



openVertebrate Thematic Collections Network

\$2.5M from NSF's *Advancing Digitization of Biodiversity Collections* program

2017–2021



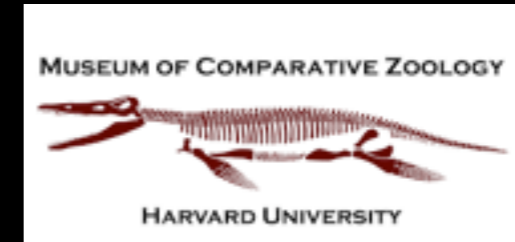
CT-scan >20,000 fluid-preserved vertebrate specimens

Scan >80% extant genera; "soft tissue" scan >60% extant families

Make both raw and processed data freely available on-line

overt

18 funded institutions, including 16 museums and 6 imaging centers





oVert Team @ iDigBio PI Summit November 2017





oVert project management via Basecamp

The screenshot shows the Basecamp interface for the 'oVert TCN HQ' project. At the top, there is a navigation bar with icons for Home, Pings, Hey!, Activity, and Find, along with a user profile picture on the right. Below the navigation bar, the project name 'oVert TCN HQ' is displayed with the tagline 'oVert stuff everyone needs to know.' A horizontal row of member avatars and initials (ATP, AS, AR, AM, BM, BB, B2, CD, CA, CB, CG, CT, DR) is shown, followed by a button labeled 'Add/remove people...'. The main content area is divided into six panels: 'Campfire' (a chat log with messages from David Blackburn and Kate Webbink), 'Message Board' (a list of discussion topics like 'Interest in discussion of CT-reconstruction' and 'SPNHC 2018 abstract'), 'To-dos' (a section with a large green checkmark icon and the text 'Make lists of work that needs to get done, assign items, set due dates, and discuss.'), 'Schedule' (a calendar view showing a 'Monthly oVert conference call' on Friday, April 6), 'Automatic Check-ins' (a section asking 'What will you be working on this month?' with a list of participants), and 'Docs & Files' (a section showing two document thumbnails: 'Present...' and 'Specim... selection'). A help icon (question mark) is visible in the bottom right corner.

Home Pings Hey! Activity Find

oVert TCN HQ

oVert stuff everyone needs to know.

ATP AS AR AM BM BB B2 CD CA CB CG CT DR ... Add/remove people...

Campfire

David Blackburn 9:27am
Integrating MorphoSource...

Kate Webbink 5:30pm
Cool to see the Audubon (

David Blackburn 10:31am
I've spoken with Doug and...

David Blackburn 10:34am
In addition, there will be a ...

April Isch Neander 10:17am
Hi All. Just thought I shoul...

Message Board

Interest in discussion of CT-reconstruction 20

SPNHC 2018 abstract 6
I am following Dave's lead.

JMIH 2018 Abstract 6
I will be submitting an

Imaging permissions and copyright issues 9

Adding participants to Basecamp

To-dos

Make lists of work that needs to get done, assign items, set due dates, and discuss.

Schedule

Fri, Apr 6
Monthly oVert conference call
1:00pm - 2:00pm

Wed, May 2

Automatic Check-ins

Asking 64 people the first Friday of every month at 9am.

What will you be working on this month?

MK OT ...

Docs & Files

Present...

Specim... selection

oVert

Builds on previous collections digitization efforts

In US, most scientific collections of vertebrates are digitized

Digital inventory allows oVert to (1) discover specimens and (2) prioritize particular specimens





How do we choose specimens to scan?

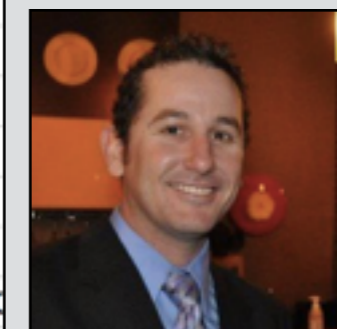
FISHES: idigbio currentTypeSpecies SUMMARY

File Edit View Insert Format Data Tools Add-ons Help All changes saved in Drive

100% Calibri 12

fx hasTissueOrImage

	A	B	C	D	E
1	currentTypeSpecies	oVert collaborating institutions	non-funded US institutions	hasTissueOrImage	hasOtherNameInData
2	aapticheilichthys websteri	CAS			CAS
3	aaptosyax grypus	UMMZ,CAS	USNM		
4	abactochromis labrosus	YPM			
5	abbottina rivularis	CAS,UMMZ,UWFC,ANSP,FMNH	USNM	UWFC	CAS,USNM,ANSP,FMNH
6	ablabys taenianotus	CAS,FMNH,SIO	BPBM,USNM	USNM,FMNH,CAS	
7	ablennes hians	CAS,UF,SIO,MCZ,FMNH,ANSP,UMMZ,TCWC,TNH	NCSM,USNM,LACM,TU,BPBM,UAIC,AUM,OS	UF,KU,USNM	
8	aboma etheostoma	MCZ,CAS	USNM		
9	abramis brama	ANSP,SIO,UF,MCZ,CAS,UMMZ,FMNH,CU	USNM,UAIC,LACM,OSM,OS,NCSM		
10	abramites hypselonotus	MCZ,CAS,ANSP,FMNH,UMMZ	USNM,INHS,AUM	FMNH	
11	abudehduf sordidus	MCZ,SIO,CAS,FMNH,ANSP,UWFC,UF,TCWC,KU,Y	USNM,LACM,BPBM,OS,JFBM,TU,NCSM		
12	abyssoberyx levisquamosus		USNM		
13	abyssobrotula galathea	CAS,UF,SIO	USNM,OS		
14	abyssocottus korotneffi	UMMZ,FMNH	USNM		
15	acanthaluteres spilomelanurus	ANSP,SIO	USNM		
16	acanthanectes hystrix		USNM		
17	acantharchus pomotis	UMMZ,KU,CU,ANSP,UF,MCZ,CAS,FMNH,SIO,YPM	NCSM,AUM,LACM,INHS,TU,JFBM,USNM,MMNS,UAIC		
18	acanthemblemaria spinosa	FMNH,UF,ANSP,SIO,UMMZ,KU,MCZ	USNM,BPBM,TU,OS,AUM,LACM		



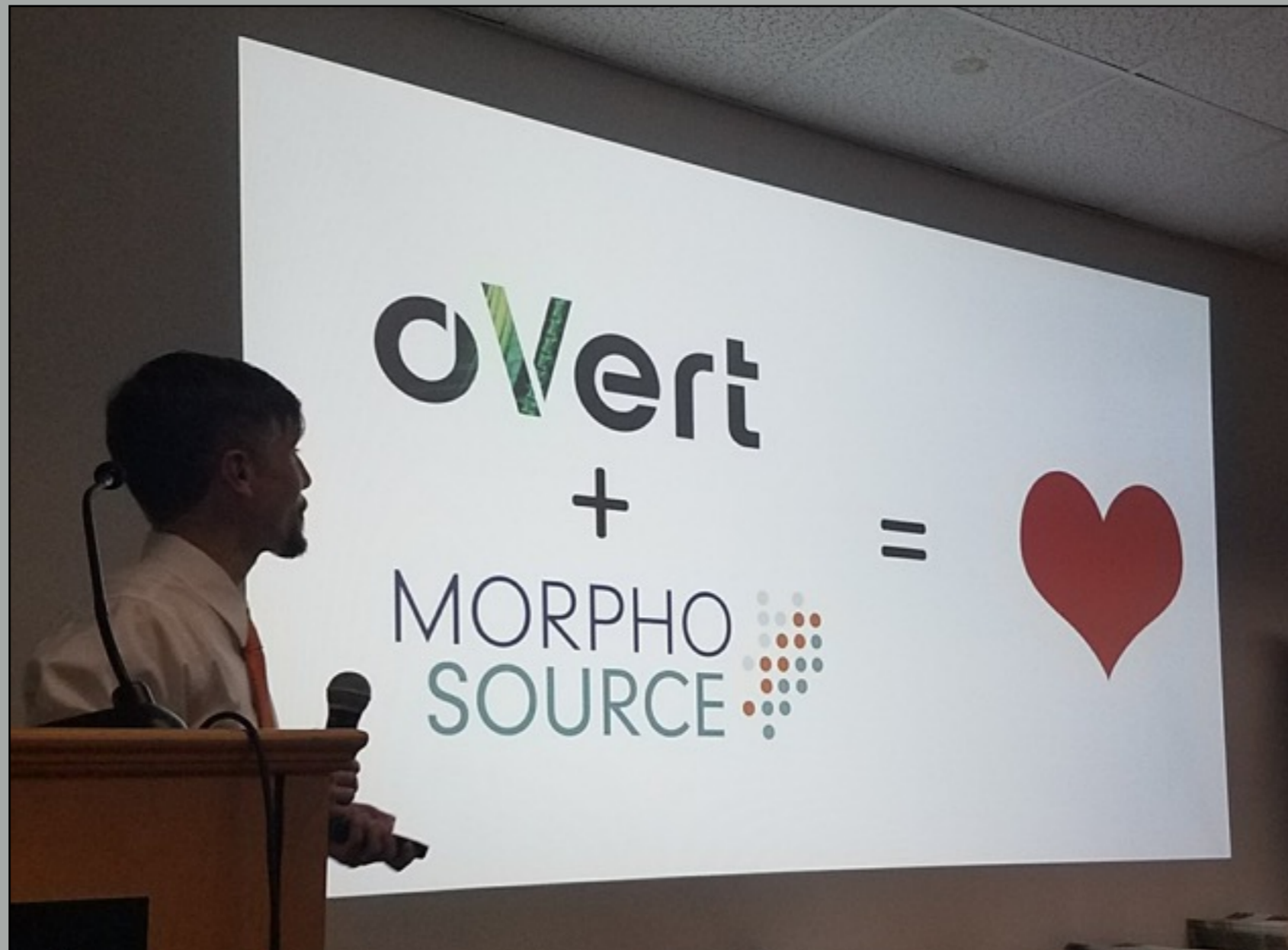
Kevin Love
iDigBio



Zach Randall
FLMNH

oVert

How can we best share these data?



Doug Boyer, Duke University
lead PI for MorphoSource; oVert coPI



On-line digital depository for 3D data

\$1.5M from NSF ABI Development



Supports various forms of data

Volume

Modality – Medical/microCT, MRI

Formats – tiff, dicom, jpeg, bmp

Surface

Modality – Laser, structured light, photogrammetry

Formats – ply, stl, obj

User-contributed datasets

Flexible tools for sharing and ownership

Specify details on Creative Commons licensing

Track views and downloads

Obtain DOIs for publication

Support sharing of derivatives of archived media





On-line digital depository for 3D data

Other features

- No size limits on data files
- Batch uploading tool
- Batch metadata editing tool
- Batch downloading tools
- Exporting search results

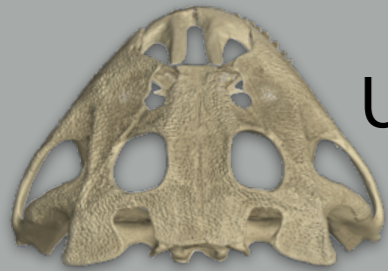
Relative to general data archives

- Emulates a museum organization
- All data traceable back to specimen numbers
- Database can be queried by any kind of specimen metadata
- Datasets can be linked to digital record aggregators (e.g., records on iDigBio)



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Builds on previous collections digitization efforts



UF-Herp-12345

MorphoSource sends request



iDigBio
Application
Program Interface
(API)



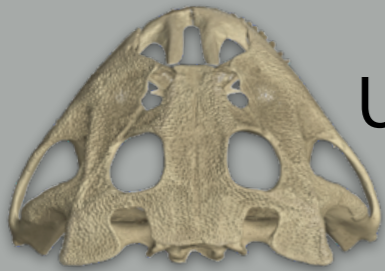
iDigBio sends metadata

Darwin Core
structured metadata

referenceID
occurrenceID
locality
collectionDate
etc.

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Getting information on media files back to collections



UF-Herp-12345



Darwin Core
structured metadata

referenceID
occurrenceID
locality
collectionDate
etc.

for each collection
(i.e., UF Herpetology)

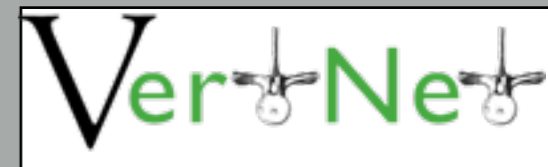
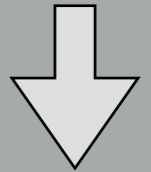
MorphoSource RSS Feed
(via referenceID)
containing
1) Audobon Core metadata
2) usage statistics



woohoo!



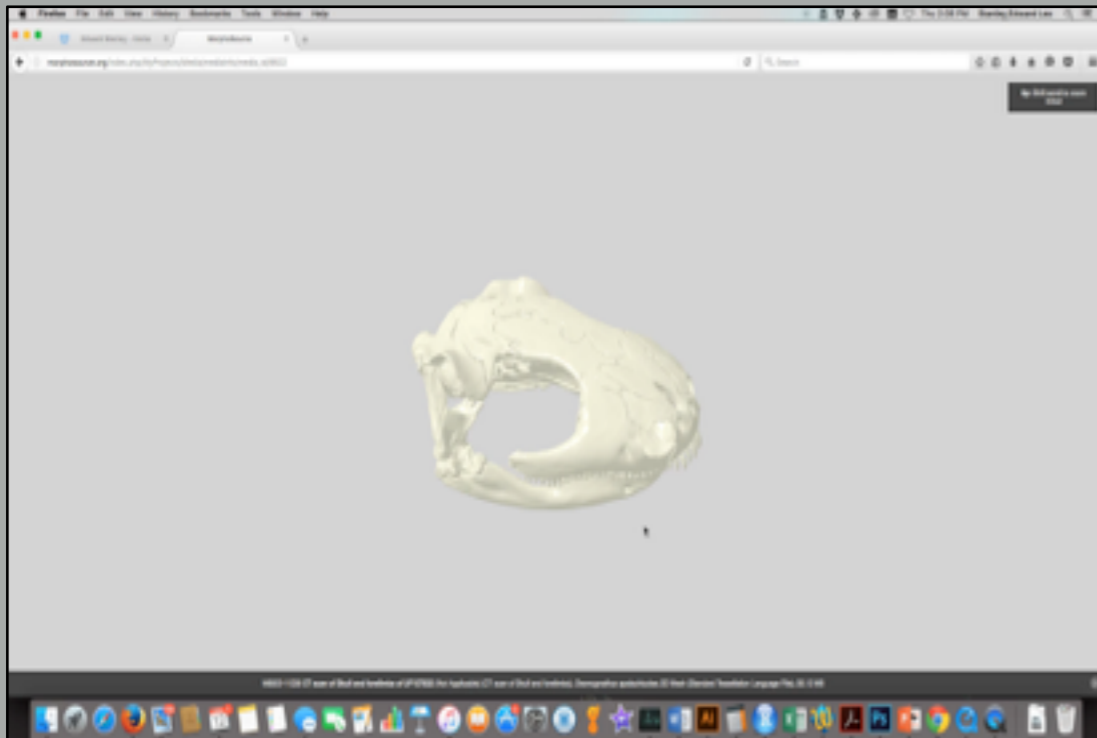
add Audobon Core
to IPT



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Data deposited in MorphoSource

- 3D mesh files (.stl)
- image stacks (.zip of .TIFF)



Download or view in browser

bit.ly/3DFrogs

Project: Frog Diversity

BACK

Members

David Blackburn, Trevor McCabe, Daniel Paluh, Maria Passarotti, Amber Singh, Edward Stanley, Olivia Trumble

Data

109 published media
173 specimen with published media

More Information

www.blackburnlab.org

About the project

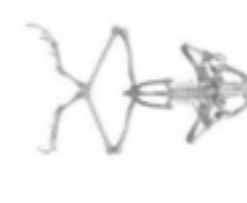
The Blackburn Lab at the University of Florida's Florida Museum of Natural History is assembling a collection of CT scan data representing all extant families of frogs. This comparative dataset provides a library of anuran skeletons diversity that can be used in studies of diversity, evolution, comparative morphology, and paleontology.

173 Project Specimens

Group by: [Specimen Number](#) | [Family](#) | [Genus](#) | [Species](#)



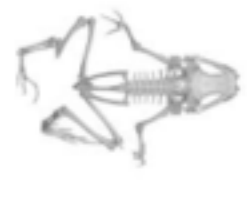
Allophrynidae
[2 Specimens](#)



Aixodidae
[2 Specimens](#)



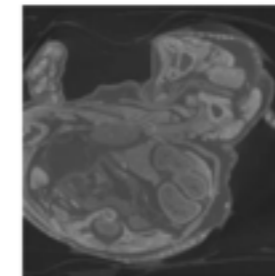
Alytidae
[2 Specimens](#)



Aromobatidae
[1 Specimen](#)



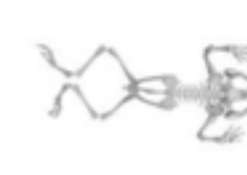
Arthroleptidae
[8 Specimens](#)



Ascaphidae
[1 Specimen](#)



Batrachylidae
[3 Specimens](#)



Bombinatoridae
[2 Specimens](#)



Brachycephalidae
[10 Specimens](#)



Breviceptidae
[6 Specimens](#)



Bufonidae
[16 Specimens](#)



Calyptocephalellidae
[1 Specimen](#)



150 UF Herpetology specimens on MorphoSource since ~March 2016
>23,000 media views, and ~2,500 downloads

[M8691](#), 8/31/2017

maher, alice (A.E.Maher@liverpool.ac.uk)

For research project on body elongation

[M15979](#), 8/31/2017

Schwippert, Sophie (sophie_schwippert@web.de)

I want to use the data for my Bachelor Thesis, which I am currently working on at the University of Hamburg. My Thesis focuses on malformations of the sacrum of anurans. Thank you!

APPROVE

DENY

[M8902](#), 4/7/2017

Currier, Aaron (acurrier@central.k12.or.us)

8th grade classroom instruction

[M10212](#), 9/1/2017

Lee, Aaron (aaronlee70@gmail.com)

3D print of model for personal use. File will be stored. Will not be uploaded or shared. No commercial element.

[M9784](#), 4/7/2017

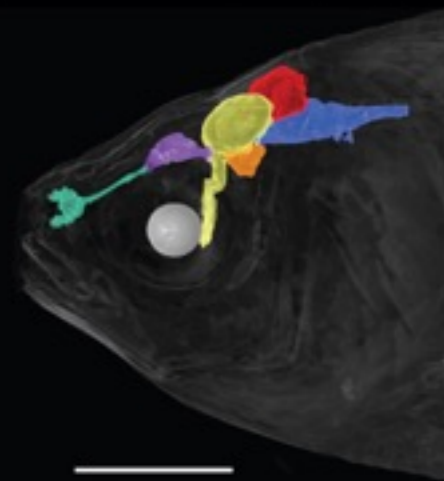
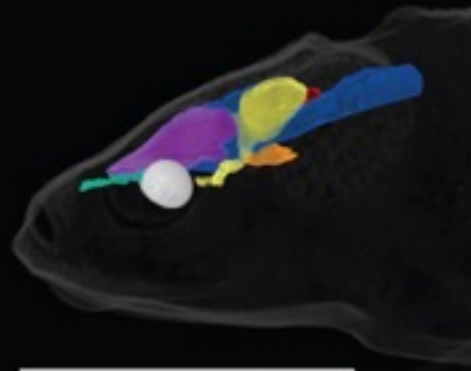
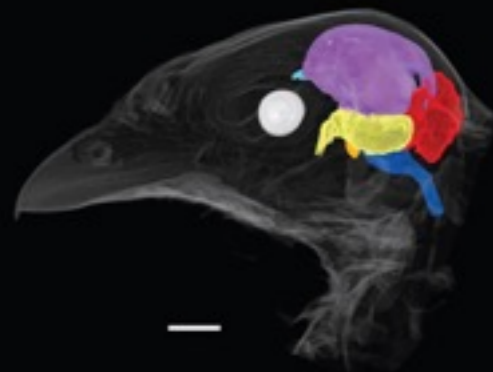
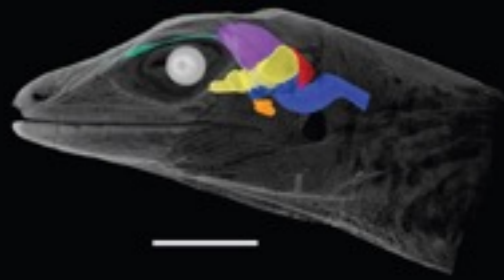
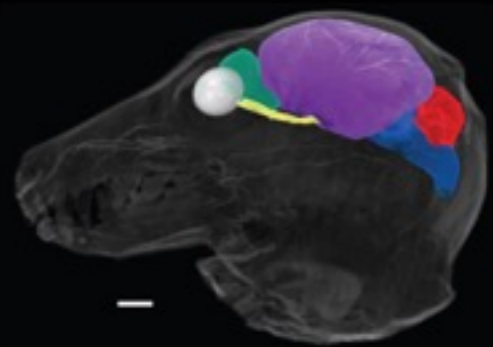
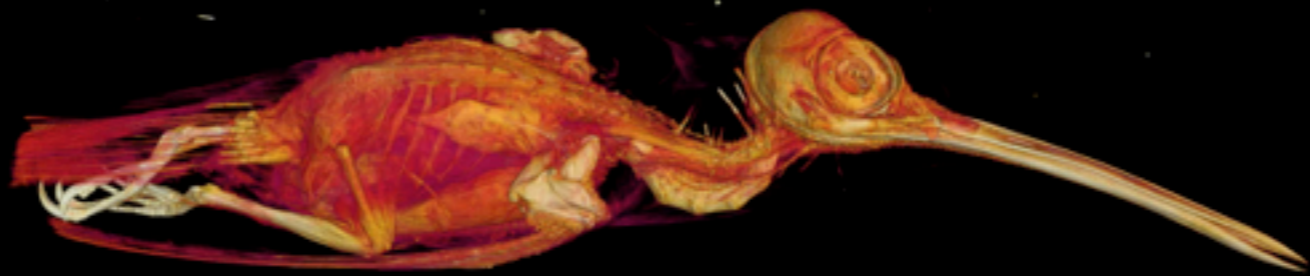
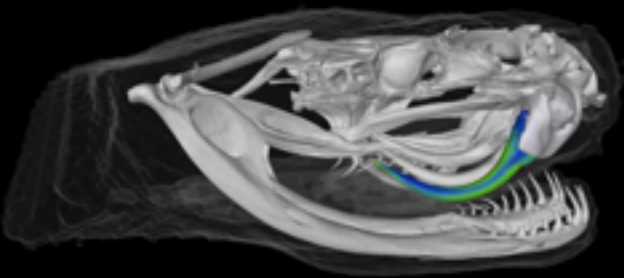
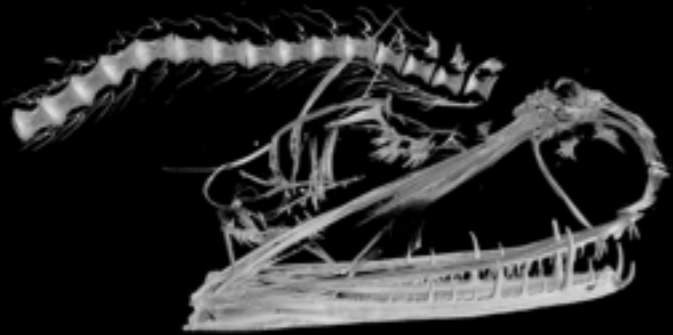
lewis, chris (cloois@gmail.com)

3d print for surgery planning

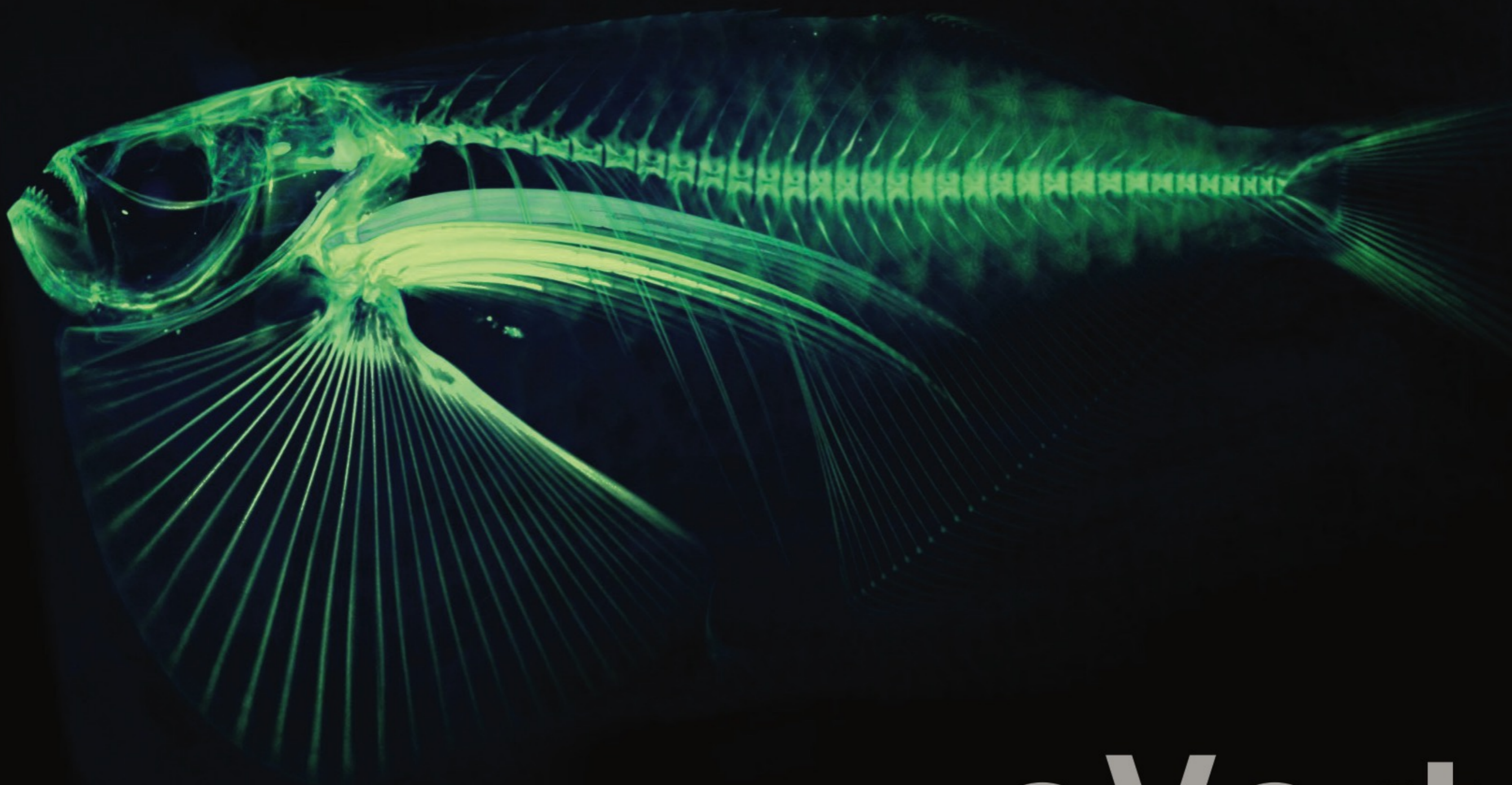
[M9207](#), 3/18/2017

Thomas, Lauren (lauren@thomasthomas.ca)

Import into Houdini, do cool stuff, post on my Instagram.



oVert



http://bit.ly/oVert_iDigBio

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