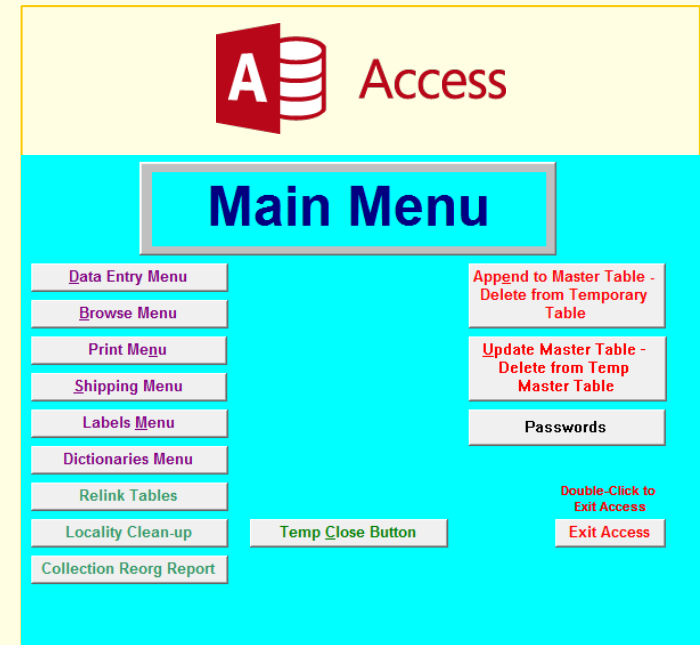


# Choosing an appropriate database: the FLMNH experience

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# Choosing an appropriate database

- Considerations
  - Needs vs wants
  - Support
  - Growth
  - Digitization
- FLMNH experience



# Traditional perspective

- Storing & retrieving data
  - Querying records, creating labels, generating reports, etc.
  - Assist research goals (biogeography, distribution maps)
- Often inherited or self-taught with little to no training



# Evolving perspective

- Databases should easily meet Darwin Core standards and quality
- Advance digitization goals
- Training, ease of use, inheritability

# Considerations: necessary vs. desired

- Costs
- Customizable system
- Responsive vendor
- Supports basic collection needs (loans, reports, labels)
- Supports multimedia attachments
- Supports web access and web portals (VertNet, iDigBio, etc.)

# Considerations: Support for management

- What is the level of support at your museum, department, or institution
- What is your comfort level in adapting to a new database?
- Is the vendor responsive and adaptable?
- What happens in case of a fire (i.e., how is your database stored, protected, backed up, etc.)

# Support for future growth and change

- Updated frequently and responsive to the needs of its users
- Is it open source, proprietary, cloud-based, etc.?
- Consider future import/export needs/capabilities
- Consider tech support needs

# Databases and digitization

- Do you want to digitize (yes!) and will your database get you there?
  - Catalog
  - Imaging
  - Paper records (necropsy reports, field notes, personal catalogs, etc.)
- Time vs. outcome

# What to do when considering a new system

- Establish institutional motivation
- Consider all the costs (upfront software costs, maintenance, long-term storage and hosting, time and effort in converting, digitizing, etc.)
- Try out demo copies with test data and score it on features that are important



# Guess what?

- There is no one “best” database!
- Sometimes you don’t get a choice



Image courtesy of Shutterstock

# The FLMNH experience

- 21 different collections
- Encompasses neontology, paleontology, and archaeology
- More than 40 million specimens and artifacts



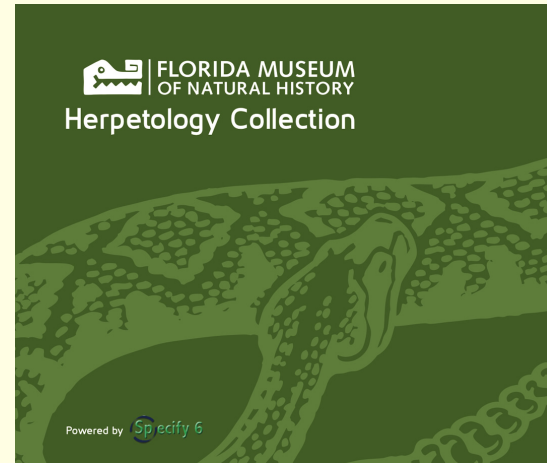
Photos by Randal Singer

# The FLMNH experience

- Separate collections all on a myriad of databases (mostly Access), all independently managed
- 2012: decision made to get all collections (except Archaeology) on Specify software
- Unified system that can be managed by one team

# The Specify transition

- Herpetology first collection to transition
- Followed by Ichthyology



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# The Specify transition

- Herpetology first collection to transition
- Followed by Ichthyology
- Mammal collections went “live” in Specify June 2014
- All biological collections to be in Specify by 2016

Invertebrate  
Paleontology  
Invertebrate Zoology  
Paleobotany  
Lepidoptera  
Vertebrate Paleontology  
Environmental  
Archaeology  
Genetic Resources  
Ornithology  
Herbarium



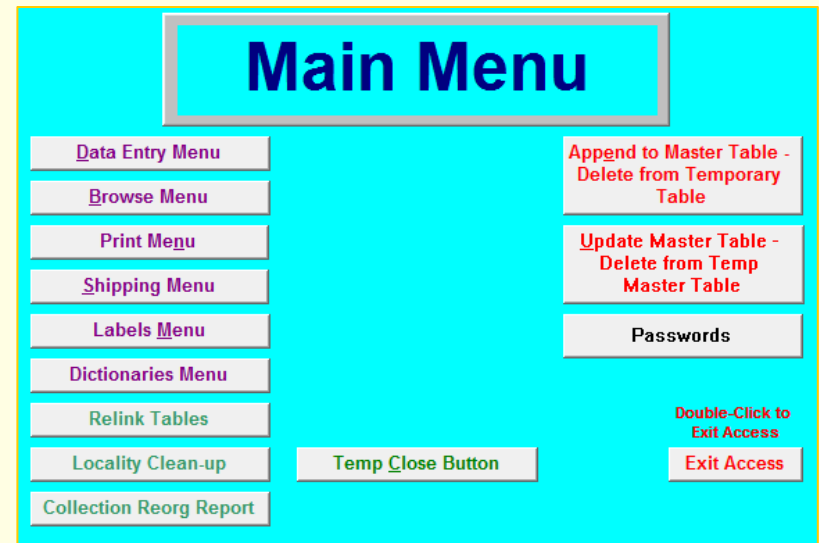
# The Mammal Collections experience

- I was hired in May 2014
- Long-term collections manager Candace McCaffery retired in June 2014
- Specify transition in June 2014

(see the connection?)

# The Mammal Collections experience

- Catalog was in Access database designed in 1994-95
- 2004-2005 updated to accommodate georeferencing
- Strengths in query, labels, invoices but not digitization or visualization of data

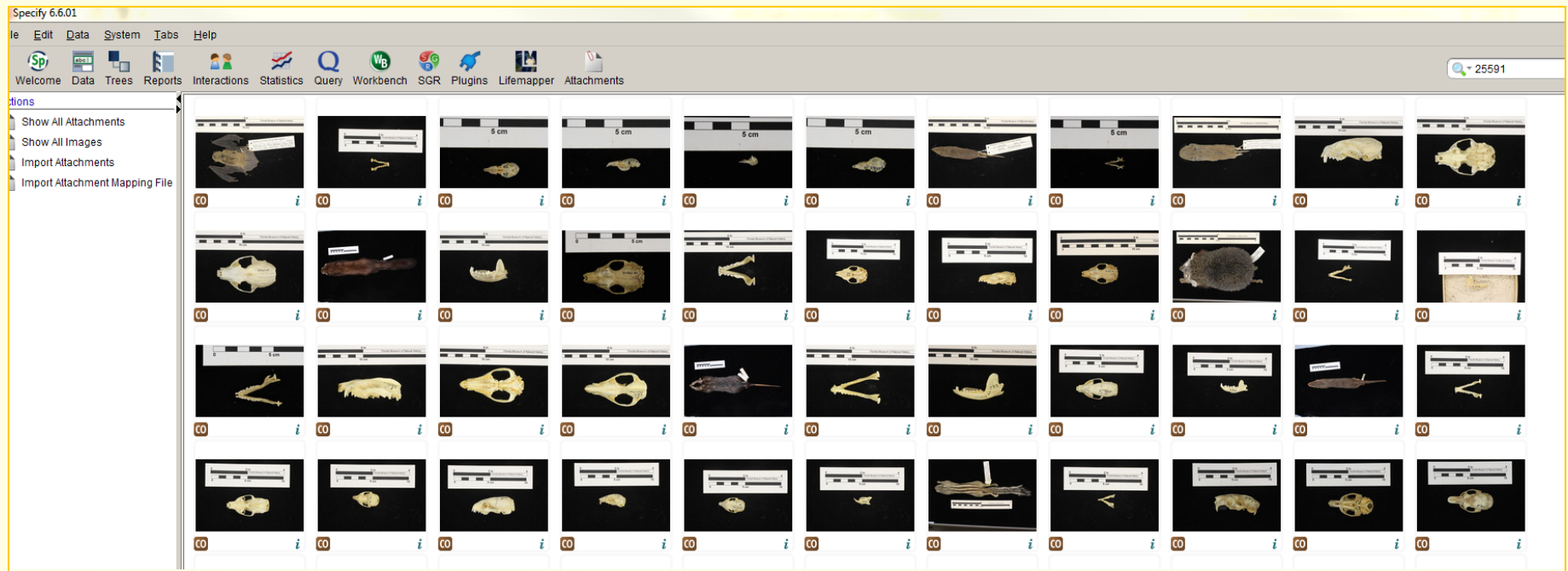


# The pros of switching

- FLMNH has dedicated, internal IT support
- Provide training, ongoing customizations
- An update in one collection can be rolled out to all collections
- Frequent video calls and emails with Specify team (University of Kansas)

# The pros of switching

- Database can easily incorporate digitized images and files



# The pros of switching

- Database can easily incorporate digitized images and files

**Determinations**

Taxon:  ⓘ

Addendum:

Qualifier:

Type Status: None

☒ Current

Preferred Taxon:

Collecting Event:  ⓘ



Collector's #:  Access Prep Types:

**Preparations** ⓘ

Prep Type	Count	Box Number	Preparation Attachments	Storage	Box Contents	Fixed Prep	Is On Loan	Remarks	Inventory
Skeleton	1	1.0			SKELETON		No		
Skin	1						No		

**Attachments**

**Collection Object Attachments** ⓘ Grid



28808\_Hemiechinus\_hypomeles (4).jpg    28808\_Hemiechinus\_hyp

# The pros of switching

Collection Object + -

Accession: A-656

Date Cataloged: Full Date 11/28/2012

Date Collected: 11/18/2009

Ancillary Coll ID:

Species Status: ENDANGERED, STATE OF FLORIDA

Remarks: NO KINK, COWCLICK PRESENT

Taxon: PUMA CONCOLOR CORYI

Addendum:

Qualifier:

Type Status: None

Current

Preferred Taxon: PUMA CONCOLOR CORYI

1 of 1

Grid

Collecting Event: 11/18/2009

Collector's #: UCFP 132

Access Prep Types: SKELETON

Preparations + -

Prep Type	Count	Box Number	Preparation Attachments	Storage	Box Contents	Fixed Prep	Is On Loan
Skeleton	1	1.0			SKELETON		No

Attachments

Collection Object Attachments + -

32329 Necropsy Report

sp6814906251649199895\_att.pdf - Adobe Reader

File Edit View Window Help

Open

1 / 2 109%

Tools Fill & Sign Comment

p/v by LE @ 1524 11/17/09

UCFP132 Florida Panther Necropsy

Necropsy #: FPC- ID #: Genetic status: FP TX F<sub>1</sub> F<sub>2</sub> B-FP B-TX Other-TX-anc Other: FWNE-09-EVD-9702

Sex: (M) F Unk. Age: unk Date of last capture: (mm/dd/yy) 11/17/09 Rabies vax? Y (N) Dates: 11/17/09

Time/Date killed: 11/17/09 Date necropsied: 12/28/09 Frozen? (Y) N. Degree of autolysis (1-5) 3.5

Cause of death: Probable HBC

County: Indian River Specific location: S-bound lanes of Ft. Turnpike just N of MM 90

Field sign: UTM: E 572819 N 805974

Last known alive: Time/Date h. 1 / 1 UTM: E 572819 N 805974 Distance: 205974

52.84 actual wt. BODY MEASUREMENTS

Weight: 52.84 lbs Total length (w/o tail): (zoo.) 111 (SL) 111 cm, Tail length: 111 cm, kink? Y (N)

Neck: 111 cm Chest girth: 111 cm

HEAD/INTEGUMENT/MUSCULOSKELETAL

Tooth wear: LIGHT MEDIUM HEAVY Oral cavity - AB N: all

Eyes - AB N: N/A

Body Condition Score (1-5) 1 Physical Description: Front claws both short but moderately to severely frayed. RR claws moderately frayed. LR claws completely degenerated + pedicel is torn inside cut. Tail is broken over + turned inside out. Hind note is observed in ying of left rear claws.

Cowlick: (Y) N, (describe) possible cowlick - distal mid thoracic

Palate condition (1-5): 1 (describe) sloughing hair

Ticks (0-4): 0 location: 0 Fleas? Y (N)

Otoscope exam Ear swab: 0

SQ fat: LIGHT MEDIUM HEAVY SQ - AB N: 0

Superficial lymph nodes - AB N: 0

Musculoskeletal - AB N: no hemorrhage associated w/ (R) radius/ulna fx (R) + (L) humerus intact, (R) tibia intact, (L) tibia intact, distal (R) fibula fx - possible hemorrhage assoc.

Joints - AB N: 0

Thyroids: bilat. symm. Y (N) R: (W) 0 (L) 0 (W) 0 (L) 0 (W) 0 (L) 0 (W) 0

THORAX/ABDOMEN

Stomach - AB N, contents: 0 ml, (describe) abdomen over elbow

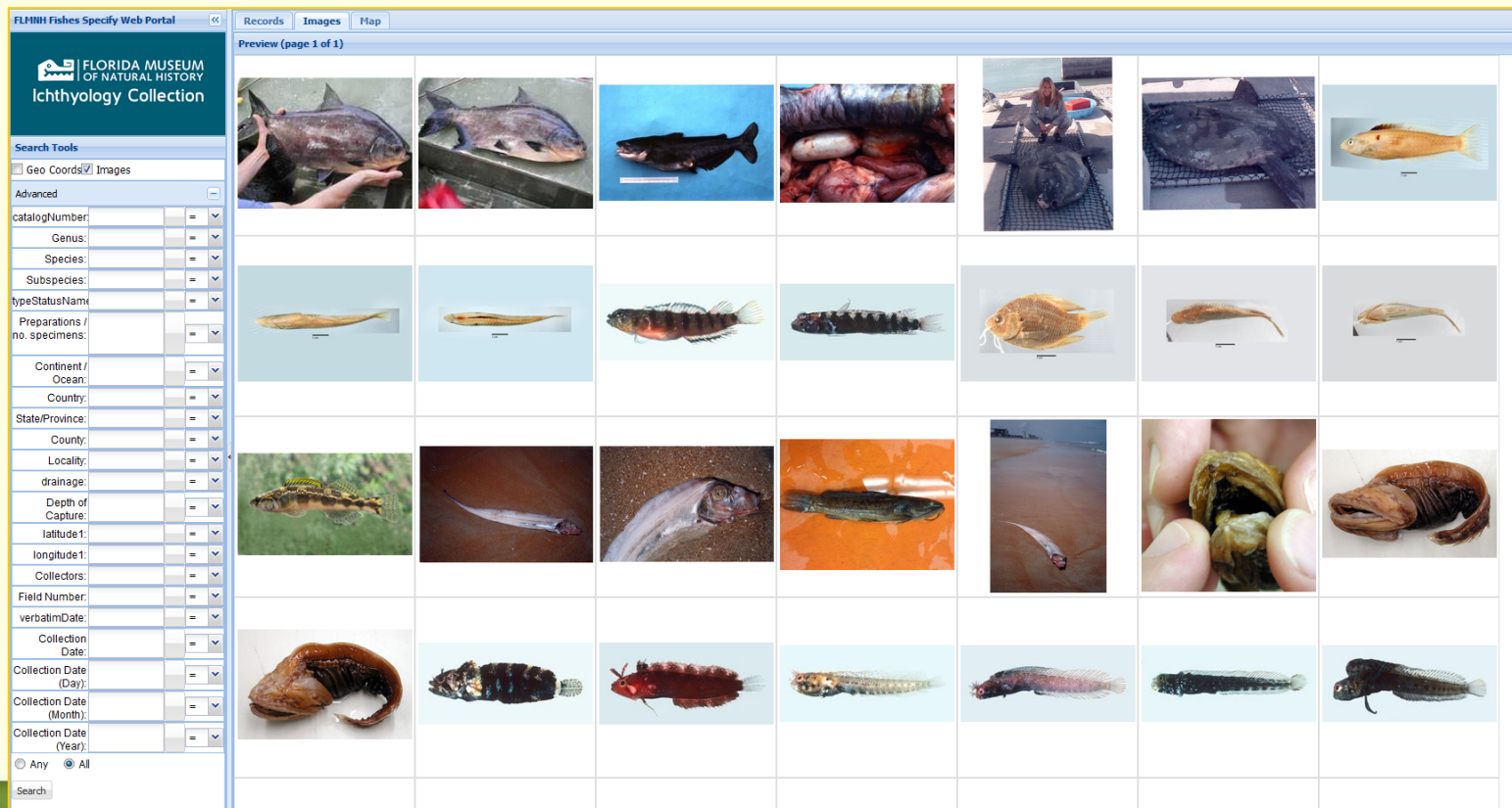
GI tract examined? Y (N) Sleeve? Y (N) Grossly visible helminths: species/location: All organs (abd.) missing

Feces saved: Y (N) GI - AB N: 0



# The pros of switching

- Public can search images and records



# The pros of switching

- Aggregated search portal

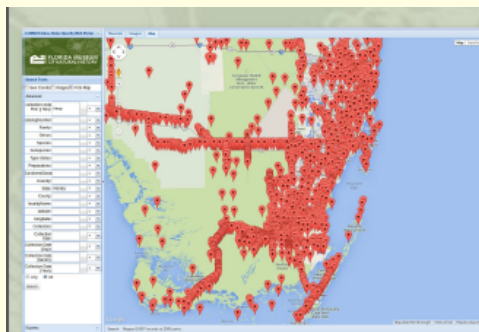


Figure 1. UF Herp Records – South Florida

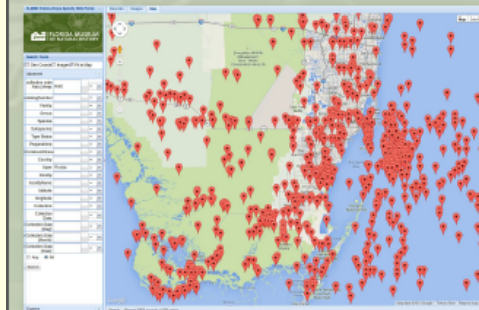


Figure 2. UF Fish Records – South Florida

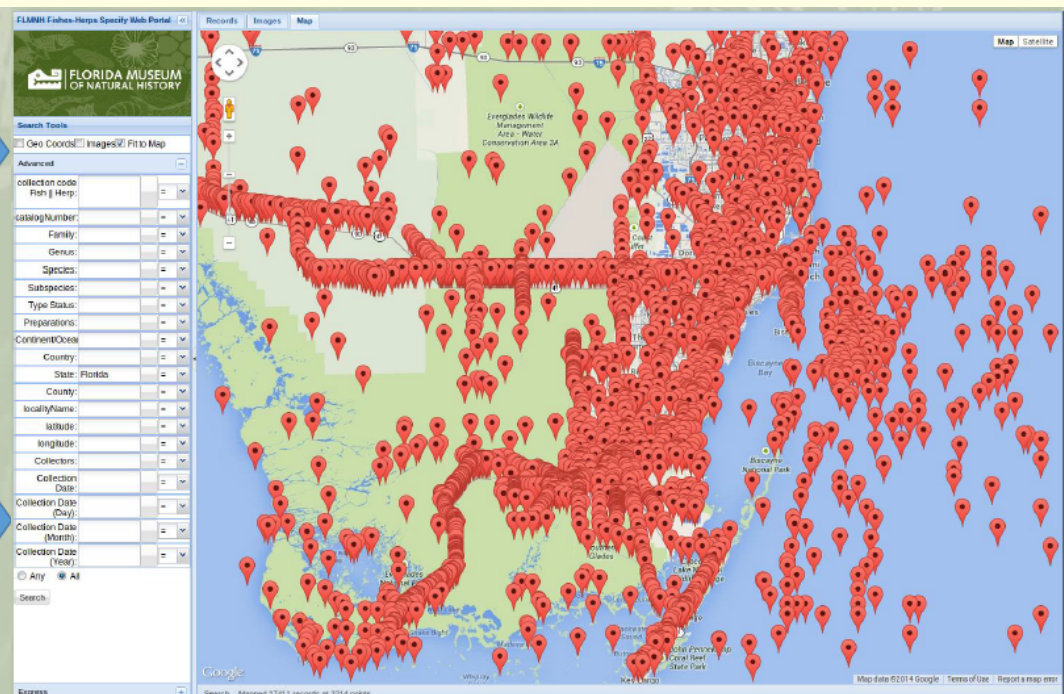


Figure 3. UF Master Portal (Herp + Fish) – South Florida

"A Novel Use of Specify Database Software for Museum Collections"- W. H. Brown et al.

- Data export might not always go smoothly



FLORIDA MUSEUM  
OF NATURAL HISTORY

Records		Map										
			Catalog Number	image	Preparations	Order	Family	Subfamily	Genus	Species	Subspecies	Sex
1			1		Skin - 1; Skull - 1	DIDELPHIMORP...	DIDELPHIDAE	DIDELPHINAE	DIDELPHIS	VIRGINIANA	PIGRA	Male
2			2		Skin - 1	DIDELPHIMORP...	DIDELPHIDAE	DIDELPHINAE	DIDELPHIS	VIRGINIANA	PIGRA	Male
3			3		Skin - 1; Skull - 1	DIDELPHIMORP...	DIDELPHIDAE	DIDELPHINAE	DIDELPHIS	VIRGINIANA	PIGRA	Male
4			4		Skin - 1; Skull - 1	SORICOMORPHA	TALPIDAE	SCALOPINAE	SCALOPUS	AQUATICUS	AUSTRALIS	Male
5			5		Skeleton - 1	SORICOMORPHA	TALPIDAE	SCALOPINAE	SCALOPUS	AQUATICUS	AUSTRALIS	
6			6		Skin - 1; Skull - 1	SORICOMORPHA	TALPIDAE	SCALOPINAE	SCALOPUS	AQUATICUS		Male
7			7		Skin - 1; Skull - 1	SORICOMORPHA	TALPIDAE	SCALOPINAE	SCALOPUS	AQUATICUS		Male
8			8		Skin - 1; Skull - 1	SORICOMORPHA	TALPIDAE	SCALOPINAE	SCALOPUS	AQUATICUS		Male
9			9		Skull - 1	SORICOMORPHA	TALPIDAE	SCALOPINAE	SCALOPUS	AQUATICUS	AUSTRALIS	Male
10			10		Skin - 1; Skull - 1	SORICOMORPHA	TALPIDAE	SCALOPINAE	SCALOPUS	AQUATICUS		Male
11			11		Skin - 1; Skeleton - 1	SORICOMORPHA	SORICIDAE	SORICINAE	CRYPTOTIS	PARVA	FLORIDANA	Female
12			12		Skin - 1; Skeleton - 1	SORICOMORPHA	SORICIDAE	SORICINAE	CRYPTOTIS	PARVA	FLORIDANA	Female
13			13		Skin - 1; Skeleton - 1	SORICOMORPHA	SORICIDAE	SORICINAE	CRYPTOTIS	PARVA	FLORIDANA	Male
14			14		Skin - 1; Skeleton - 1	SORICOMORPHA	SORICIDAE	SORICINAE	BLARINA	CAROLINENSIS	CAROLINENSIS	Female
15			15		Skin - 1; Skeleton - 1	SORICOMORPHA	SORICIDAE	SORICINAE	BLARINA	CAROLINENSIS	CAROLINENSIS	Female
16			16		Skin - 1	SORICOMORPHA	SORICIDAE	SORICINAE	BLARINA	CAROLINENSIS	CAROLINENSIS	Male
17			17		Skin - 1; Skeleton - 1	SORICOMORPHA	SORICIDAE	SORICINAE	BLARINA	CAROLINENSIS	CAROLINENSIS	Male
18			18		Skin - 1; Skeleton - 1	CHIROPTERA	VESPERTILIONI...	MYOTINAE	MYOTIS	AUSTRORIPARI...		Female
19			19		Skin - 1; Skeleton - 1	CHIROPTERA	VESPERTILIONI...	MYOTINAE	MYOTIS	AUSTRORIPARI...		Female
20			20		Skin - 1; Skeleton - 1	CHIROPTERA	VESPERTILIONI...	MYOTINAE	MYOTIS	AUSTRORIPARI...		Male
21			21		Skin - 1; Skull - 1	CHIROPTERA	VESPERTILIONI...	VESPERTILIONI...	PIPISTRELLUS	SUBFLAVUS		Female
22			23		Skull - 1	CHIROPTERA	VESPERTILIONI...	VESPERTILIONI...	PIPISTRELLUS	SUBFLAVUS		Male
23			24		Skin - 1; Skull - 1	CHIROPTERA	VESPERTILIONI...	VESPERTILIONI...	PIPISTRELLUS	SUBFLAVUS		Male
24			25		Skin - 1; Skeleton - 1	CHIROPTERA	VESPERTILIONI...	VESPERTILIONI...	CORYNORHINUS	RAFINESQUII		Male
25			26		Skin - 1; Skeleton - 1	CHIROPTERA	VESPERTILIONI...	VESPERTILIONI...	CORYNORHINUS	RAFINESQUII		Male
26			27		Skin - 1; Skeleton - 1	CHIROPTERA	VESPERTILIONI...	VESPERTILIONI...	CORYNORHINUS	RAFINESQUII		Female
27			28		Skin - 1; Skeleton - 1	CHIROPTERA	VESPERTILIONI...	VESPERTILIONI...	CORYNORHINUS	RAFINESQUII		Female





# There will be cons and compromises

- Data export might not always go smoothly
- Dependence upon others = slows down customizations
- Specify web portal does not currently support downloads (e.g., Excel spreadsheets)

# Take home message

- There is no one perfect database
- Don't settle if you don't have to
- Explore the options and decide what works best for your collection/museum
- Ask around!



# For more information

- FLMNH Specify web portal:  
<http://specifyportal.flmnh.ufl.edu/>
- Mammal collections website:  
<http://www.flmnh.ufl.edu/mammals>
- iDigBio: <http://www.idigbio.org>

