogeographic subdivisions: Most herbaria of any significant size use variously-colored folders to differentiate between geographical areas. This approach is just common sense, because nearly all herbaria have a local geographical focus and other focal areas representing interests of the faculty and/or collaborative projects in other areas.

The geographical focus of KSP is southeast KS and the adjacent 4-State region (see below Kansas and Regional Reference Collection).

However, KSP has many important holdings from elsewhere, given past activities of curators, students, and other workers. We are thus differentiating collections geographically as follows. **Manila:** Collections from Kansas. **Green:** Specimens from North America north of Mexico, exclusive of Kansas. **Yellow**: Collections from MesoAmerica (Mexico and all lands south, including the Caribbean). **Red**: Specimens from the Old World.

Species from Kansas and North America will all have their own labeled folders. Subspecies or varieties in most cases will be not subdivided with extra folders.

Genera from the Meso- and South America (yellow) and the Old World (red) will have folders made at the generic level only. These will be placed at the top of the respective genera, given that species will be filed alphabetically by genus according to plain (KS) or green (North America) folders. Thus, a worker wanting to look at specimens of *Astragalus* (locoweeds) might first find a yellow folder, a red folder, followed by species of *Astragalus* filed alphabetically by Kansas (manila) and North America (green). Specimens of the sunflower *Helianthus maximiliani*, for an example from the sunflower family, will be first found in plain folders (KS), followed by green folders (N. America).

Kansas and Regional Reference Collection (KRRC). The Director was first introduced to a Reference Collection at the Rocky Mountain Herbarium at the University of Wyoming in 1987 when he began his master's degree program. A Reference Collection is a stand-apart collection of one quality specimen of each taxon (species, subspecies, and varieties) known to occur in a given region.

Specimens in a Reference Collection all have been carefully confirmed by specialists or the Director, Curator, Collections Manager, or taxonomic specialist.

By having all taxa from one region together in a few cabinets, the Reference Collection will ***greatly expedite the process of making identifications***, because many species must be compared against authenticated herbarium material to be confident of the correct determination. In other words, a person need not get up and down and return, in and out, to the main collections, grabbing one or a few folders at a time, and bringing them to the dissecting table. Rather, a good representative of all taxa are in one location.

The KRRC presently occupies the first cabinet one encounters entering KSP, about 200 specimens. We hope to have augment that to 500 by the end of 2014.

The KRRC is for anybody to us[illegible] Come by and take it for a test drive.

Adding specimens to the KRRC: One might think that adding representatives to the KRRC is simply a matter of pulling specimens from the main collections. In reality it is more complex. First, one must search for a high quality specimen that shows the key diagnostic features of that species plainly, such as those (typically) found on flowers and/or fruits. The specimen then must be run carefully through a local dichotomous key to the identification.

Next, a separate but small piece of paper is attached with a paper clip to the specimen that indicates its proper scientific (= Latin binomial) name, one or more of its (locally) common names, whether it occurs in KS, AR, MO, and OK, and whether the taxon is native or non-native to North America. The data is then entered into a database, and a folder and species cover made for that species.

We calculated an average of about 15 minutes for each plant specimen to be pulled from the main herbarium collections, checked for accuracy, making a KRRC label, and placing into the KRRC. At nearly 200 specimens as of this writing, that equates to about 50 hours of work.

When I was the Curator previously at the University of Northern Colorado in Greeley, we also established a Reference Collection. It was and still is used frequently by students in plant taxonomy, graduate students, local consultants, and botanists and land resource managers.

To reiterate, the KRRC is available to anyone with a legitimate need or interest in confirming the identifications of their plant specimens. Although still in the incipient stages, with only about 200 species thus far added, it will soon be an important outreach component of the T.M. Sperry Herbarium.

By the Numbers: 2013 accomplishments

Plant specimens mounted and added to the main collections or KRRC: 607. This included [illegible] Australia, Namibia, South Africa, and Peru.

Herbarium specimen labels made: 61

Specimens received as a gift for research: 136 These all were species of Myrtaceae (Myrtle family) from the Missouri Botanical Garden originating in Madagascar for Snow's research. Unidentified specimens sent to a taxonomic specialist for his or her retention – as in this case – are called "**gifts for dets**", or "This is a gift specimen in exchange for you eventually [illegible]

Director showed signs of insect damage (notably the presence of frass, or insect feces). These were deep frozen (-35 F) for a minimum of 3 days, and sometimes up to a week.

Specimens conserved: 2. Conservation in a herbarium refers to re-mounting a specimen onto better quality paper, or making other [illegible]

not been mailed because the Director will visit K-State soon and will deliver them personally.

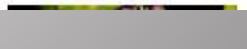
Specimens de-accessioned: 104. Some of these specimens had never been formally accessioned. These included partially mounted specimens (e.g., lacking collection labels) that had been sitting outside of cabinets for some [illegible]

aroma, some retain a much more potent stench, which is not only nauseous, but also probably unhealthy.

Many health-related effects are known from long-term exposure to 2, 2-dichlorovinyl dimethyl phosphate. Concerns have been raised more than once nationally because it can be [illegible]

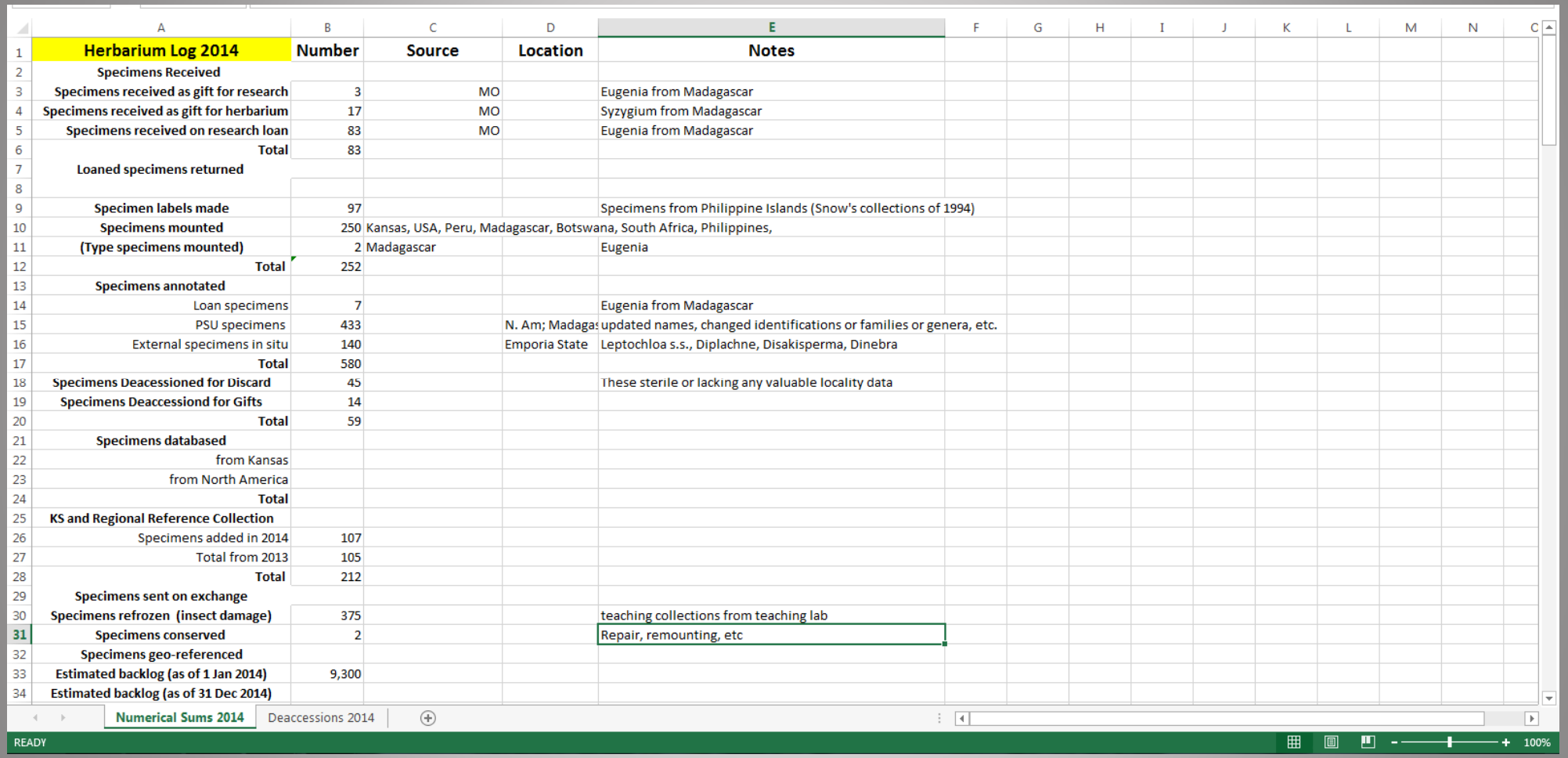
freshwater (Brazil) species of dolphins. We are glad to have gained the recognition.

Eugenia petrikensis N. Snow & Randrian., new from Madagascar. The magenta flowers have 4 petals and are quite small. (Photo courtesy of David Rabehevitra)



uploaded to international data aggregators like the **Global Biodiversity Information Facility** ("**GBIF**") in Copenhagen.

However, many institutions now take high-resolution digital photographs of each specimen (up to 25 MB per image) and upload these for all to see. Virtually all institutions do this, as a [illegible]



	A	B	C	D	E
1	**Herbarium Log 2014**	**Number**	**Source**	**Location**	**Notes**
2	**Specimens Received**				
3	**Specimens received as gift for research**	3	MO		Eugenia from Madagascar
4	**Specimens received as gift for herbarium**	17	MO		Syzygium from Madagascar
5	**Specimens received on research loan**	83	MO		Eugenia from Madagascar
6	**Total**	83			
7	**Loaned specimens returned**				
8					
9	**Specimen labels made**	97			Specimens from Philippine Islands (Snow's collections of 1994)
10	**Specimens mounted**	250	Kansas, USA, Peru, Madagascar, Botswana, South Africa, Philippines,		
11	**(Type specimens mounted)**	2	Madagascar		Eugenia
12	**Total**	252			
13	**Specimens annotated**				
14	Loan specimens	7			Eugenia from Madagascar
15	PSU specimens	433		N. Am; Madaga	updated names, changed identifications or families or genera, etc.
16	External specimens in situ	140		Emporia State	Leptochloa s.s., Diplachne, Disakisperma, Dinebra
17	**Total**	580			
18	**Specimens Deacessioned for Discard**	45			These sterile or lacking any valuable locality data
19	**Specimens Deaccessiond for Gifts**	14			
20	**Total**	59			
21	**Specimens databased**				
22	from Kansas				
23	from North America				
24	**Total**				
25	**KS and Regional Reference Collection**				
26	Specimens added in 2014	107			
27	Total from 2013	105			
28	**Total**	212			
29	**Specimens sent on exchange**				
30	**Specimens refrozen (insect damage)**	375			teaching collections from teaching lab
31	**Specimens conserved**	2			Repair, remounting, etc
32	**Specimens geo-referenced**				
33	**Estimated backlog (as of 1 Jan 2014)**	9,300			
34	**Estimated backlog (as of 31 Dec 2014)**				

Numerical Sums 2014 | Deaccessions 2014

READY 100%

What has not changed:
The importance of visibility and outreach in the community

Sad but true: most people are uninterested in what taxonomists do

Recommendation: Create and accept opportunities to promote the herbarium:
Rotary, Scouts, Native Plant societies, Herbarium tours to school groups,
and other civic groups

Outline

Curation, Administrative Support, and Outreach:

Part 1: What has not changed (or changed little) since 2005

Part 2: What has changed (at least somewhat) since 2005

a. for the better

b. new challenges

What has changed for the better:
The expectation of "going digital"

General departmental and societal awareness of online data and digital images of specimens

Digitization: The herbarium is seen as relevant and modern by departmental colleagues, university, and community

But, this increases our work loads!

What has changed for the better:
More options and support from within systematics community

No need to reinvent digital wheels

Commercial options for digitization hardware, set-up and consulting

OCR -- optical character recognition software – (but is it ultimately a time-saver?)

GeoLocate (and other georeferencing tools)

Uploading data regionally and availability of data portals

(MiCOB; Symbiota and SeiNET)

Sponsored workshops like this one **(Thank you, NSF!)**

What has changed for the good :
More on-line resources

information and guidance regarding herbarium management

data hosting

database construction

data based information (from other institutions)

Information and Guidance

Society of Herbarium Curators

Uniting Herbaria Across the Nation and Around the World

User Login

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Logout

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About SHC

The Society

Officers/Committees

Grants

Constitution

The Vasculum

The Importance of Herbaria

State Consortia

Regional Consortia

The Society of Herbarium Curators

The Society of Herbarium Curators (SHC) is a forum for discussion, action and support for herbaria. The SHC is an umbrella organization aiming to unite herbaria across the nation and around the world.

The purpose of the society shall be to promote and expand the role of herbaria in botanical research, teaching, and service to the community at large, to provide a forum for discussion and action on all issues confronting herbaria, and to extend its efforts and interject its influence toward the protection and preservation of endangered herbaria.

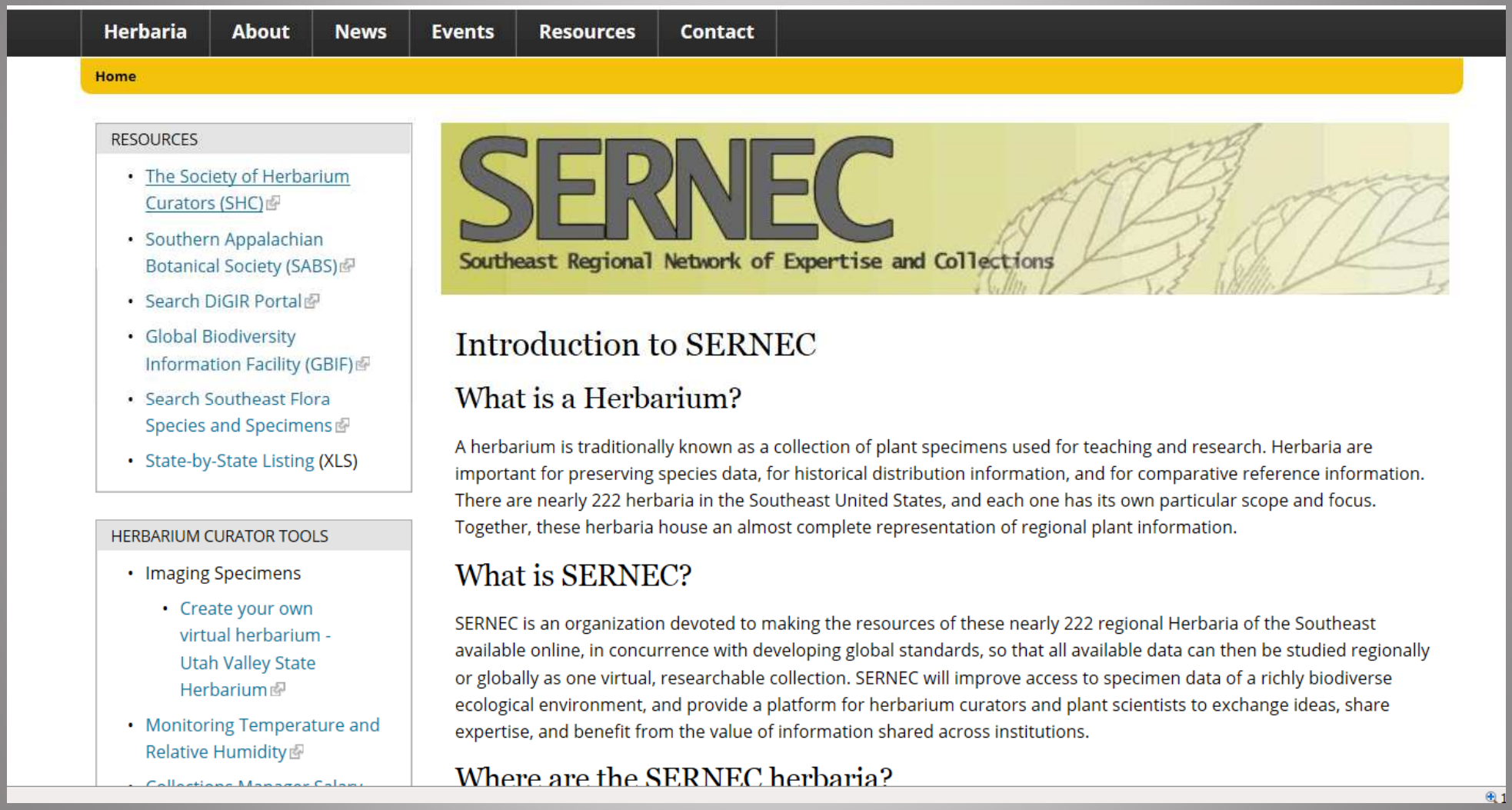
The Society publishes a semiannual newsletter, *The Vasculum*.

WHAT IS A HERBARIUM?

The Curator's Toolbox

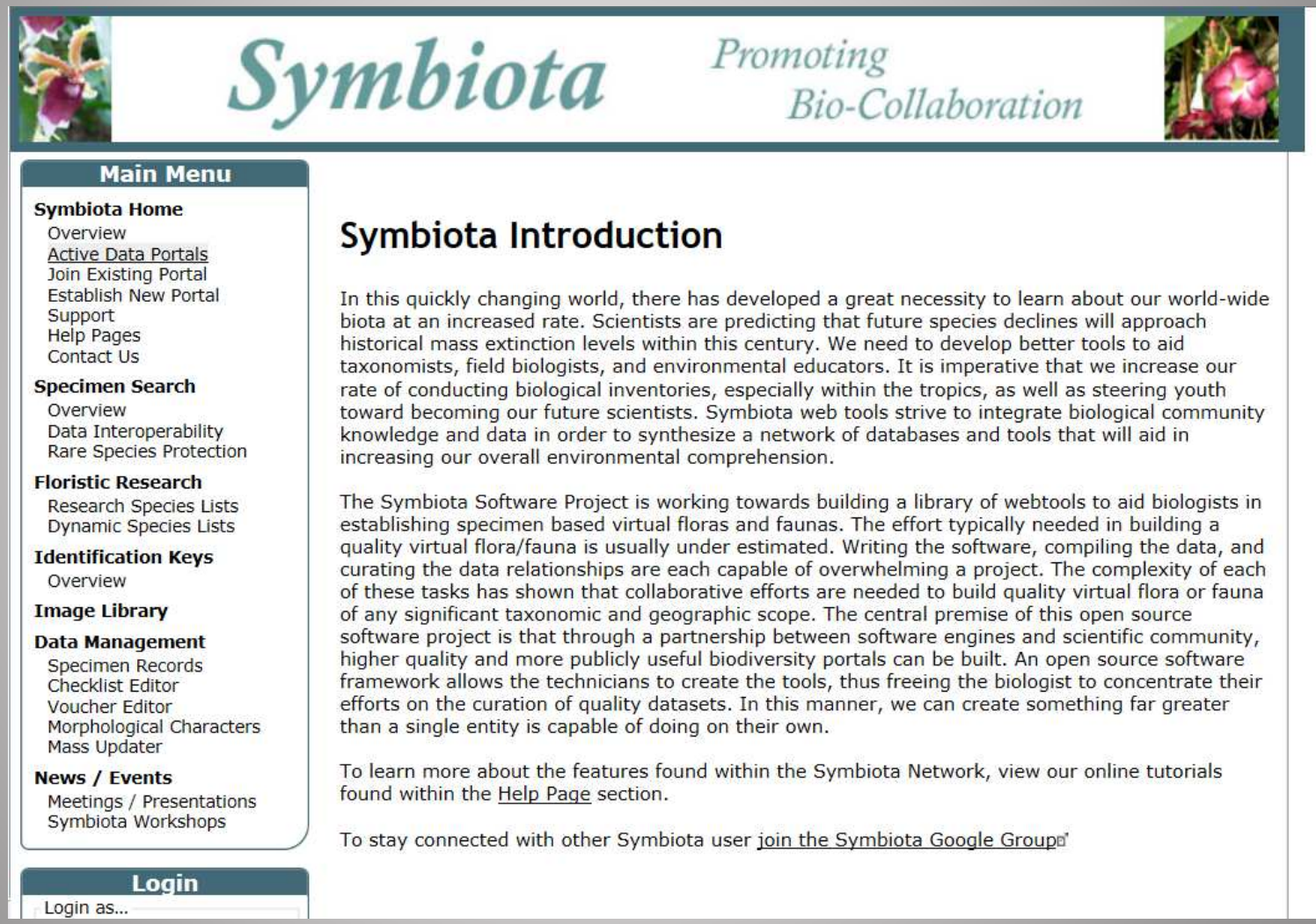
1. Creating a Virtual Herbarium
2. Specimen Identification Services
3. How to Package Specimens
4. Herbarium Issues-Insecticides
5. Links to Herbaria Curation Methods
6. Herbarium Networks and Other Digital Herbaria
7. How to Make Interactive Keys
8. Collaborative Mapping Projects
9. Other Resources
10. Imaging Specimens

Information and Guidance

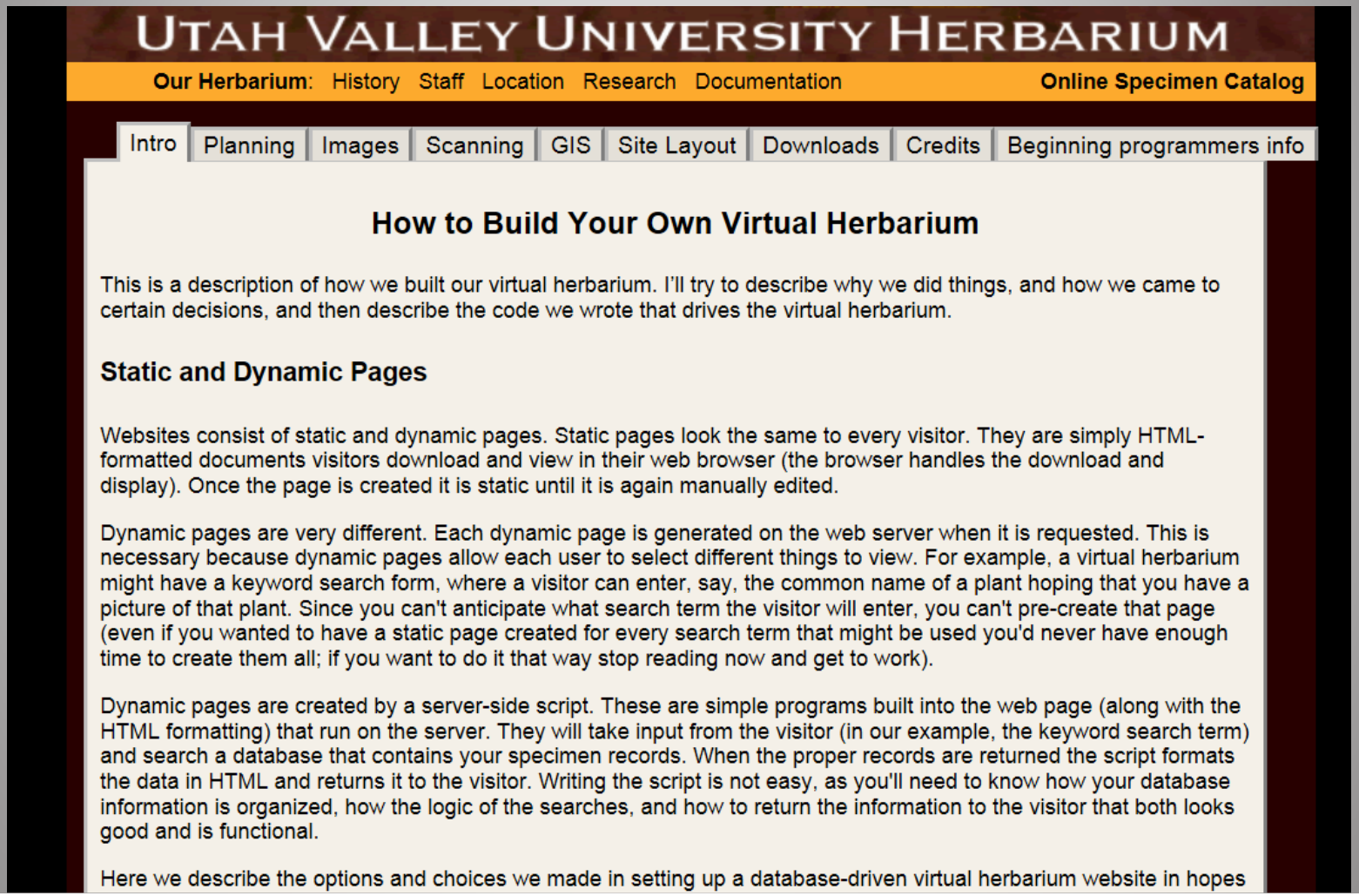


Information and Guidance

Data Hosting



Database construction



Data based information

ROCKY MOUNTAIN
Herbarium

Home | About RM | Collections | Online Data | Research | Resources

Browse | Search | Results

RM Herbarium Specimen Database

Accessing 811,248 specimen records. Last updated 3/24/2014.

Herbarium: search all collections

Project Code: (usually, the project lead's last name)

Accession # Barcode

Family

Scientific Name: Genus Species ssp. or var.

Collector Collector #

Collection Date: Day Month Year

Country State County

Locality

Elev. (ft.) -

☐ Restrict results to specimens that have images.

Map Search: Click "Create Polygon" to define an area to search.

Create Polygon | Remove Polygon

Important: Using Map Search will restrict your results to specimens that have latitude and longitude coordinates. Search results may also take longer to display

Data based information

CYBERFLORA Louisiana

Home | About | Herbarium | Plant Images | Education | News | Links | Contacts

Louisiana Virtual Herbarium

a portal to the 15 herbaria in the State

Code	Institution	Specimens	Specialties
NLU	University of Louisiana at Monroe	472,000	Worldwide, esp. LA, Gulf South, and Sevier Co., TN; Ophioglossaceae; Kisatchie National Forest.
LSU LSUM	Louisiana State University LSU Mycological Herbarium	175,000 23,000	LA; lichens of SE US; crustose lichens worldwide; Asteraceae, Fabaceae, Poaceae worldwide. Higher fungi of tropical America & US.
LTU	Louisiana Tech University	123,000	Worldwide, especially LA, TX, MS, and AR.
NO	Tulane University	120,000	Worldwide, LA, SE US, Colorado Rocky Mtns., S CA, Yucatan; pteridophytes of Colombia & Brazil.
LAF USLH	University of Louisiana at Lafayette ULL Ornamental Horticulture Herbarium	107,000 15,000	Vascular plants of LA; pteridophytes of SE US. Native and cultivated species of LA.
THIB	Nicholls State University	30,000	LA; New World Leguminosae, especially Caesalpiniaceae, and Poaceae; seeds, mostly US.
LSUS	LSU in Shreveport	20,000	NW LA; North American Asclepiadaceae.
NATC	Northwestern State University	20,000	Mostly SE US, particularly LA.
SELU	Southeastern Louisiana University	12,000	SE LA.
NOLS	University of New Orleans	9,500	Central Am. Begoniaceae & Bromeliaceae; S LA.
SFRP	Southern Research Station USFS	6,200	Vascular plants, especially Asteraceae, Cyperaceae, and Poaceae of LA and SE US.
MCN	McNeese State University	5,000	LA, especially SW; SE TX; vascular plants.
-	Ft. Polk US Army Base	4,500	Southwestern LA.

Data based information

THE NEW YORK BOTANICAL GARDEN

International Plant Science Center

The C. V. Starr Virtual Herbarium

Lead Corporate Sponsor of the Institute of Economic Botany — Pfizer

Science Home ... Virtual Herbarium

For More Information

- History of the Virtual Herbarium
- A Summary of Databasing Projects
- A Guide for Use of the Virtual Herbarium
- Treatment of Endangered and Threatened Plant Species
- Specimen Showcases
- Virtual Herbarium and Physical Specimen Loans
- Collectors Represented in the Herbarium

Search All Catalogs

The New York Botanical Garden catalogs specimens as part of specific projects. These are described in detail in the Summary of Databasing Projects page.

In 2004 the Virtual Herbarium adopted a new software platform, KE Software's KE EMu. In addition to providing a more modern system for data entry and storage, the EMu system permits many improvements to our web presentation of data. We are able to make a greater range of data available for searching, new records are posted instantly, users are able to download data, and georeferenced specimens can be mapped.

To see a selection of records that demonstrate the features of the new interface, see our Specimen Showcase

To search for specimens by plant name (division, family, genus, species, or subspecifies), author, collector, collector number, barcode number, or type status, use the Quick Search box below. To search one or more specific fields in the database, use the Detailed Search.

Search **Basic Search**

Advanced Search

Division		
Family (most recent determination)		
Scientific Name (most recent determination)		Searches the genus, species, infraspecies, and author abbreviations of a name.
Genus (most recent determination)		

Comments

We are interested in comments from users about the new interface and any additional features that would be helpful.

Please send these comments to:

Virtual Herbarium
vhnybg@nybg.org

Outline

Curation, Administrative Support, and Outreach:

Part 1: What has not changed (or changed little) since 2005

Part 2: What has changed (at least somewhat) since 2005

a. for the good

b. and poses new challenges

What has changed and poses new challenges:

Waning government and private (NGO) support of taxonomy

31 March 2014 Last updated at 09:20 ET

Kew Gardens jobs to be axed in £5m shortfall

The Royal Botanic Gardens is facing a shortfall of £5m in 2014-15

About 125 jobs could be cut as the Royal Botanic Gardens in Kew.

DAILY NEWS AMERICA | NEW YORK | LOCAL | News | Politics | Sports | Showbiz | Opinion | Living

Brooklyn

Botanic Garden's celebrated plant research center wilts under layoffs

Four scientists are pruned. Major repository of plant life holding many rare local breeds is shuttered following opening of new visitors center.

BY REUVEN BLAU Follow / NEW YORK DAILY NEWS / Tuesday, August 27, 2013, 6:03 PM

A A A

168 50 8+1 7

What has changed posing new challenges:
Waning presence of taxonomy at postsecondary level

Courses for Summer 2014 at long-established, university-affiliated biological field station west of the Mississippi River

Seminars in Ecology and Resource Management
Ecology of Forests and Grasslands
Conservation Ecology
Landscape Ecology
Stream Ecology
Alpine Ecology
Lake Ecology

(Taxonomy / identification courses unrepresented)

(An admittedly biased aside……)
No taxonomy courses in 2014…???

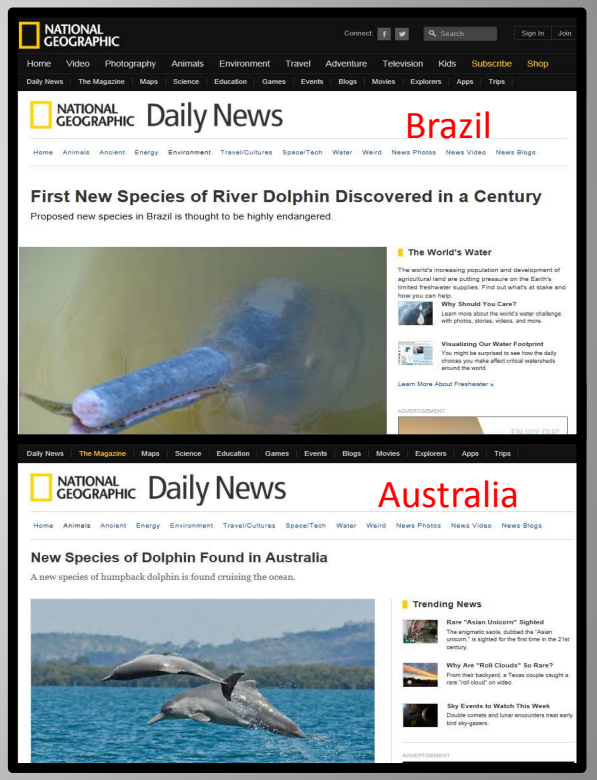
… when taxonomists discover 19,000+ new species around the planet <u>every year</u>…..?

See:

Arizona State University

International Institute for Species Exploration

(http://species.asu.edu/)



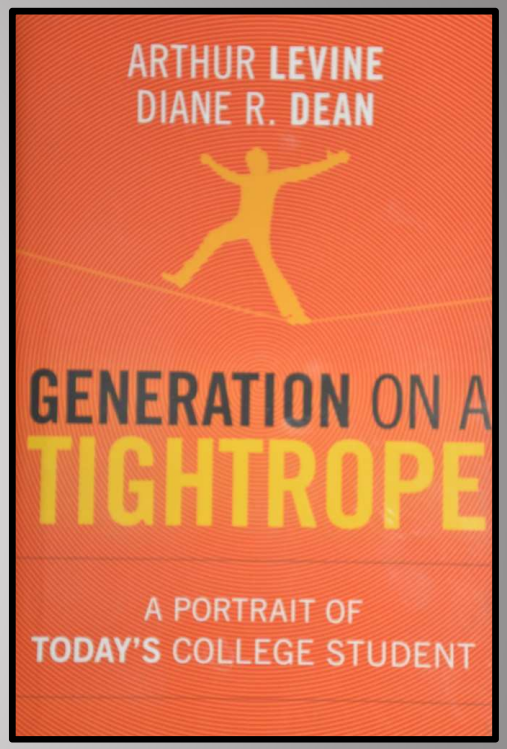
What has changed, poses new challenges, and creates new opportunities:

Higher Education now is a consumer product!

Schools compete for students

Anything that helps your sell your school (=recruit undergraduates) is a winner.

If herbarium engages students, then your department can market that opportunity to undergraduates and their parents



Perceptive snapshot of the worldview of students and their parents.

What has changed: new challenges:
Ever-increasing need to “market the product”

What is a herbarium?

What roles do herbaria have in science?

What roles do they have in teaching?

What is their importance in outreach?

Be prepared to give tours

Have attractive specimens (flower color well preserved) within quick and easy reach to show visitors. Include at least one related to medicinal uses (*Echinaceae purpurea*, far right). Why? Almost nobody will question the validity of medicinally-related knowledge of plants.

Kansas and Regional Reference Collection (KRRC)

Purpose: Inaugurated in the Fall Semester of 2013, the KRRC is a stand-apart collection with the sole purpose of helping users expedite proper identification of unknown specimens by providing easy access to authenticated specimens and identification sources in one location. Having one (or at most two) sheets of each specimen prevents repeat trips into the main collections.

Organization: Major clades (in order, top to bottom) are Ferns and Fern Allies; Gymnosperms; Angiosperms. Families are organized alphabetically (see adjacent list of families and 3-letter abbreviations); genera are alphabetical within families. Each species is protected with a species folder; information is summarized for its distribution in the 4-state area, whether native or non-native, with details of authentication.

Geographical coverage: All of Kansas and the following counties in the Gorilla Nation region, which include a radius of 150 km from Pittsburg (intersection of US Hwy 69 and KS 126) into our three adjacent states:

Arkansas: Benton, Carroll, Madison, Washington

Missouri: Barry, Barton, Bates, Benton, Cass, Cedar, Christian, Dade, Dallas, Greene, Henry, Hickory, Jackson, Jasper, Johnson, Lawrence, McDonald, Newton, Polk, St. Clair, Stone, Taney, Vernon, Webster

Oklahoma: Adair, Cherokee, Delaware, Mayes, Nowata, Osage, Ottawa, Rogers, Wagoner, Washington

Suggestion:

Create a Reference Collection for Students and for community outreach

"**Botany I rank with the most valuable sciences**, whether we consider its subjects as furnishing the principal subsistence of life to man and beast, delicious varieties for our tables, refreshments from our orchards, the adornments of our flower borders, shade and perfume of our groves, materials for our buildings, or medicaments for our bodies."

Thomas Jefferson

(in letter to Thomas Cooper, October of 1814)

(Quote Jefferson: Few will second-guess his wisdom as a man of Letters)

Summary:

I encourage a new thinking, wherein:

Your herbarium is there in part to make your university and its administrators look good

Acknowledgments

1. National Institutes of Health. Start-up support from K-INBRE (Kansas Ideas Network in Biomedical Research Excellence), grant no. P20GM103418
2. Pittsburg State University: Administrative support of T.M. Sperry Herbarium: Dr. Lynette Olson (Provost); Dr. Karl Kunkel (Dean, College of Arts and Sciences; Dr. Dixie Smith (Chair, Department of Biology)
3. Work-study students: Susan Grace; Sam Young
4. National Science Foundation for sponsoring this workshop
5. Organizers of the workshop: Anna Monfils, Gil Nelson, Cathy Bester (and others)

Questions and Comments?