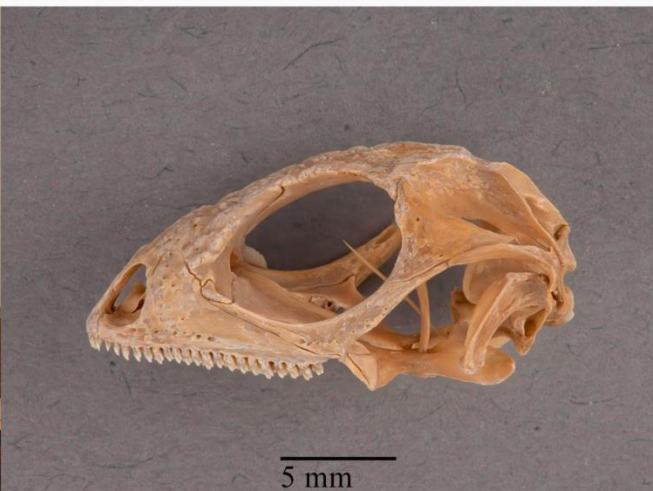
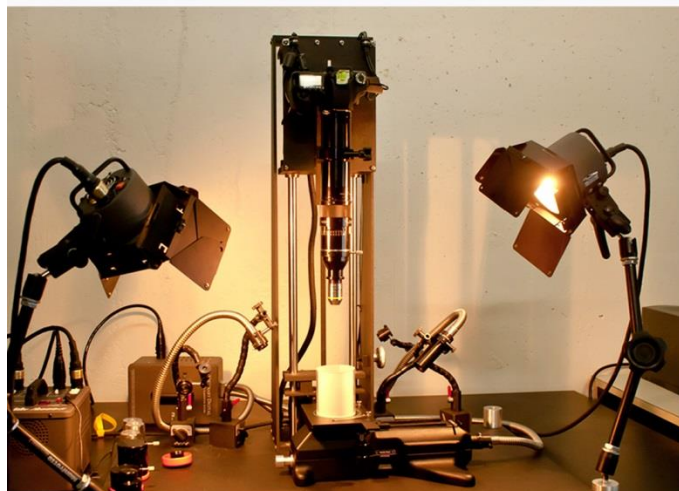
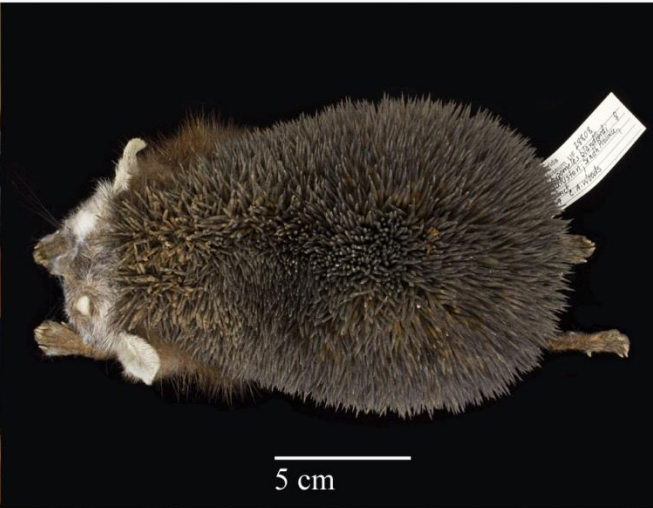
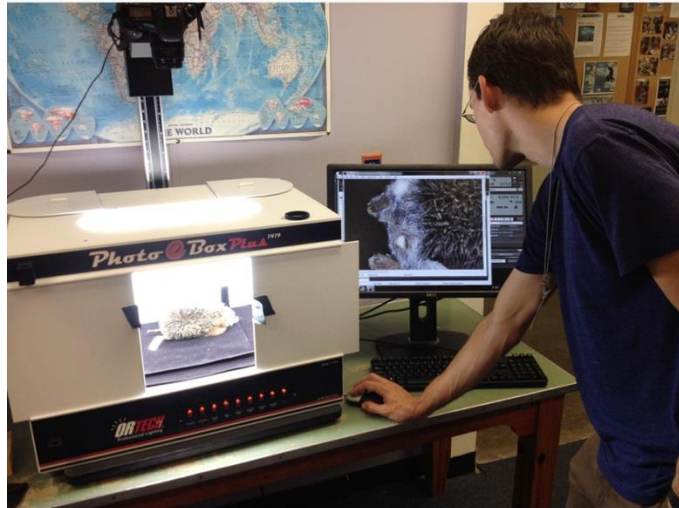
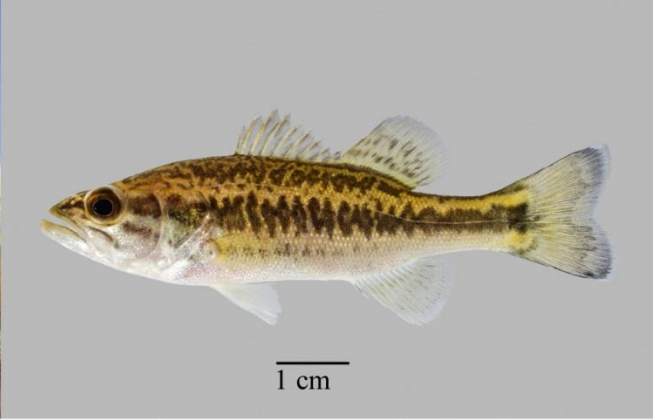


Imaging Systems: Light Box vs. Copy Stand vs. Squeeze Tank



Zach Randall
Florida Museum of Natural History

What are my options?



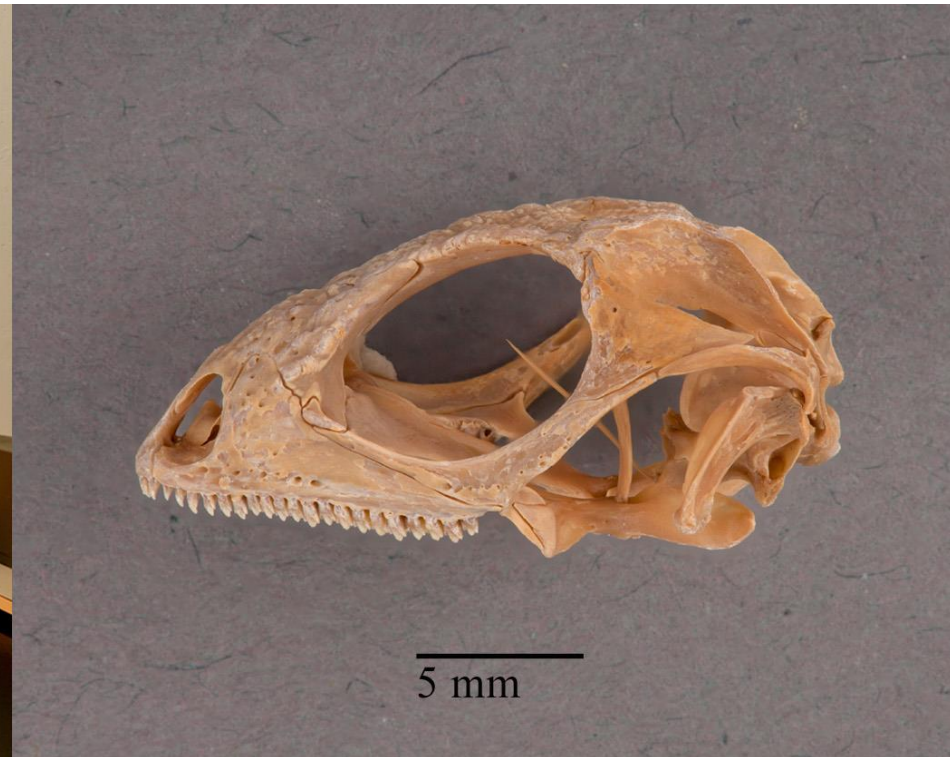
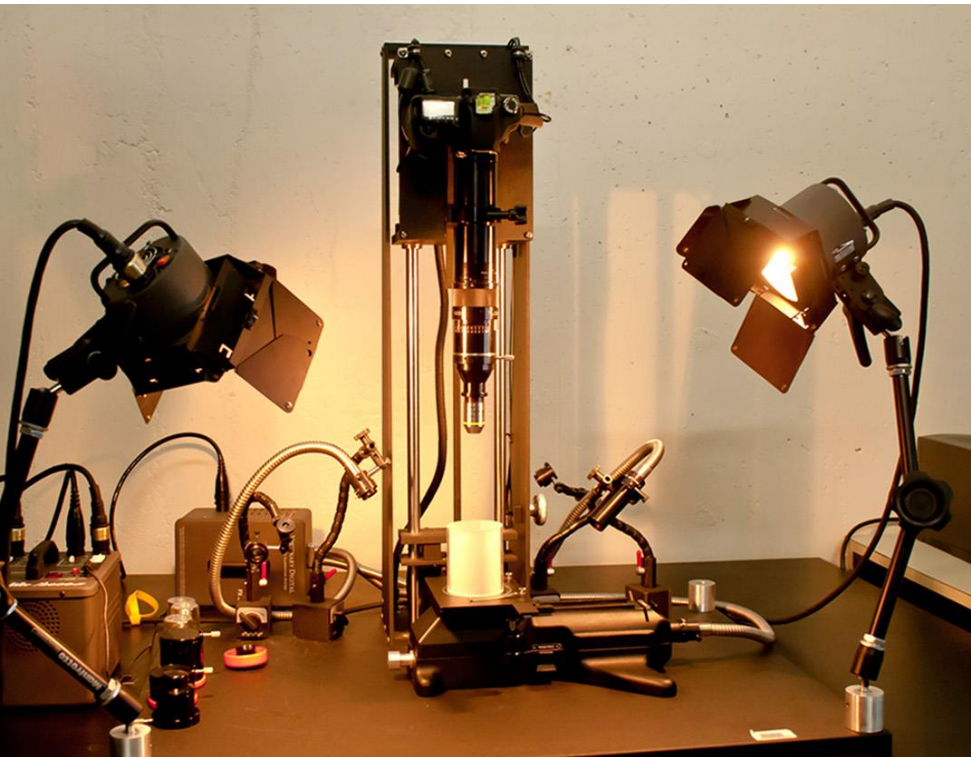
Squeeze Tank

- Glass/plexiglass tank held together with silicone with separate moveable glass plate used to “squeeze” specimen in place.
- Filled with distilled water or 70% ethanol
- Stationed between light units placed to the sides and slightly above the squeezebox
- Camera mounted on a tripod in front of tank

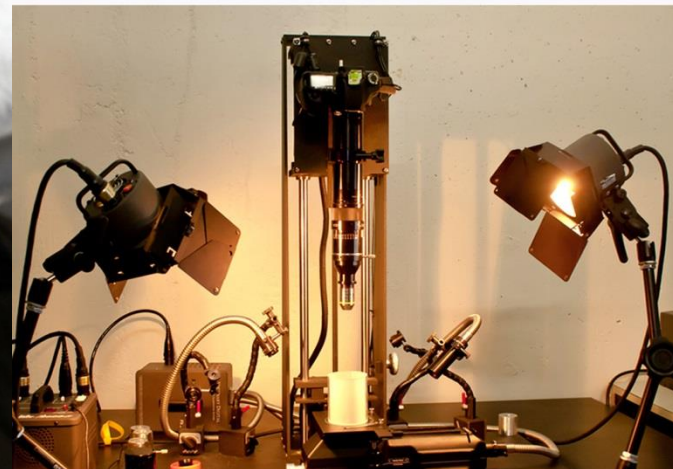
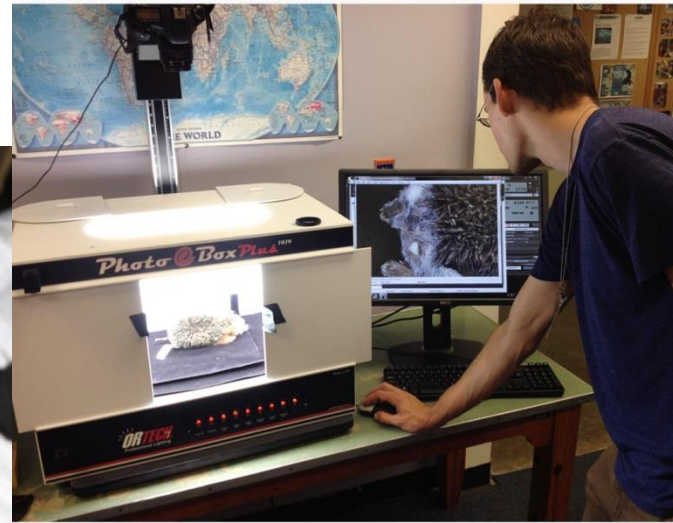


Copy Stand

- Camera connected to a lift that can manually be raised or lowered
- Stationed between light units (flash or continuous) which are placed to its side
- Option of having direct or diffused lighting



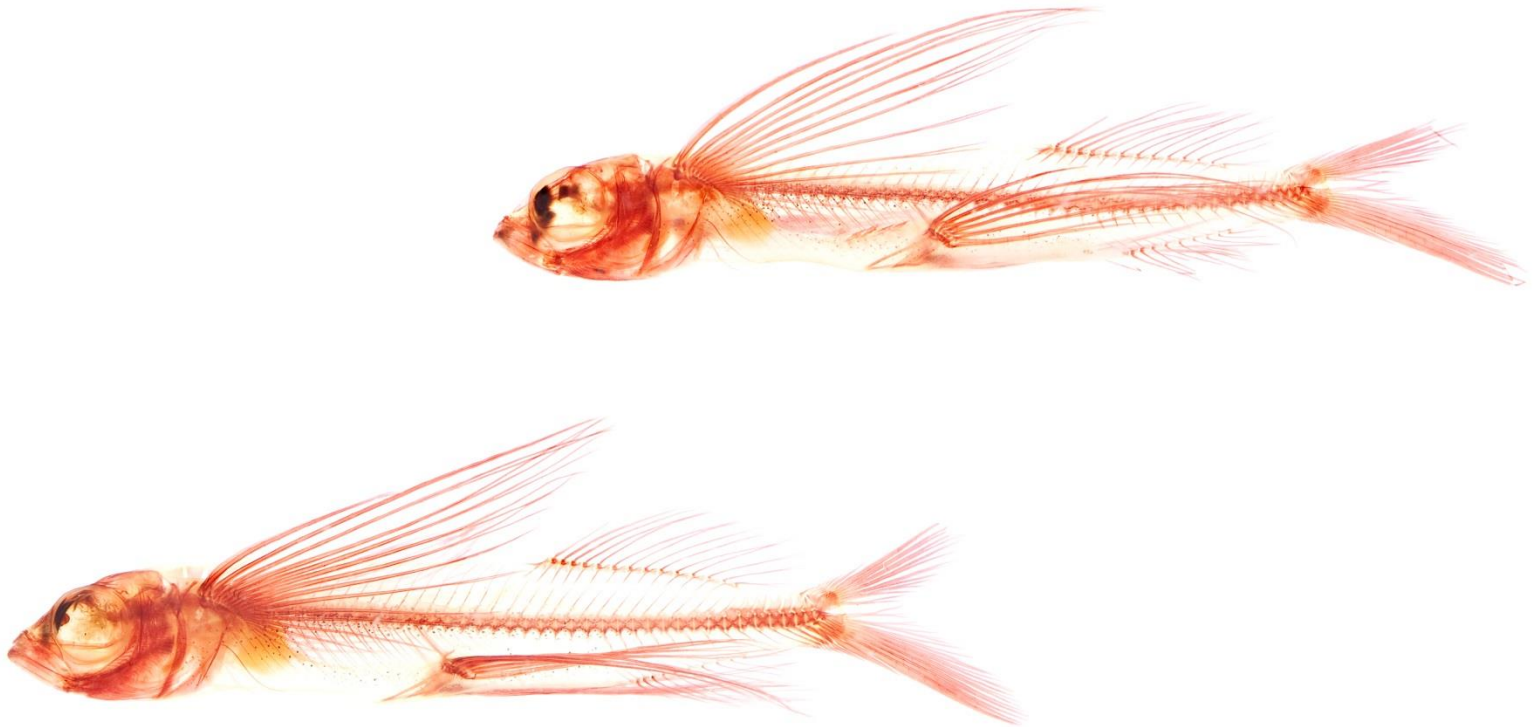
Which imaging system is best for your needs?



What are you trying to image?

How is the specimen preserved?

- Wet (ethanol, glycerin)
- Dry (skins, skeletons, fossils, eggs, nests etc.)



Ethanol preserved specimens

Image in solution (H₂O or ethanol)

- Prevents glare
- Prevents specimen from drying out!

Out of water



In water



Squeeze tank

- Will accommodate 80-90% of specimens in the wet collections.
- Dorsal, lateral, and ventral views easily obtainable
- Change out solution (preference distilled H₂O)



A

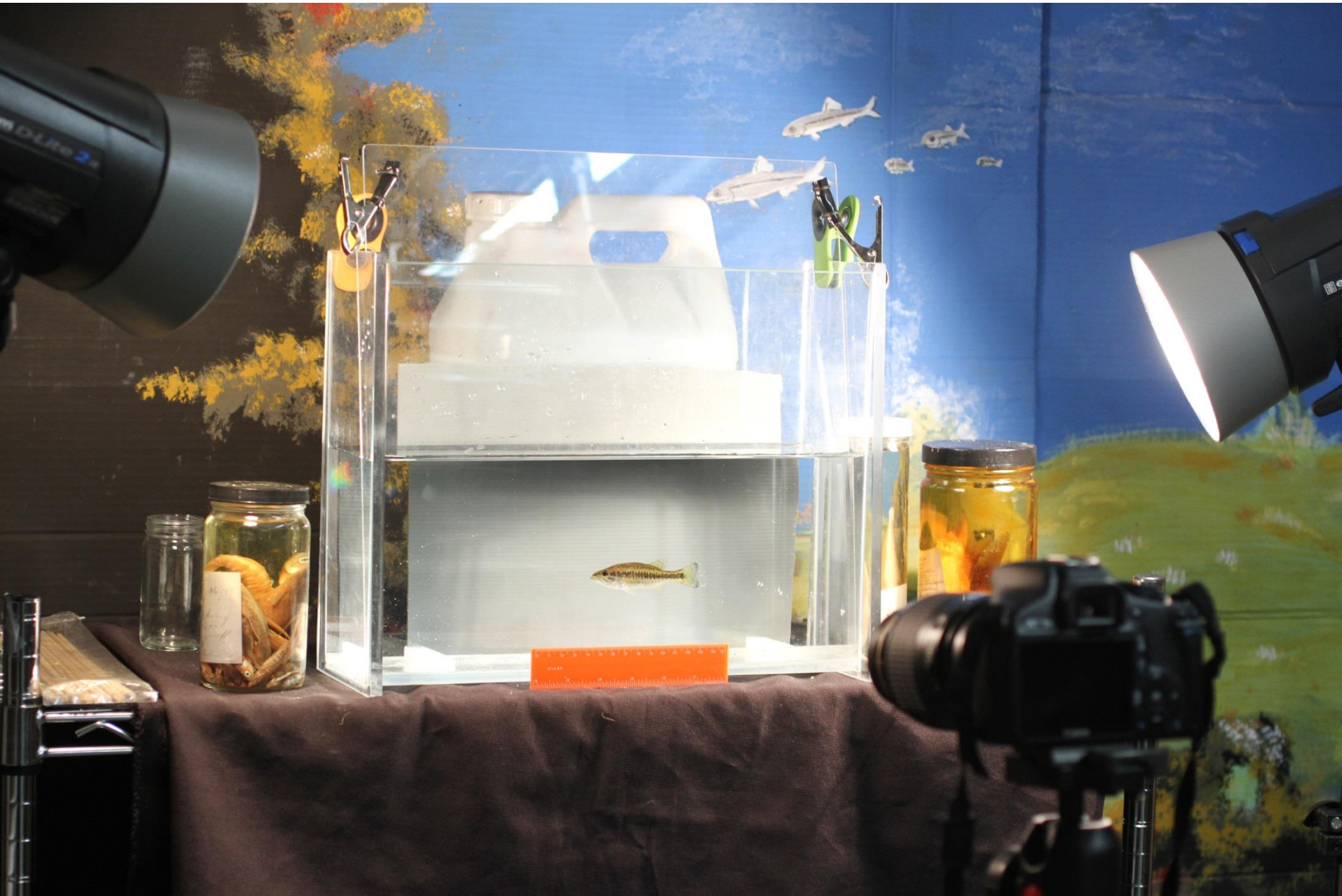


B





Setup



Setup

- Customize tank size (Glass / plexiglass/ silicon)
 - Front-glass (minimal scratching)
 - All other sides plexiglass
 - Dimensions 38 x 30 x 12 cm
- Computer setup to tether image files
 - Optional (will be more time efficient)
- Lighting
 - Flash
 - Direct/continuous
 - Diffused
- Average 12 minutes per specimen

Demonstration tomorrow (6th)

10:30-12:00

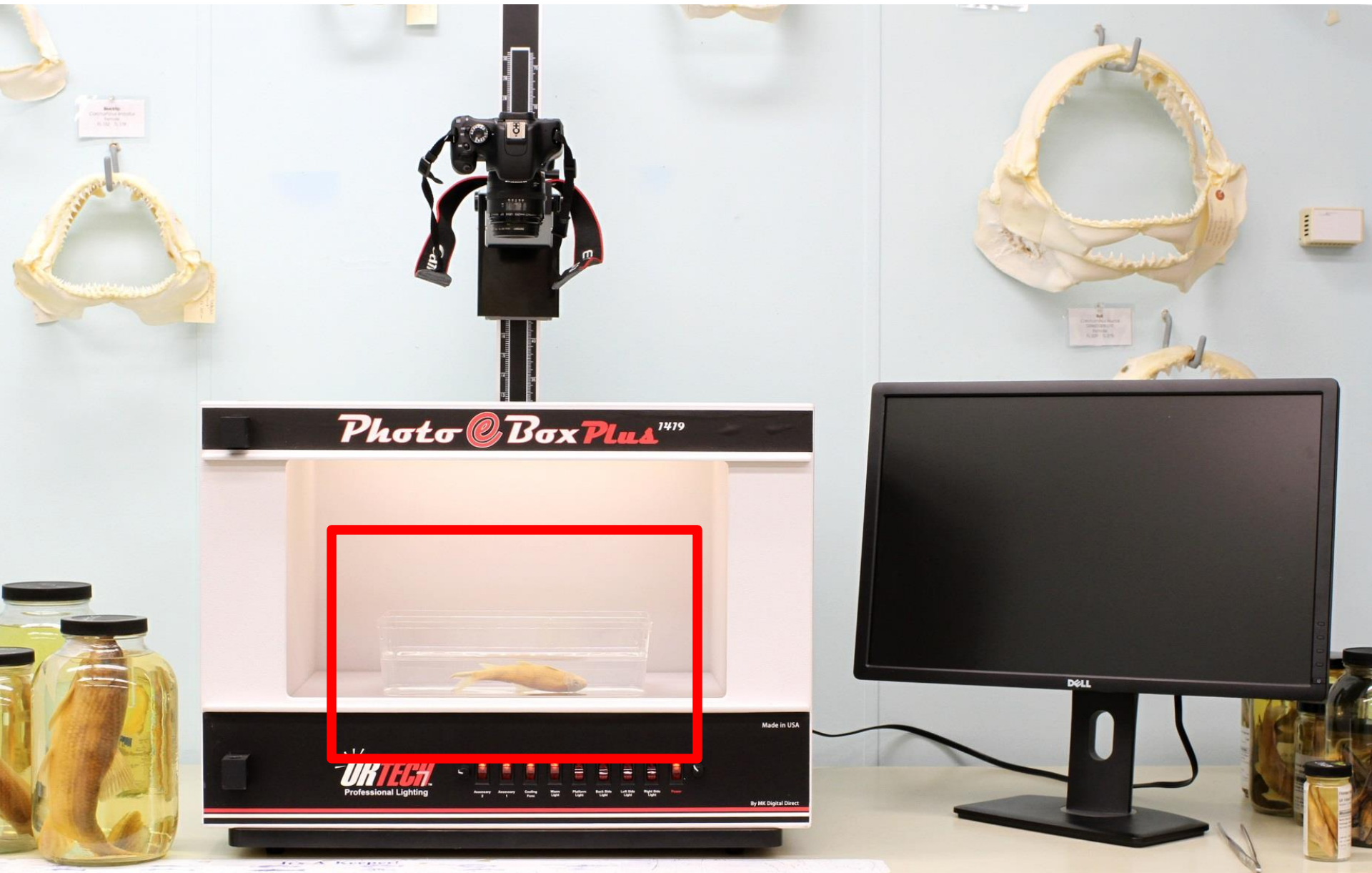


Image by: Travis Tuten

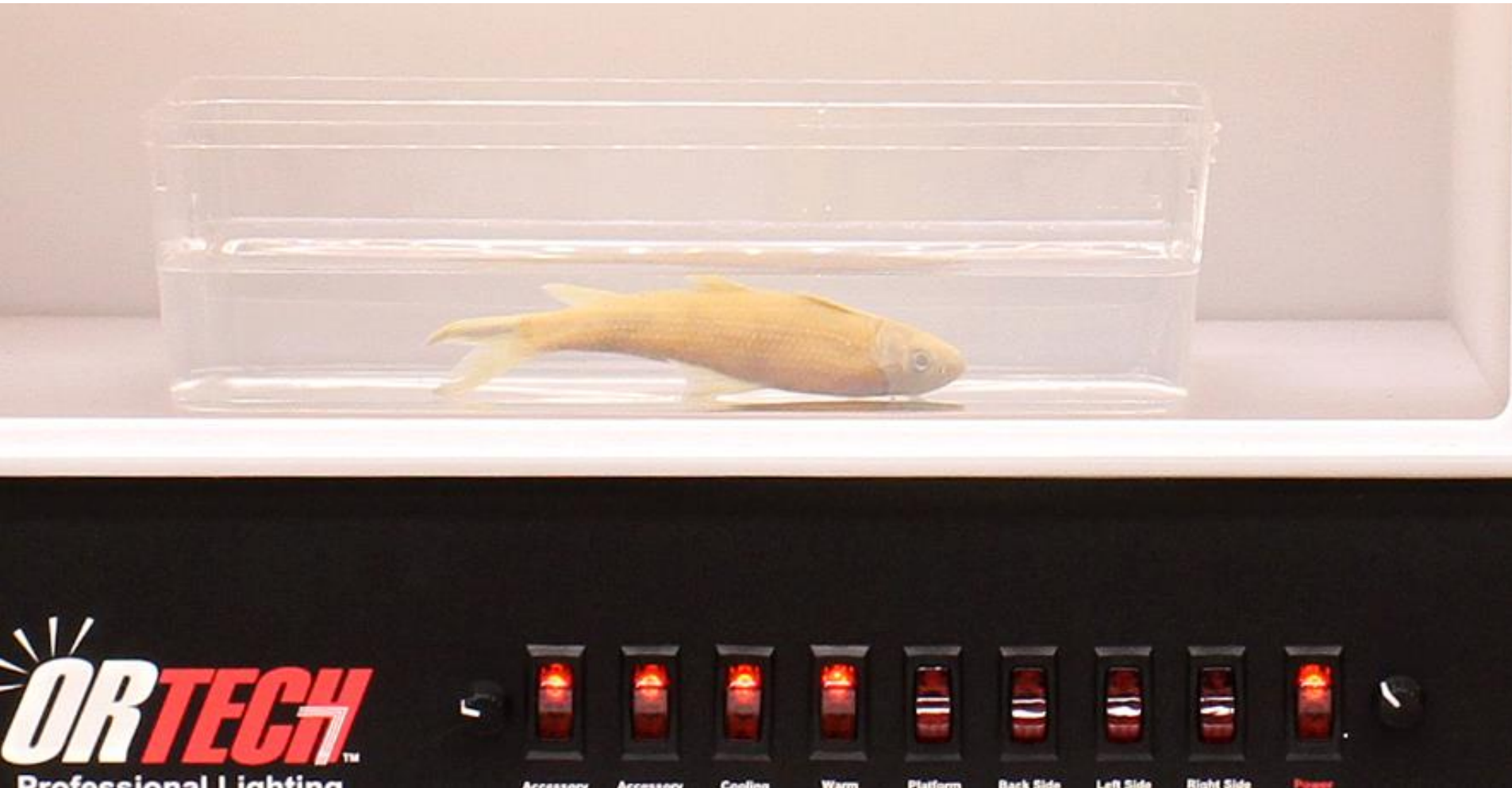


Image by: Rob Robins

Lightbox?



- Useful for wide/deep-bodied specimens (turtles, coiled snakes, etc.)
- Place Squeeze tank in Light box ?



Large specimens



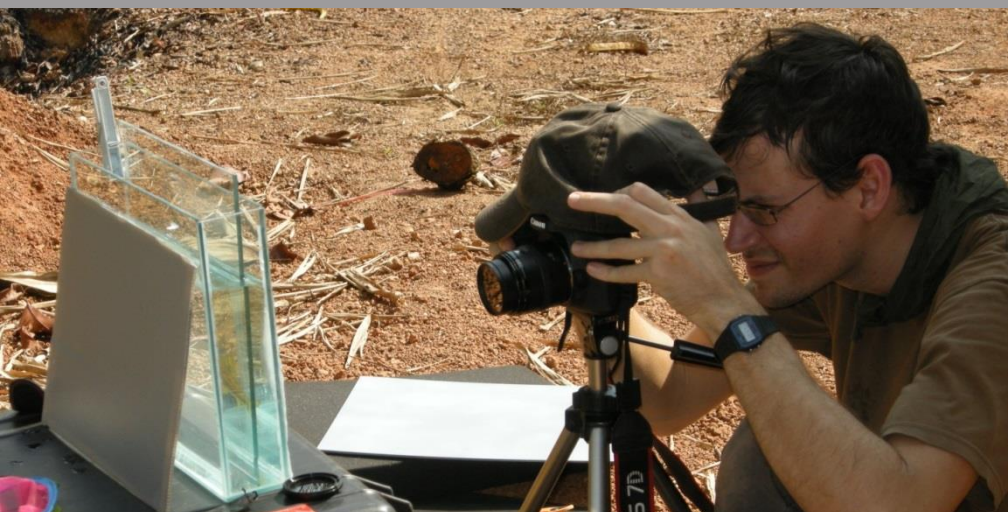
Live photos



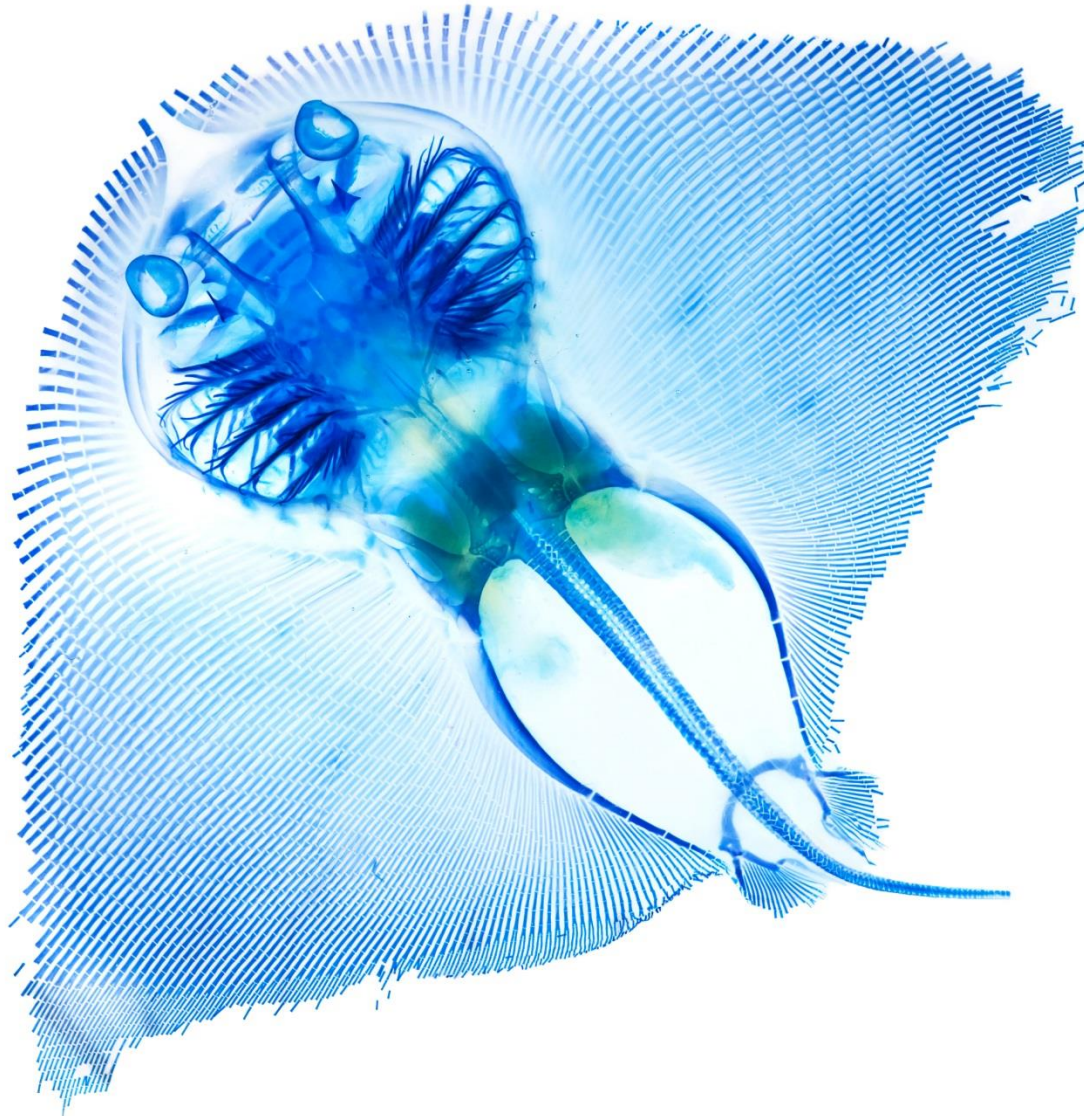
FIGURE 4. Fresh specimen of *Chelidoperca stella*, PMBC 27838, paratype, 61.8 mm SL, off Phuket, Thailand, Andaman Sea.



Matsunuma & Motomura (2016)

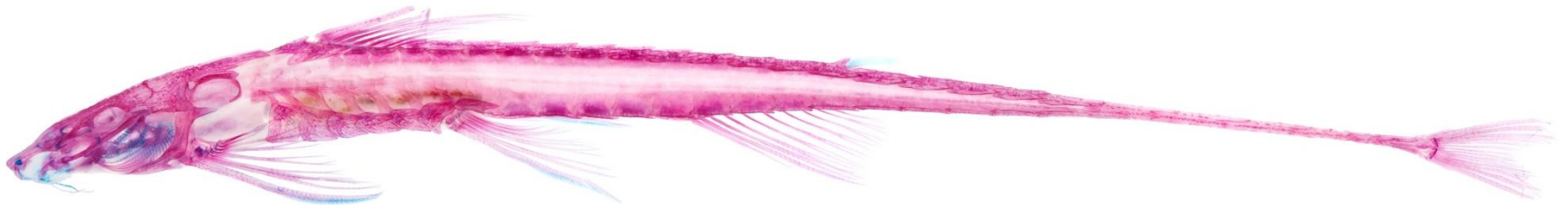


Glycerin preserved specimens



Copy stand or light box

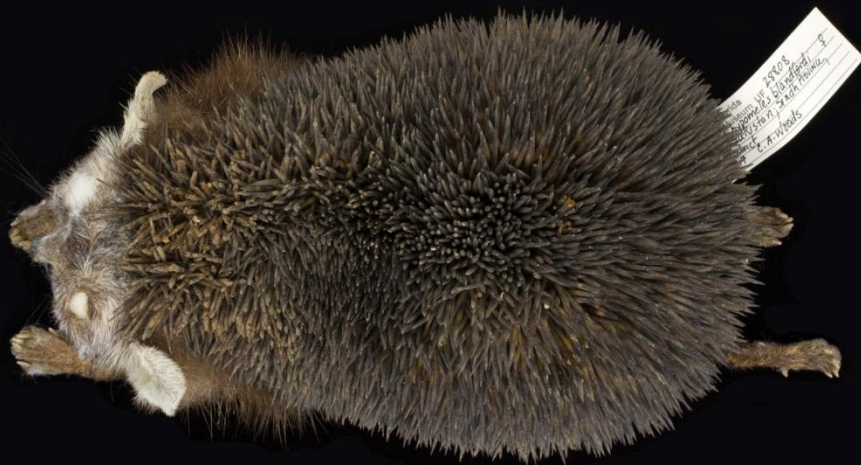
- Image specimen in glycerin (same RI)
- Need strong light underneath the specimen
- Copy stand use a white piece of paper below the specimen with strong light.
- Advantage of Copy stand, is lens can get a lot closer to specimen.



Non-fluid preserved specimens



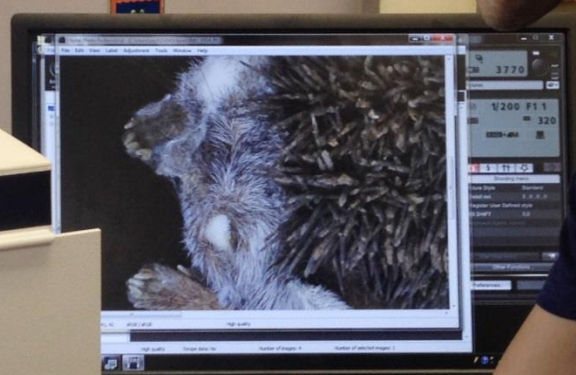
Lightbox and/or Copystand



5 cm



5 mm



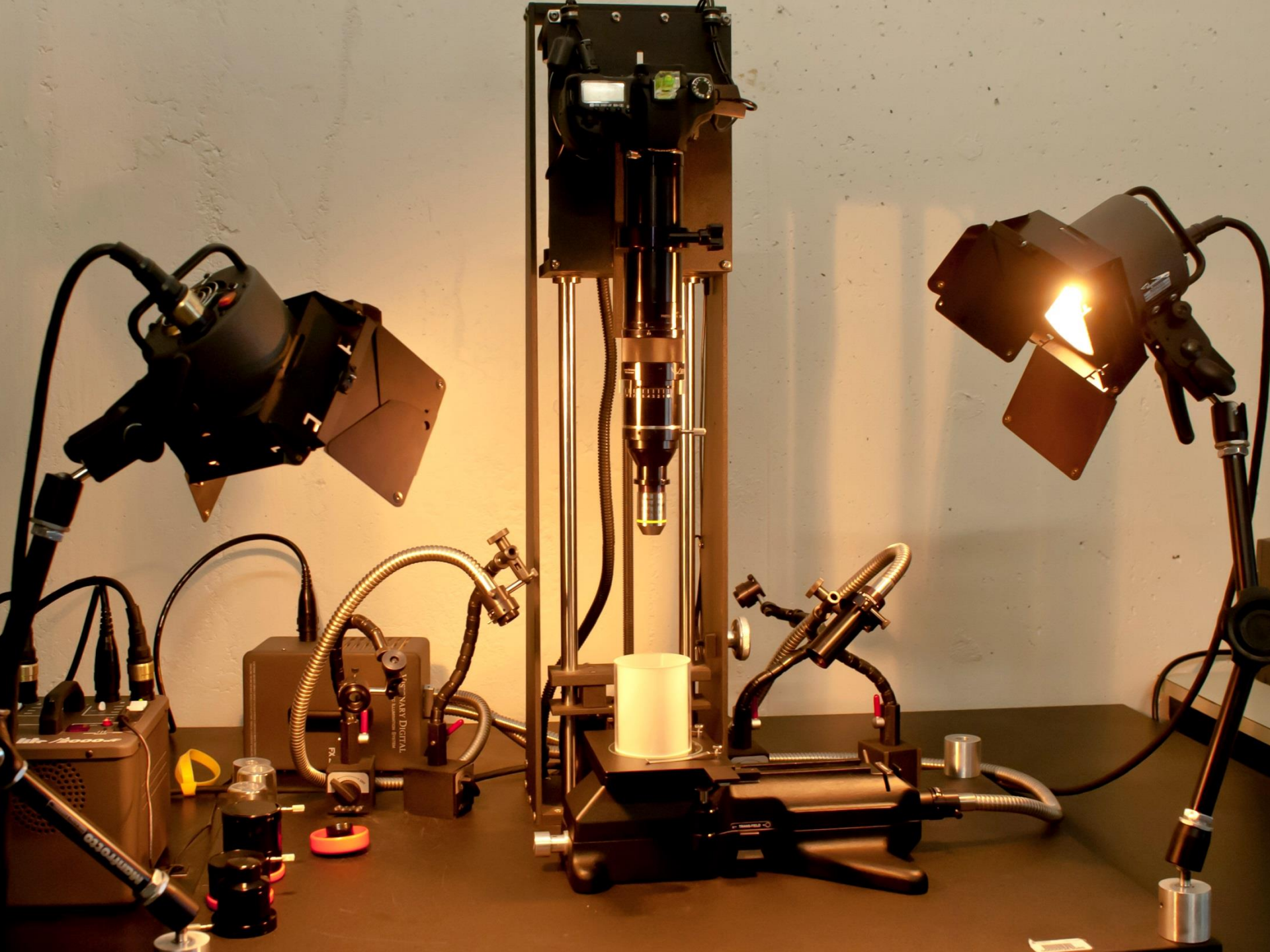
3770
1/200 F1.1
320





Florida
Museum
Hesperomorphs
Mexico; Yucatan
State
C. A. Woods

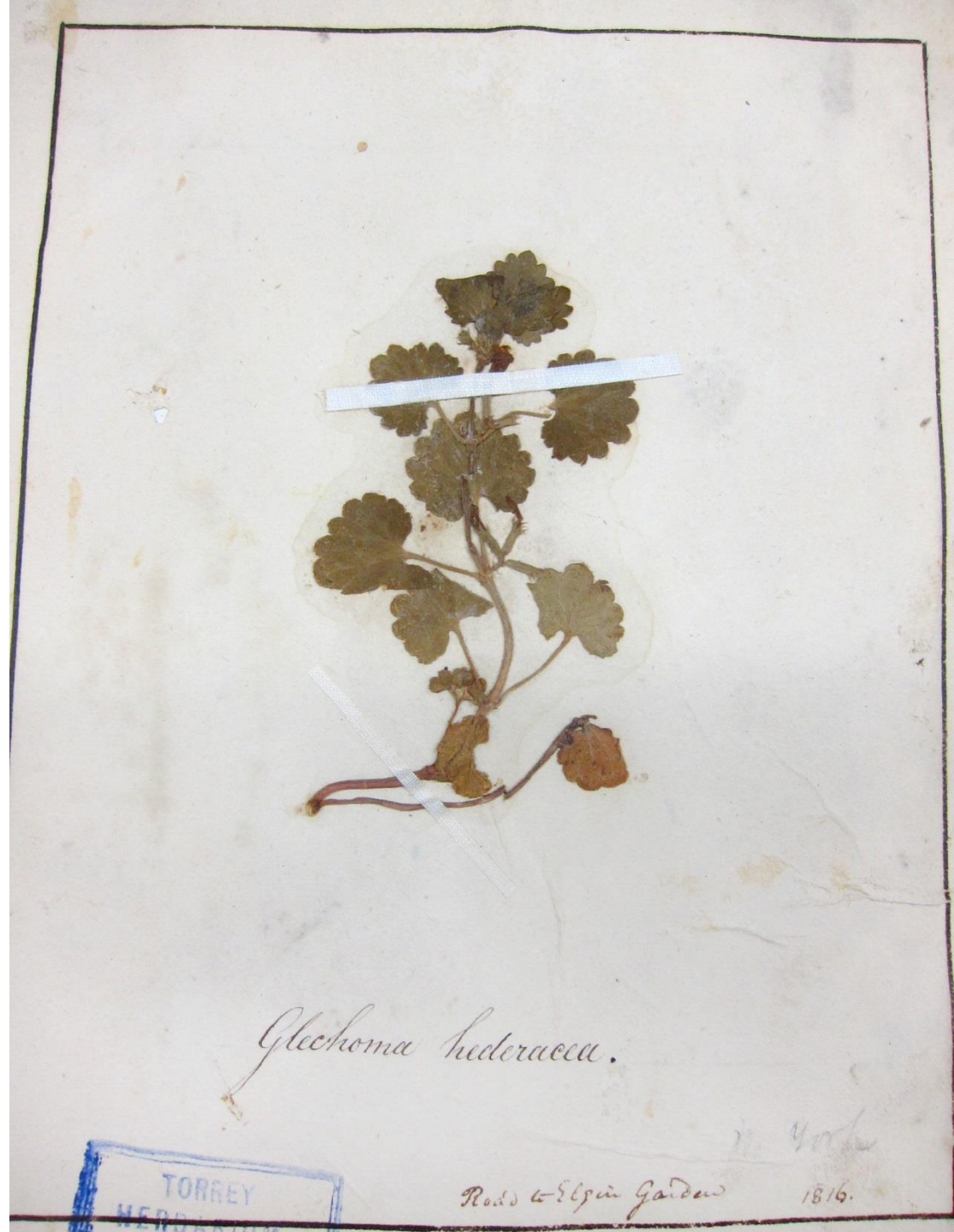
5 cm





5 mm

- Both work great for vertebrates.
- Lightbox has better workflow for pressed plants



Lighting

Light box

- Continuous
- No shadows
- Diffused/Soft light

Copy Stand

- Continuous, flash
- Shadows
- Contrast

Lighting

Light box

- Continuous
- No shadows
- Diffused/Soft light

Copy Stand

- Continuous, flash, **Diffused**
- Shadows, **No shadows**
- Contrast, **Soft light**

How to soften light



More options the better

- Sometimes you need shadows
- Skeletal material – Fossils

Diffused light



1 inch

Florida Museum of
Natural History

3 cm

Direct light



1 inch

Florida Museum of
Natural History

3 cm

Diffused light



1 inch

Florida Museum of
Natural History

3 cm

Direct light



1 inch

Florida Museum of
Natural History

3 cm

Diffused light

Direct light

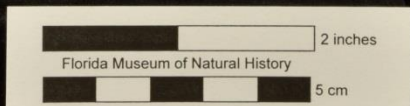
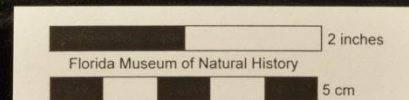


Image by Sean Moran



Diffused light

Direct light

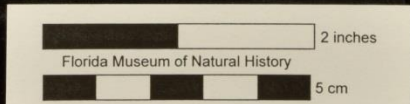
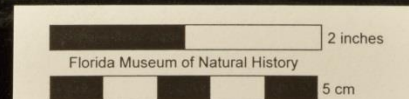


Image by Sean Moran



Time

Light Box

- Faster workflow -light settings doesn't need to be adjusted (on switch)

*Depends on specimen color

- Average 7 minutes per specimens

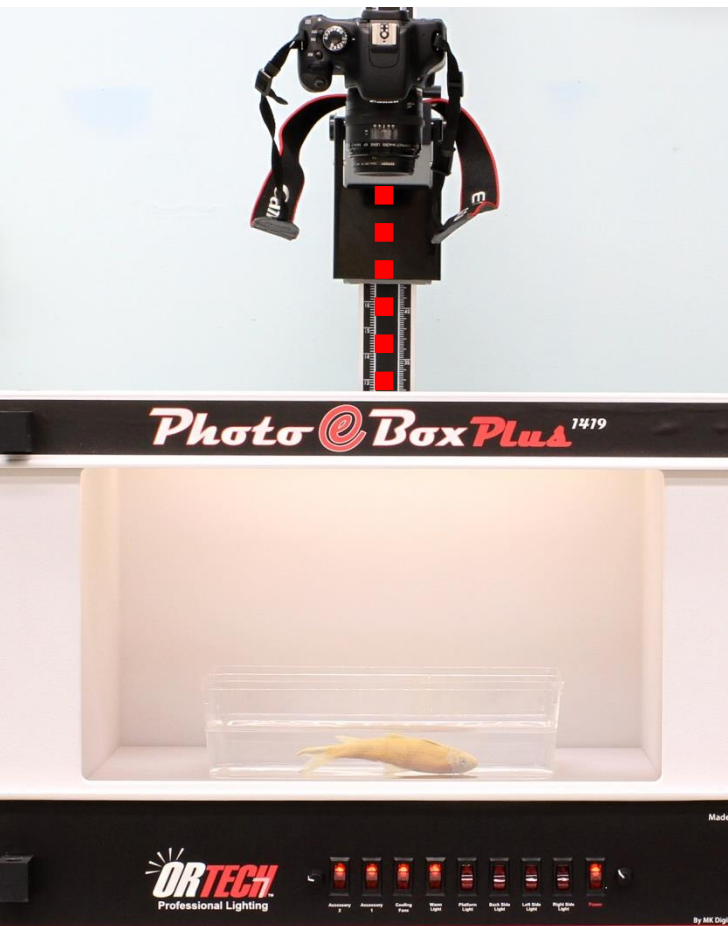
Copy Stand

- Initial lighting setup
- Lighting manipulation, during process
- Average 10 minutes per specimen

Lens to specimen distance

Light box

- Restricted



Copy stand

- Lens very close to specimen



\$\$\$Cost \$\$\$

Light box

- Expensive
- Photo-e-Box Bio:
\$1,780
- Default camera mount is no good for DSLR
- Should buy a good copy stand for the camera mount

Copy Stand

- Affordable and commonly found at university surplus
- Wider cost range
- Package with lights
ca. \$200



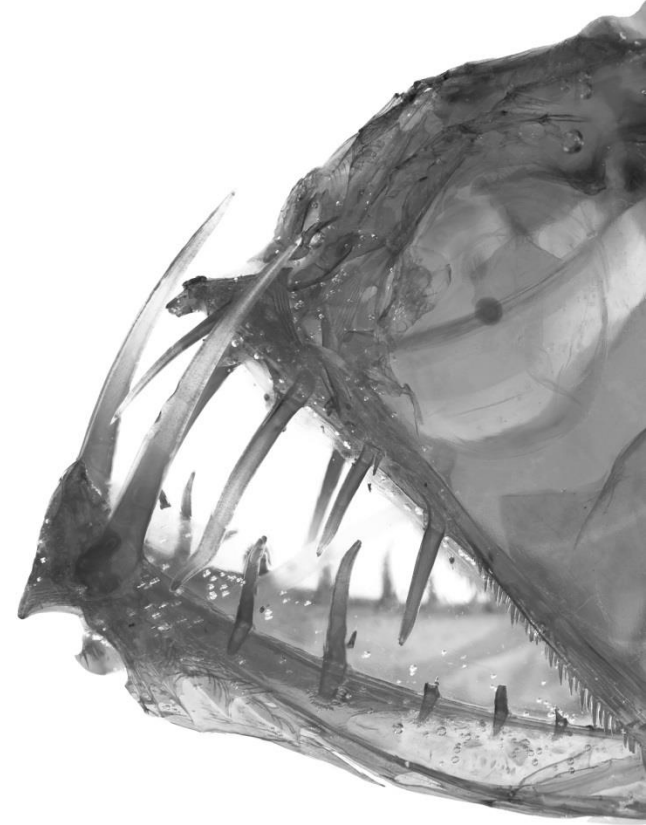
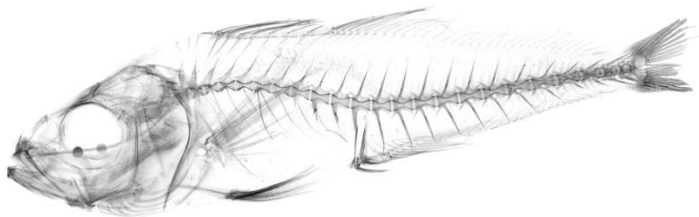
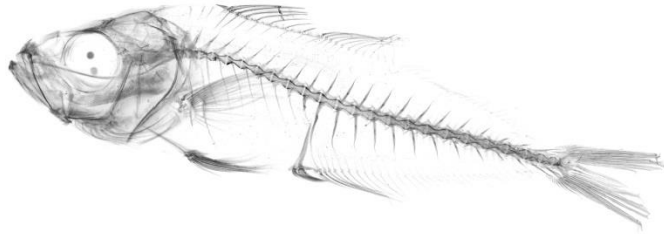
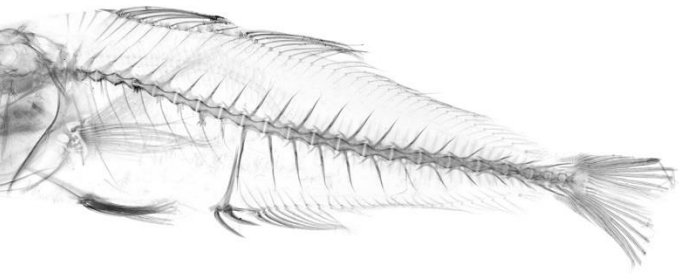
Ca. \$50

Image from B&H Photo

Overview

- Ethanol specimens – Squeeze tank
 - affordable, easy to customize sizes, efficient, use in lab or field
- Glycerin specimens – Light box or Copy Stand
 - Image in glycerin, use strong light
- Dry specimens – Light box or Copy Stand
 - Both work great, Copy Stand more affordable, Light Box more user friendly

Questions?



Email: zrandall@flmnh.ufl.edu