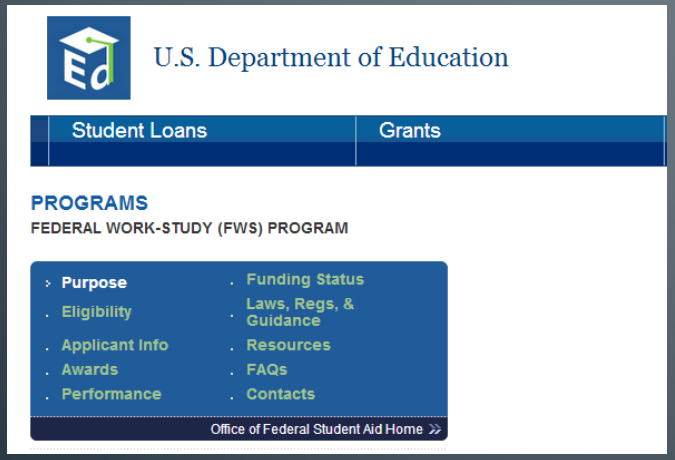
Including students in herbarium digitization efforts

Valdosta State University
27 January 2015
Emily Gillespie

Sources of student help

- For credit
  - Independent study
  - Capstone/senior projects
- Volunteerism
- Federal Work Study
- 'Job training' opportunities!



Marshall herbarium 2014-2015

9 Federal Work Study students

1 Master's independent study

2 undergraduate Capstone/senior projects

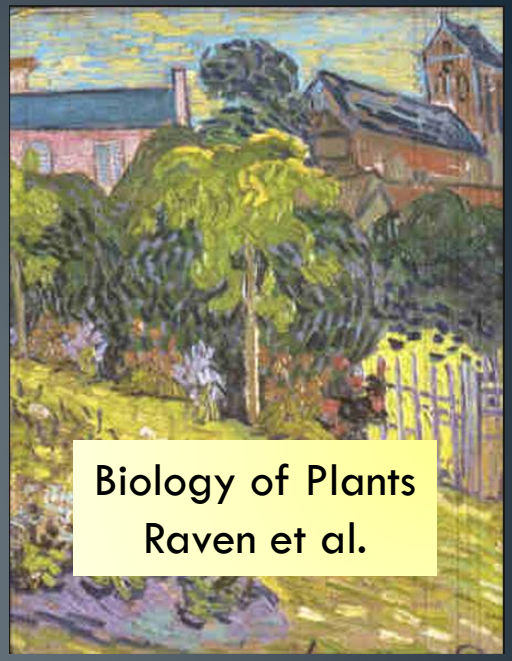
1 undergraduate independent study

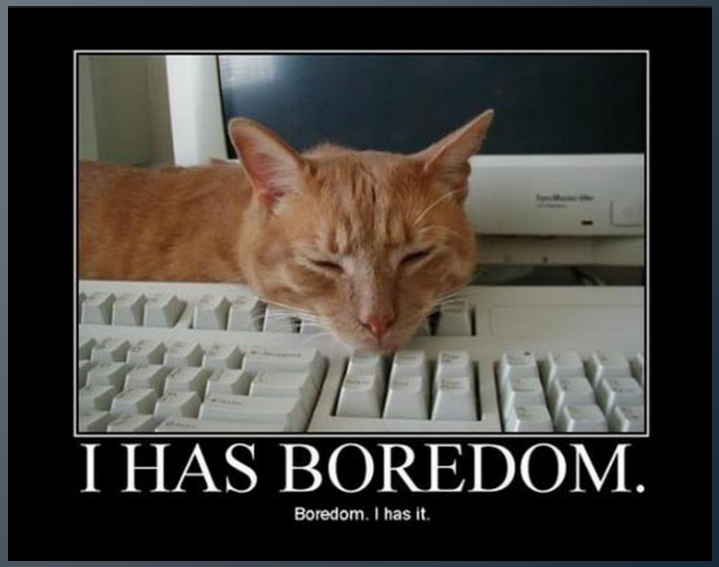
2 paid students on ADBC grant

- 1 MS student and 1 FWS student

Challenges with students

- Lack of botanical/taxonomic knowledge
  - No intro botany course, little botany instruction
  - Plant blindness
- Continuity/ predictability
- Boredom
  - Including in 'actual' research activities
    - Prep for digitization





Circumventing lack of botanical training

- Explicit workflows
  - Mounting/repairing specimens
  - Sorting specimens into major plant groups
  - Filing specimens
  - Photography
  - Databasing/georeferencing
  - Data-mining

Sorting specimens by major plant group

- Start with randomly-ordered, newly mounted specimens
- Sort into cubbies based on major plant group
- Problems
  - oddballs: *Ophioglossum*
  - Non-reproductive specimens

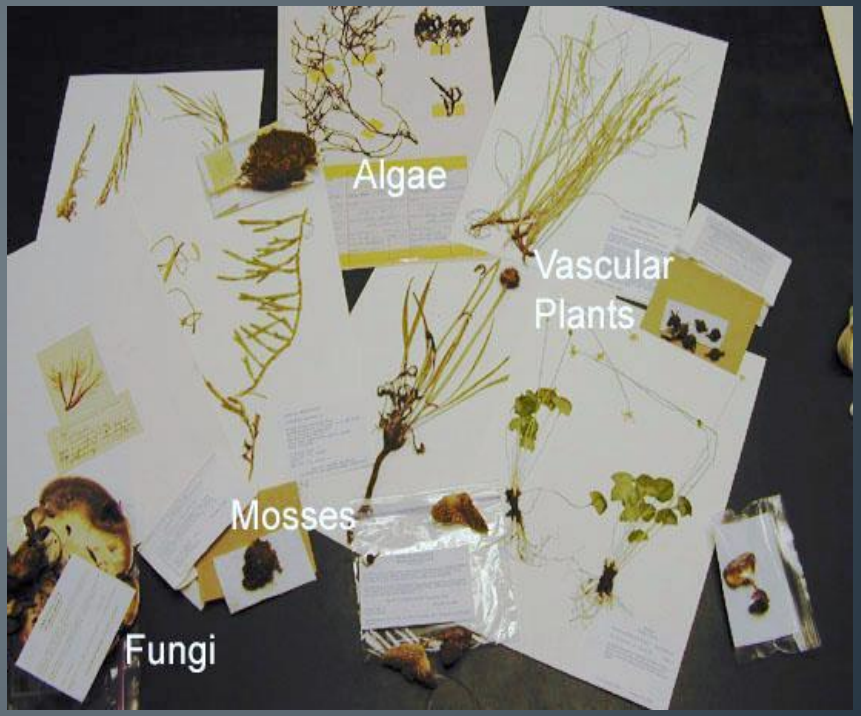


Image: M. Barkworth

Filing specimens

- Recent 'linear' classifications

- Problems
  - New families
  - Merged families
  - Old/new names (Compositae/Asteraceae)

Botanical Journal of the Linnean Society, 2009, **161**, 128–131.

The Linear Angiosperm Phylogeny Group (LAPG) III: a linear sequence of the families in APG III

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A new classification and linear sequence of extant gymnosperms

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A classification for extant ferns

TAXON

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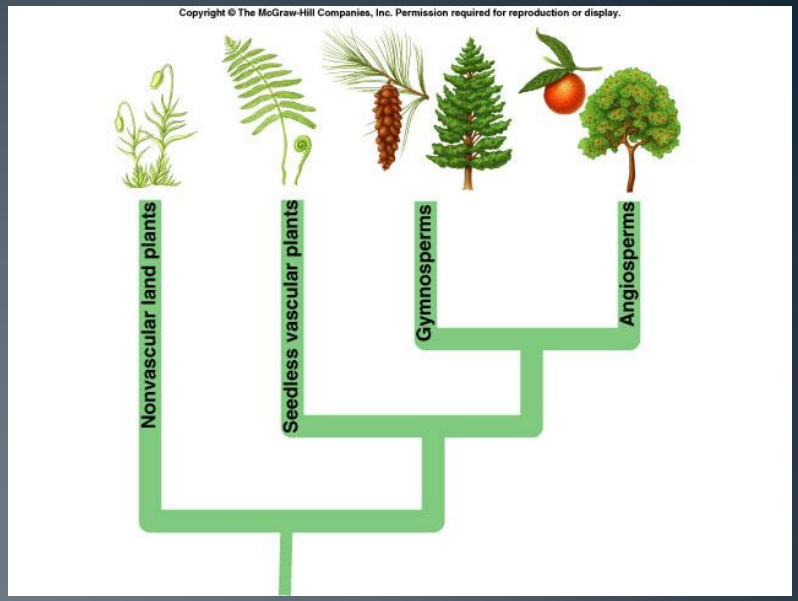
Solutions

- Step-by-step workflows
  - Flowchart or steps
- Picture references on cabinets
- Classification lists
- Allow students to edit protocols
- Training of 'middle manager' students
- Cross-training by seniority
- Scheduling flexibility
- Contact: email, text, call!
- 'real' inclusion in research



Alphabetical

Marshall University (MUHW) Angiosperm families (in bold)

Organization based on: Hasten et al. (2009). The Linear Angiosperm Phylogeny Group (LAPG) III: a linear sequence of the families in APG III. *Botanical Journal of the Linnean Society*, 2009, **161**, 128–131.

Acanthaceae 378	Bixaceae.....253	Corsiaceae 60	Gelsemiaceae.....353
Achariaceae 204	Blandfordiaceae.....64	Corynocarpaceae 165	**Gentianaceae.....351**
Achatocarpaceae 297	Bonnetiaceae 212	Costaceae.....88	**Geraniaceae.....215**
Acoraceae.....29	**Boraginaceae.....356**	**Crassulaceae 134**	Gerrardinaceae 244
Actinidiaceae.....340	Boryaceae 63	Crossosomataceae 233	**Gesneriaceae 367**
Adoxaceae.....405	**Brassicaceae/Cruciferae.273**	Crypteroniaceae 224	Gisekiaceae.....303

Numerical

Marshall University (MUHW) Angiosperm families (in bold)

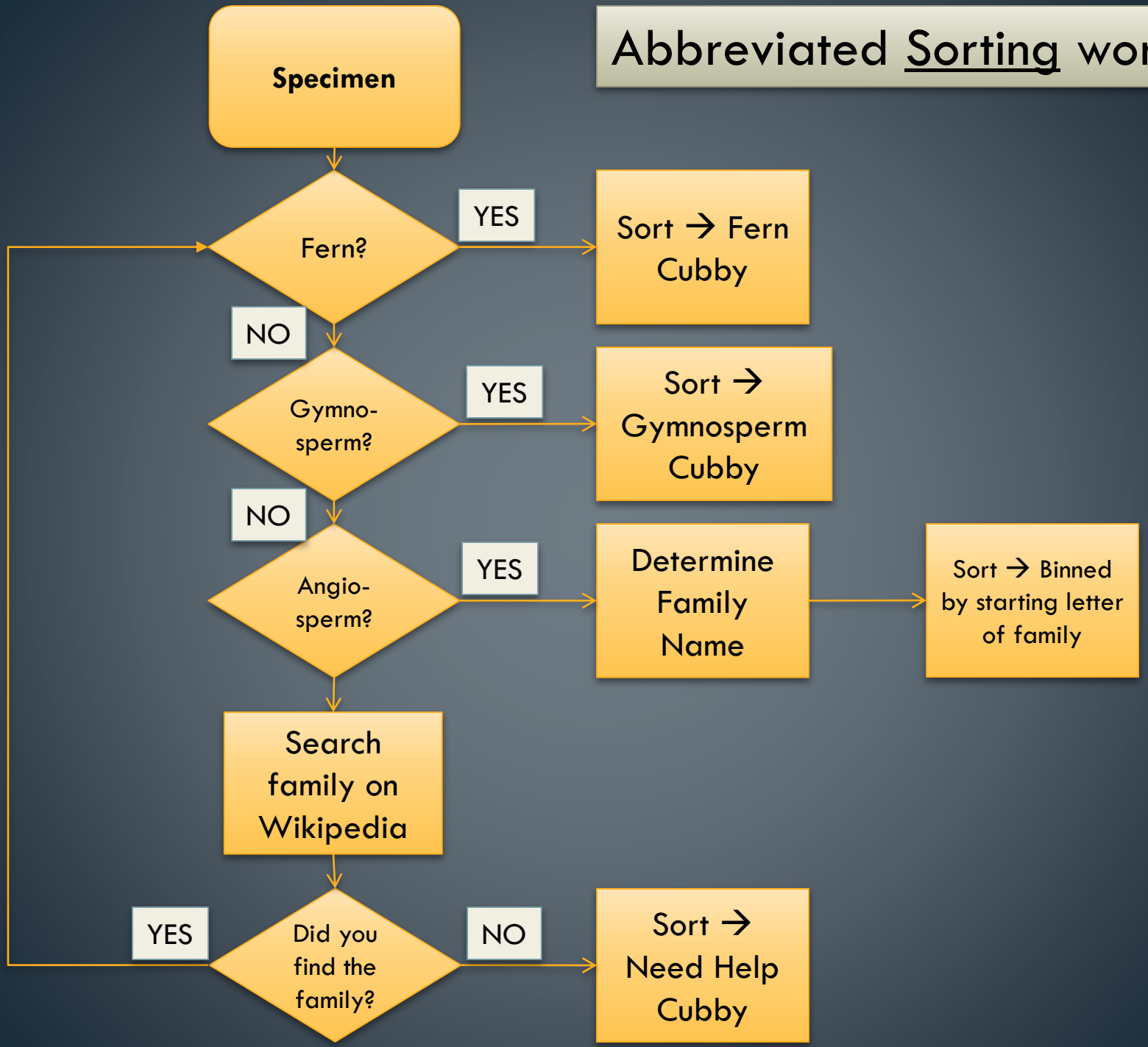
Organization based on: Hasten et al. (2009). The Linear Angiosperm Phylogeny Group (LAPG) III: a linear sequence of the families in APG III. *Botanical Journal of the Linnean Society*, 2009, **161**, 128–131.

Amborellaceae.....1	Philesiaceae.....57	**Berberidaceae.....113**	Datiscaceae.....169
Hydatellaceae.....2	Ripogonaceae.....58	**Ranunculaceae 114**	**Begoniaceae.....170**
Cabombaceae.....3	**Smilacaceae.....59**	Sabiaceae 115	Lepidobotryaceae 171
Nymphaeaceae 4	Corsiaceae 60	Nelumbonaceae 116	**Celastraceae 172**
Austrobaileyaceae 5	**Liliaceae 61**	**Platanaceae 117**	Huaceae 173
Trimeniaceae 6	**Orchidaceae.....62**	**Proteaceae 118**	Connaraceae.....174
Schisandraceae.....7	Boryaceae 63	Trochodendraceae.....119	**Oxalidaceae 175**
Chloranthaceae 8	Blandfordiaceae.....64	Haptanthaceae 120	Cunoniaceae 176
Canellaceae 9	Asteliaceae.....65	**Buxaceae.....121**	Elaeocarpaceae.....177

Training status as of Jan. 2015

Name	Mounting	Sorting	Filing
1st cohort-2013			
Kristen	X	X	X
Mirissa	X	X	X
Katrina	X	X	X
Katlyn	X	X	
Rebecca	X	X	
2nd cohort-2014			
Alessandra	X		
Amber	X	X	
Maddie	X		
Ashley	X	X	X

Abbreviated Sorting workflow



Abbreviated Filing workflow