HOW TO PREPARE BIRD SPECIMENS

Part 3 – Other Skinning Methods

- Stripping secondary fight feathers
- Cleaning skulls
  - Removing the soft palate
  - Sawing skulls
  - Partial skull method
- Inserting cotton eyes
- Removing, cleaning, and replacing owl sclerotic rings
- Back-of-the-head incision method
- Side-cut method
- Miscellaneous tips

The Migratory Bird Conventions Act regulates the take and possession of birds in Canada. The Migratory Bird Treaty Act regulates the take and possession of birds in the United States. In addition, the provinces (in Canada) and the states (in the United States) also require permits. For some species SARA, ESA, or CITES permits may be required.

Always check the laws of your country and obtain the proper permits; failure to do so may result in civil and/or criminal penalties.

When handling dead birds, it is probably impossible to tell if a bird is infected with a pathogen that may cause human illness even if you know the cause of death to be a wound or an injury. Take reasonable precautions to protect yourself. The Ornithological Council offers a peer-reviewed fact sheet on avian zoonotic disease and safety precautions for those who handle birds in the field and in the lab.

http://www.nmnh.si.edu/BIRDNET/documents/WNV&H5N1-FactSheet.pdf

WARNING

My reason for **NOT** using any absorbent material such as:
- Corn meal (white preferred, lower oil content than yellow)
- Potato starch
- Corncob dust
- Sawdust

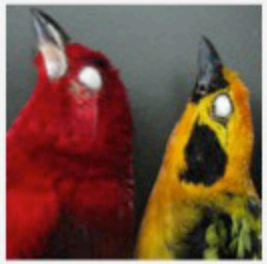
to soak up body fluids is to make the images in this photo-essay easier to read.

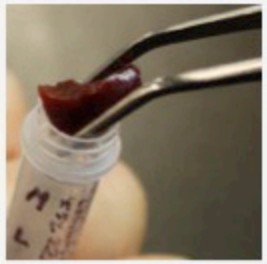
This is **UNORTHODOX.**
The normal rule of thumb is:
"When in doubt, sprinkle on more absorbent material."

There are a myriad of different ways to skin and stuff avian round study skins.
The aim of this PowerPoint series is to show the basics.
Everyone develops a slightly different technique.

Two methods are presented:

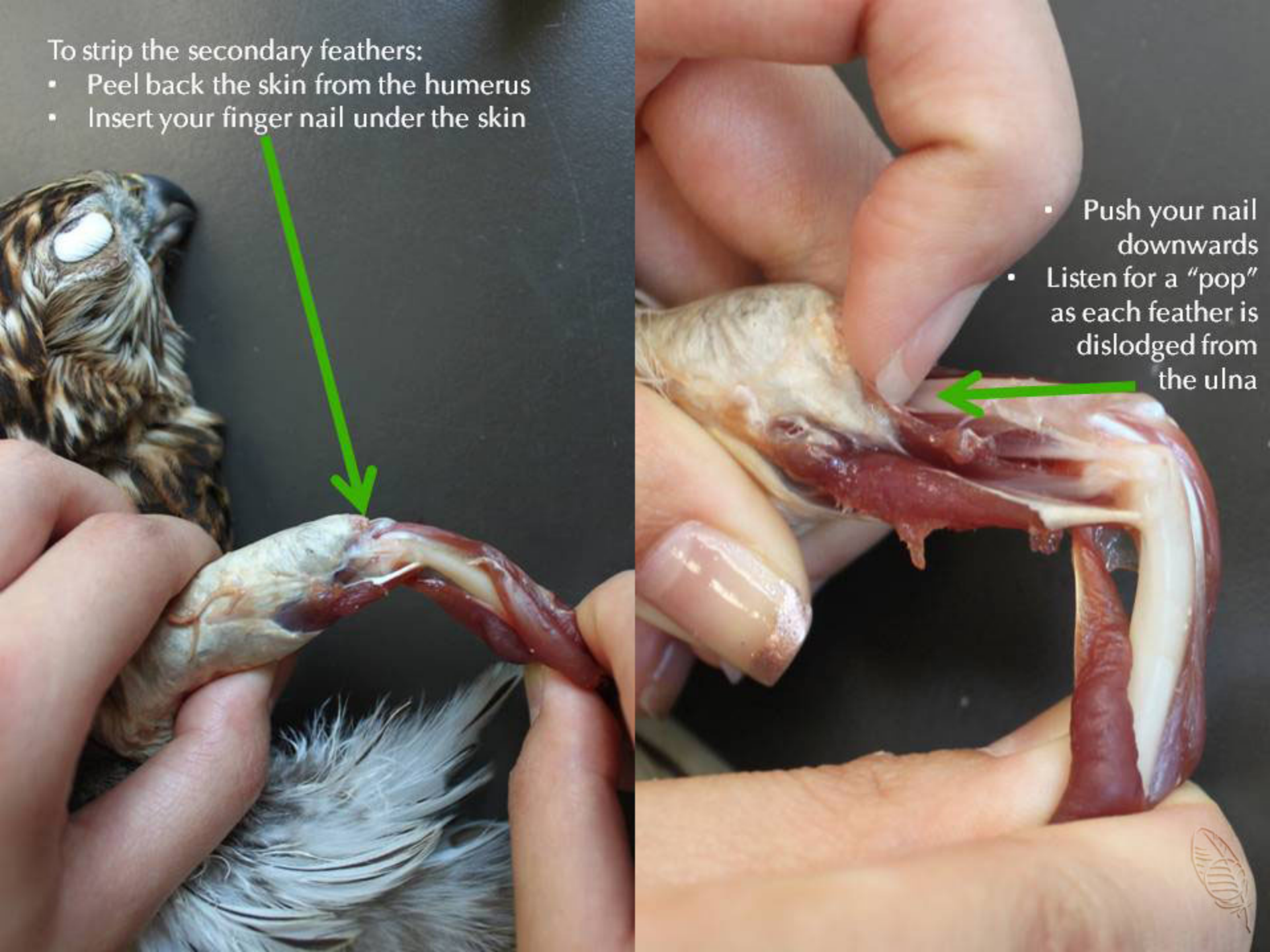
1. Base-of-sternum-to-cloaca Method
2. Neck-to-the-base-of-the-sternum Method





Stripping the Secondary Flight Feathers

The secondaries are lodged in notches on the ulna.
Stripping means disconnecting these attachment points.


To strip the secondary feathers:
• Peel back the skin from the humerus
• Insert your finger nail under the skin
• Push your nail downwards
• Listen for a “pop” as each feather is dislodged from the ulna


If the skin does not peel easily, cut the mesentery connective tissue 2-3 millimeters above the skin.
These are the ends of the secondaries protruding through the skin.


• Sever the radius and the tendons at the manus join
• Pull this small bone and the muscles away from the ulna
• Gather into a bundle and twist


• Keep twisting until the radius, muscles, and humerus snap off
• Scissors may be required to cut the tendons

On large birds, the bulk of the long bone marrow must to be removed to prevent oil seepage:

- Inserting a tooth pick, barbeque skewer, etc. and pump up and down

or

- Use a syringe to inject water

Photo taken at the Slater Museum

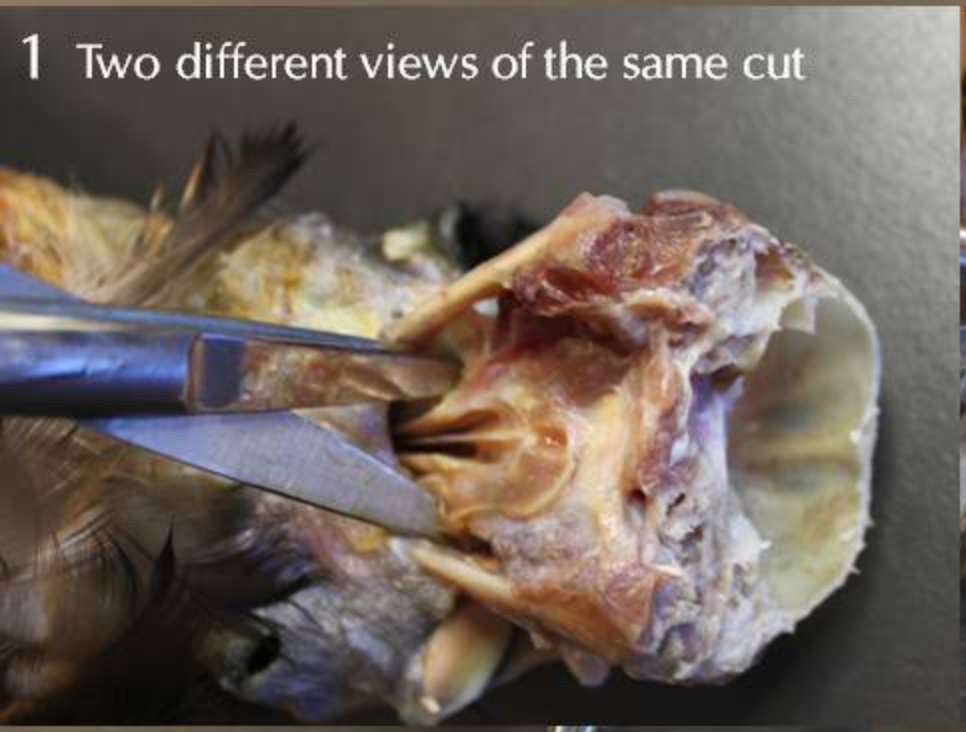
Removing the Soft Palate

The soft Palate must be removed when stuffing a bird using the Cone Soft Body Method. The forceps will not go up the neck and out the beak if the soft palate is left in. The following steps can be done on whole skull or sawn off skull.

With practice, the brain and the soft palate are removed at the same time.

Execute the cuts in order. Do cuts 2 and 3 on both the right and left side of the skull.

1 Two different views of the same cut



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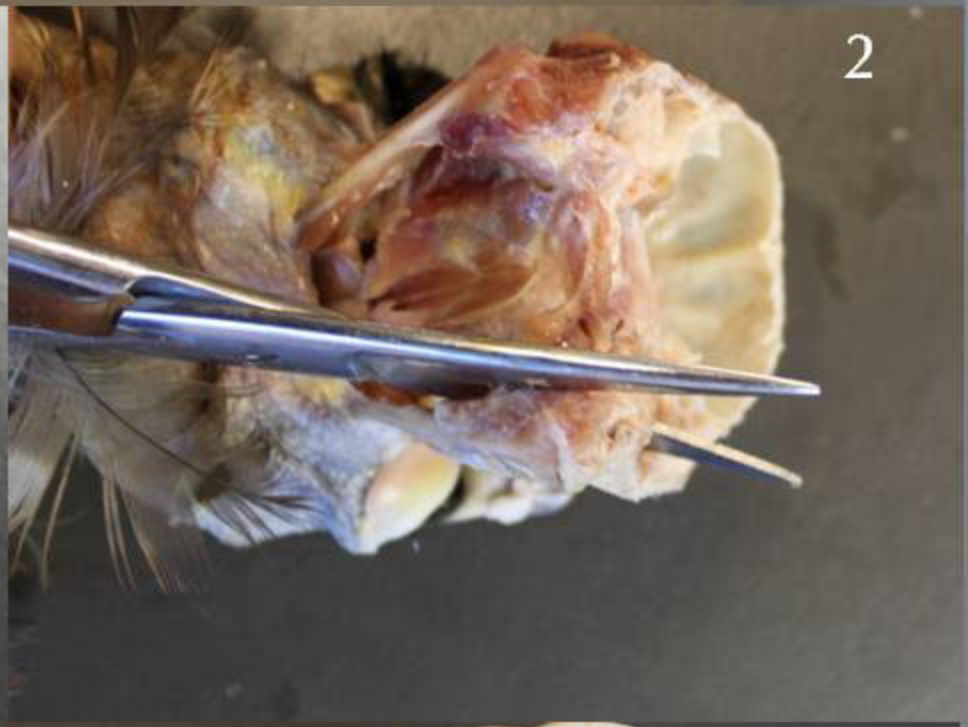
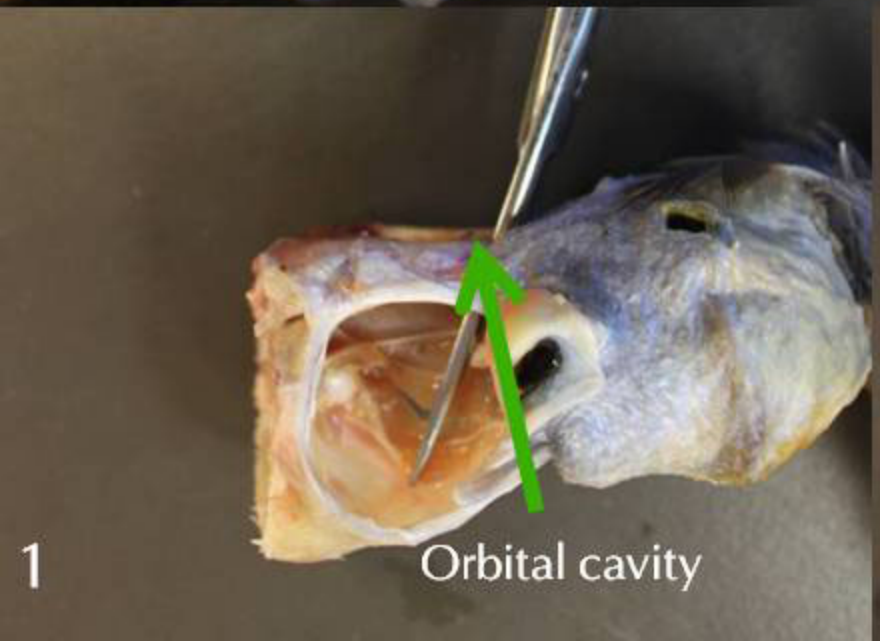




1

3

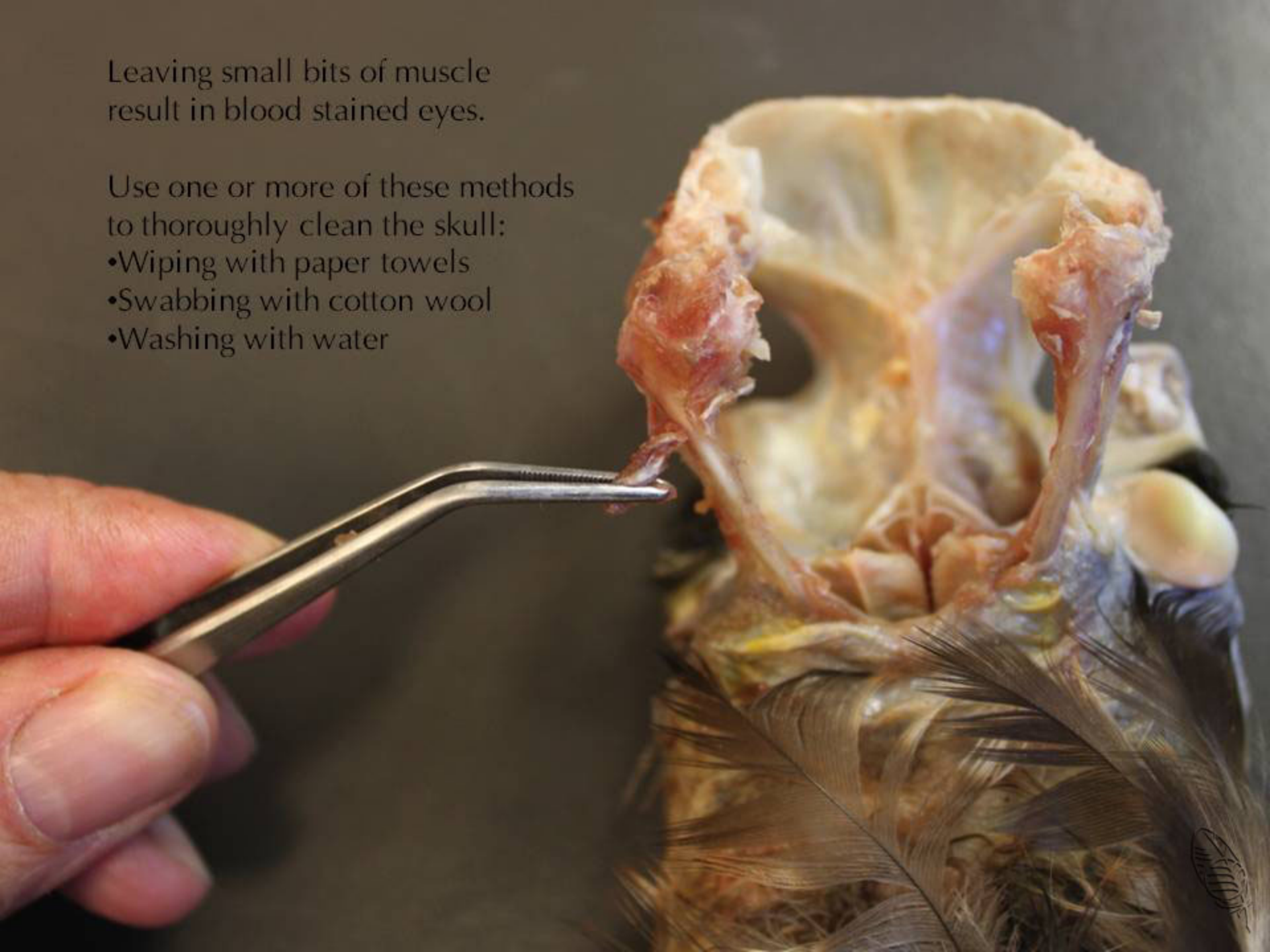
Pull the soft palate out of the skull. The brain was previously removed to clarify these images.

Trim remaining muscle tissue with small scissors.

Leaving small bits of muscle result in blood stained eyes.

Use one or more of these methods to thoroughly clean the skull:

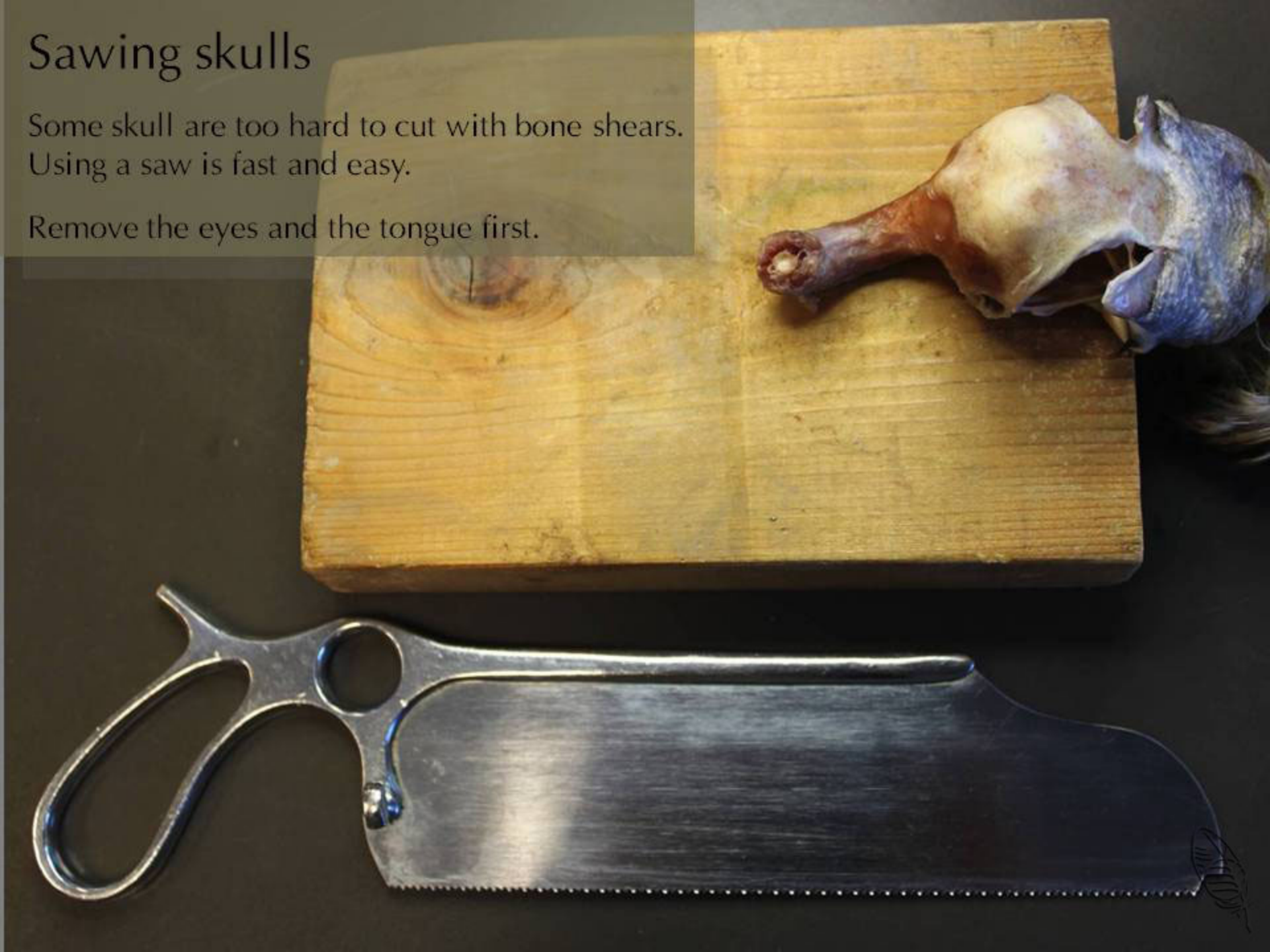
- Wiping with paper towels
- Swabbing with cotton wool
- Washing with water



Sawing skulls

Some skull are too hard to cut with bone shears.
Using a saw is fast and easy.

Remove the eyes and the tongue first.




Saw completely through the skull

Method for medium-hard skulls:

- Saw through of the skull
- Hold front of skull
- Pull the skull back until it rests on the table
- Extract the brain and soft palate in one piece

Partial Skull Method

- Cut through soft palate
- Cut the back of the skull
- Repeat on the other side

Photos taken at the San Diego Natural History Museum

- Cutaway jaw muscles

Photos taken at the San Diego Natural History Museum

- Remove the brain in one piece
- Trim any remain muscles

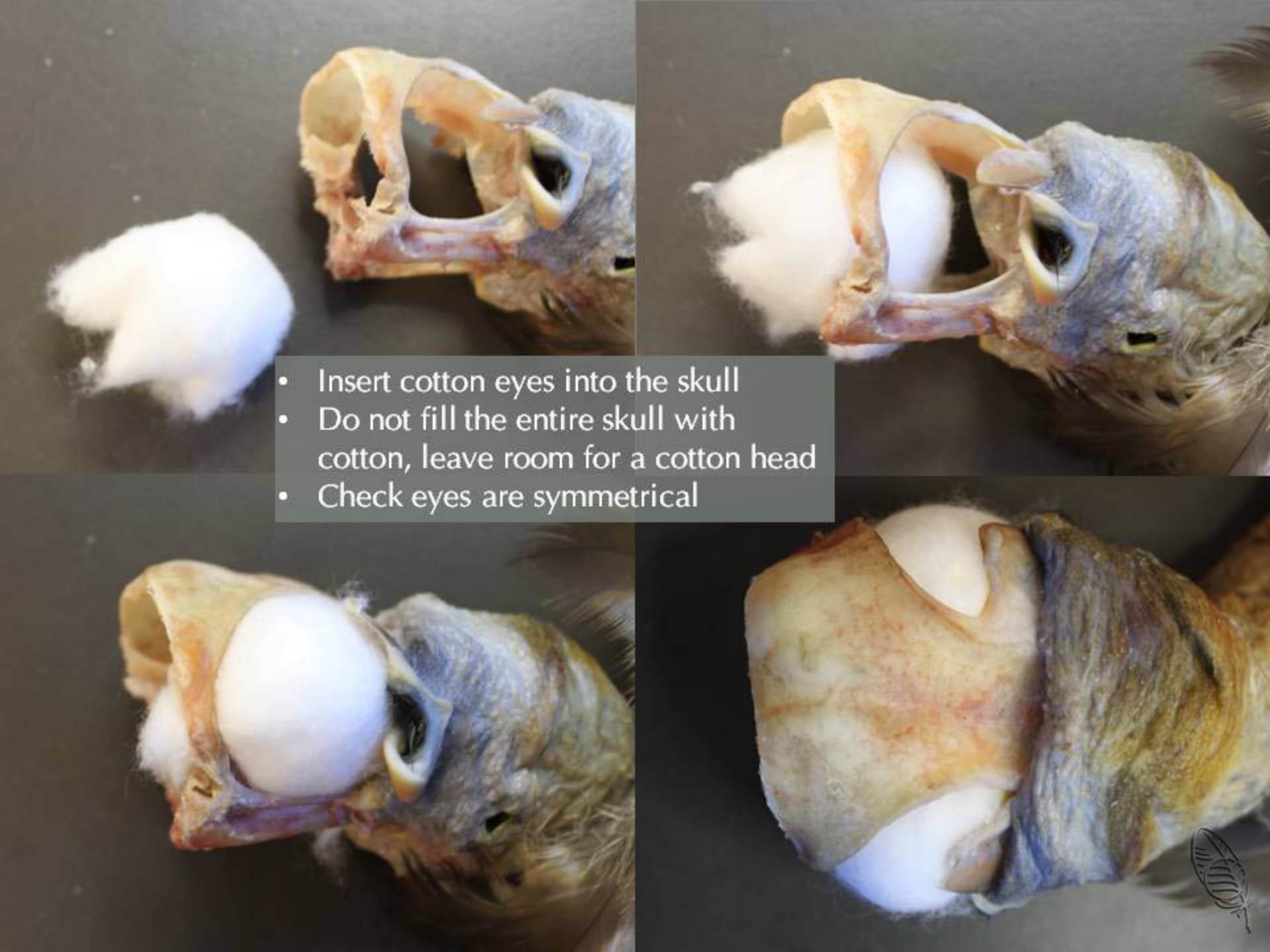
Only insert cotton eyes during the skinning process if the bird will NOT be washed.

1. Make a seed by rolling up a small piece of cotton wool

- 2. Put the seed on a square of cotton wool

3. Fold the cotton wool around the seed to form a hard cotton eye


If the cotton eye develops a comet's tail, cut it off.


• Insert cotton eyes into the skull
• Do not fill the entire skull with cotton, leave room for a cotton head
• Check eyes are symmetrical

Inserting eyes through the mouth works well for bird families with wide beaks. This is the best way to insert cotton after a bird is washed.

Note: If the soft palate is intact, this method does not work.

Back-of-the-head Incision Method

This method should be reserved for freezer dehydrated specimens or birds with large heads and narrow necks.

Some large headed birds that are fresh or have a fat layer on the skull can be skinned without making this cut. Try pushing the skin over the jaws first.

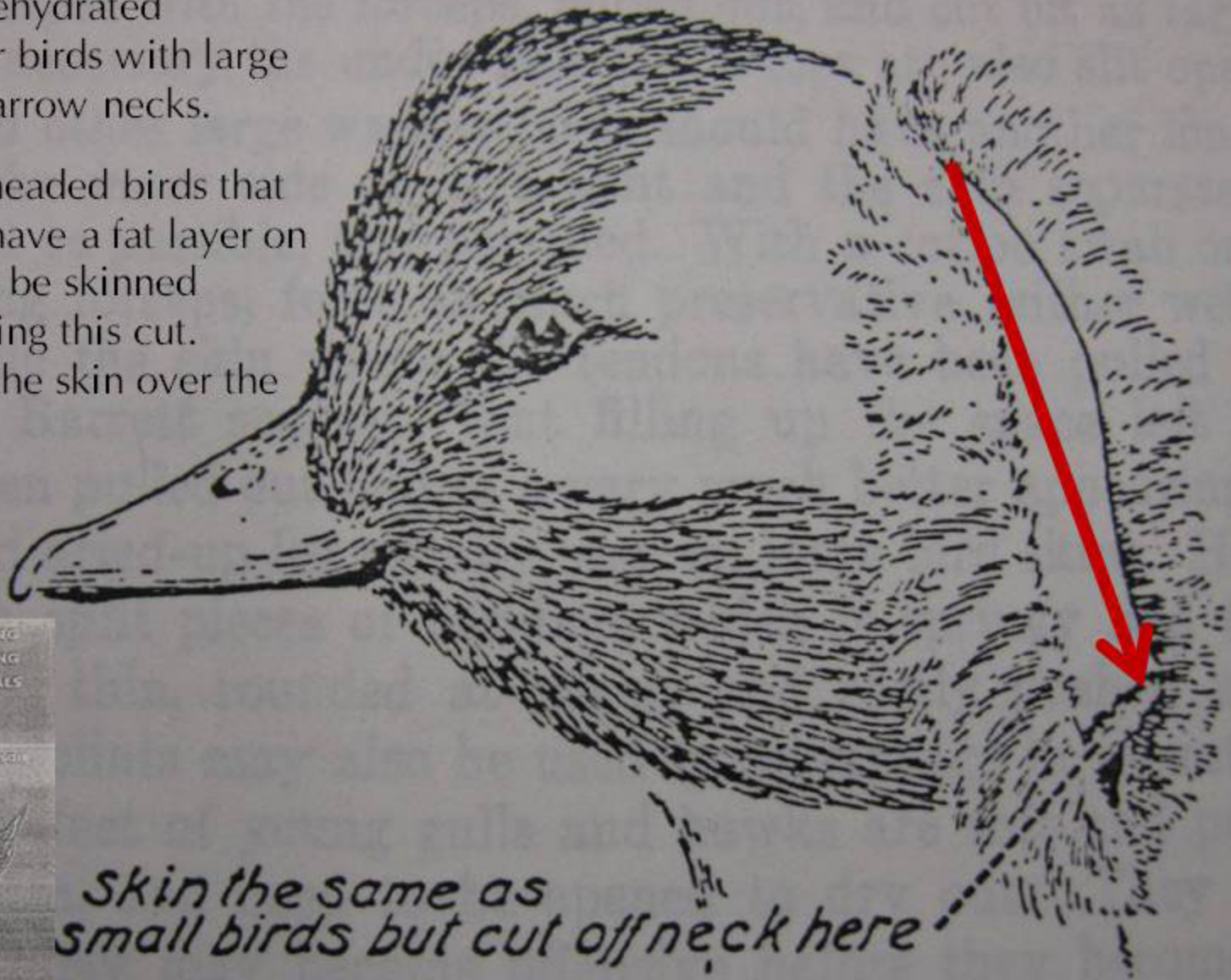
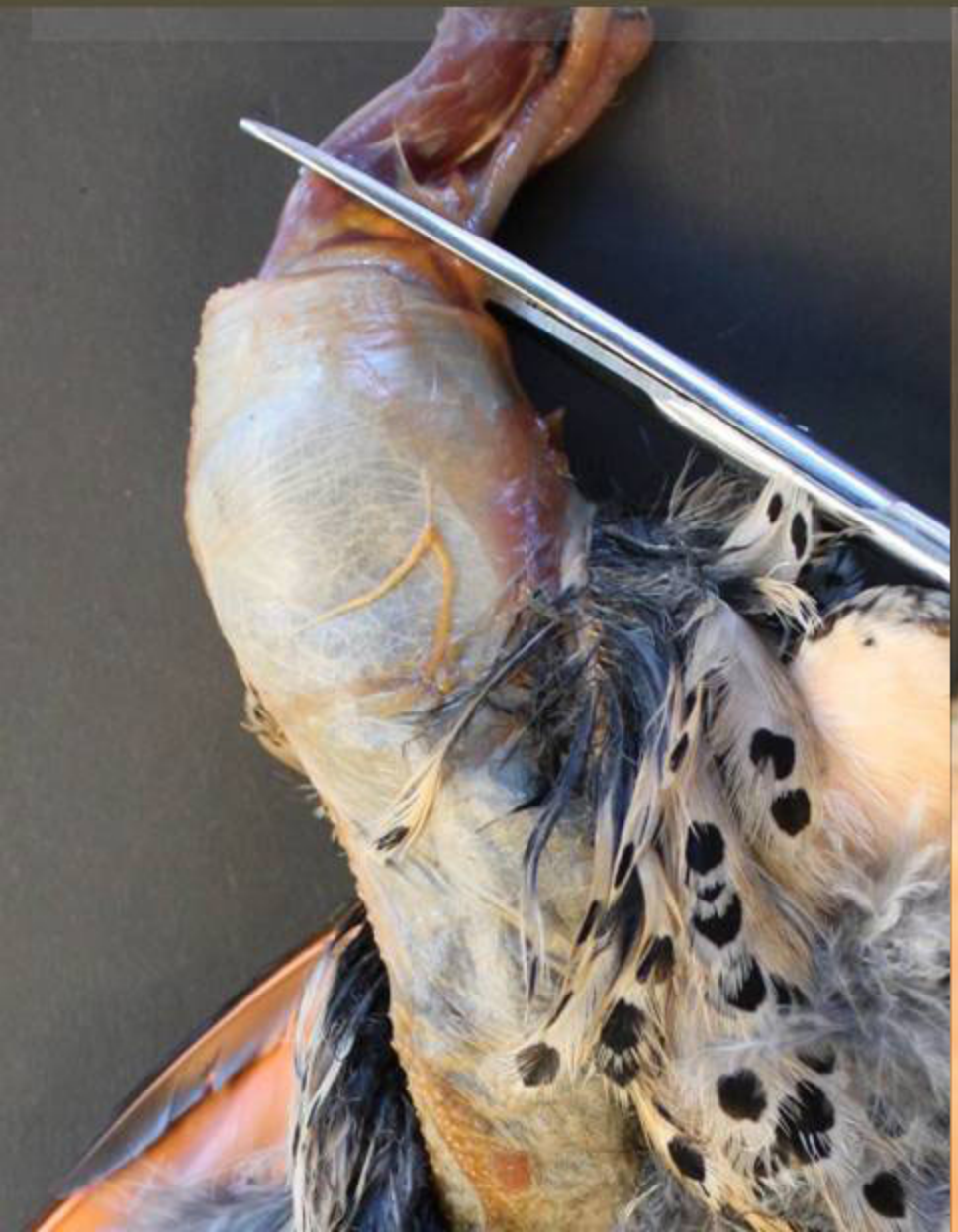


Figure 40. Skinning large-headed birds.

Invert the neck skin until you can see the back of the skull.



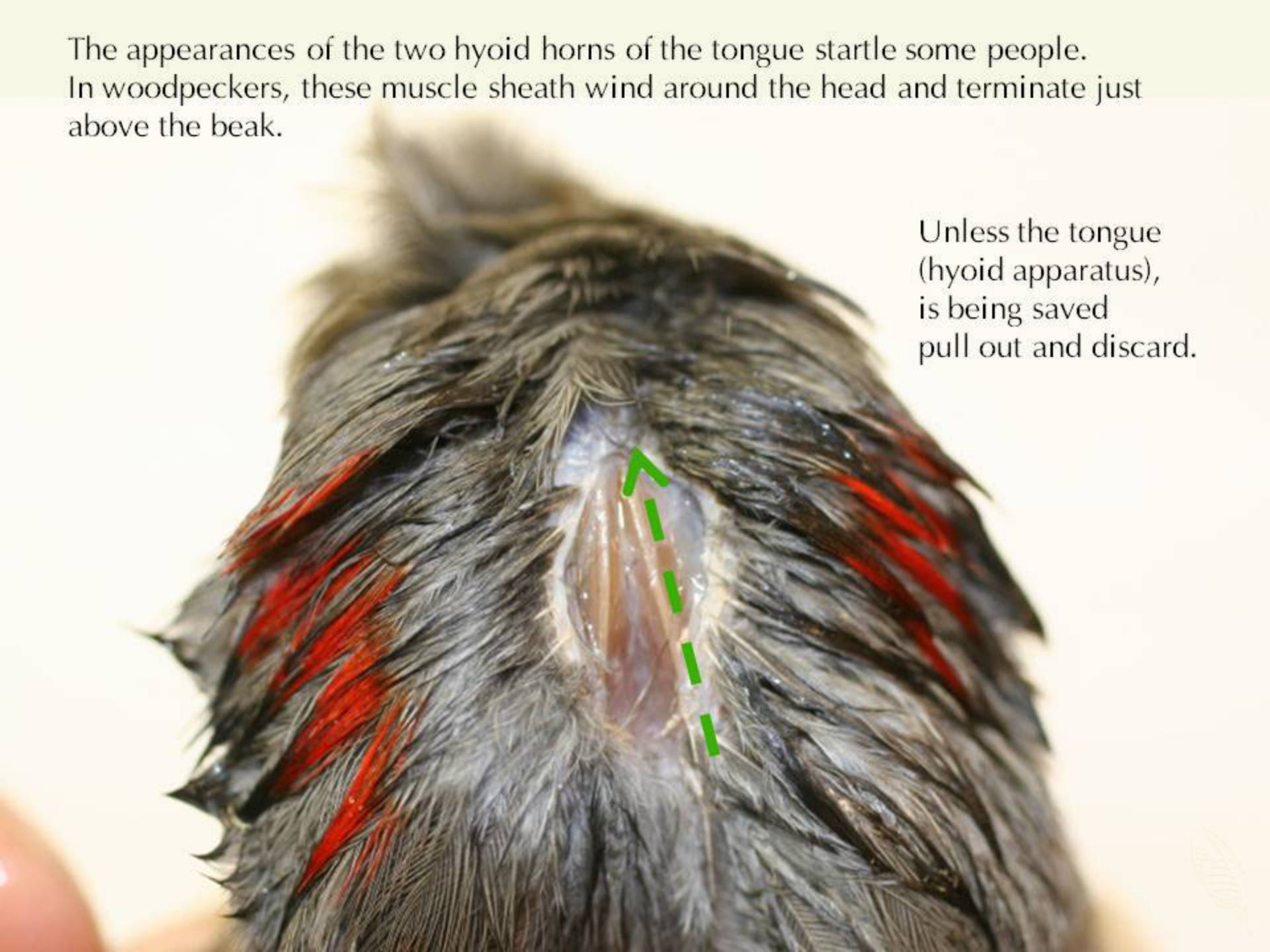
Cut the neck off as close to the skull as possible.

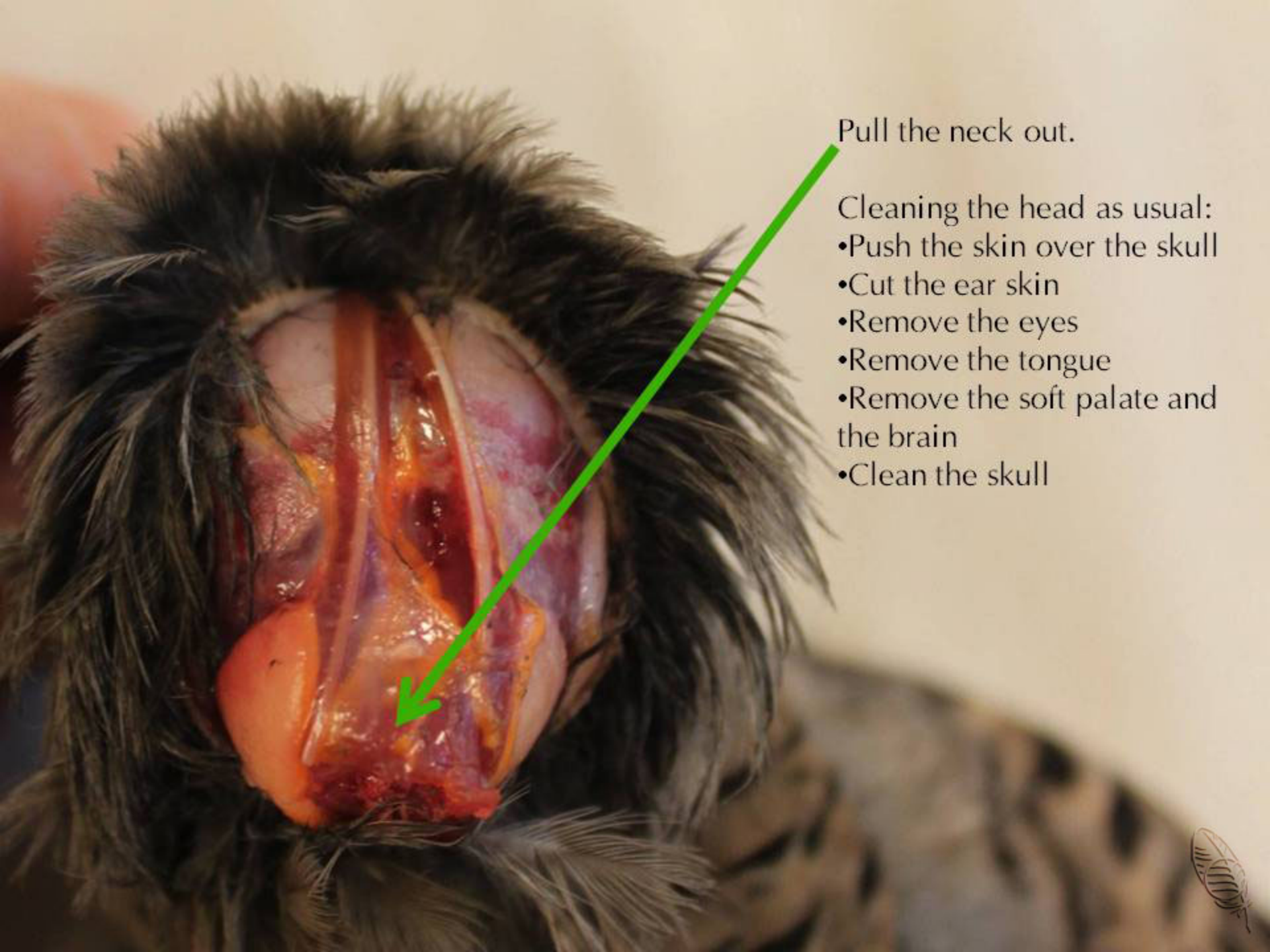
Part feathers using your fingers,
a probe, or by blowing on them.

Optional: Wet the feathers.

Make an incision from the top of the crown to just past the base of the skull. Use a scalpel or pinch the skin and use small scissors to make the cut.

The appearances of the two hyoid horns of the tongue startle some people. In woodpeckers, these muscle sheath wind around the head and terminate just above the beak.




Pull the neck out.
Cleaning the head as usual:
•Push the skin over the skull
•Cut the ear skin
•Remove the eyes
•Remove the tongue
•Remove the soft palate and the brain
•Clean the skull

Insert cotton eyes.
Because of the head incision, turning the head right way round is much easier.

Lubricate skull and skin with water. Some preparators use saliva.

With your fingers, gently smooth the skin over the skull.

Warning:

- Make sure your fingers are dry
- Wipe on paper towels or dip frequently in potato starch or other absorbent
- Wet fingers adhere to and pull out feathers

White thread is used for illustrative purposes:
•Select a thread colour that matches the feathers
•Sew a few loose stiches to close the incision

For crested birds, some preparators pinch the skin together to close the incision.

Removing, Cleaning, and Replacing Owl Sclerotic Rings

Owl study skins usually have the head facing forward, not tilted backwards in the conventional pose.

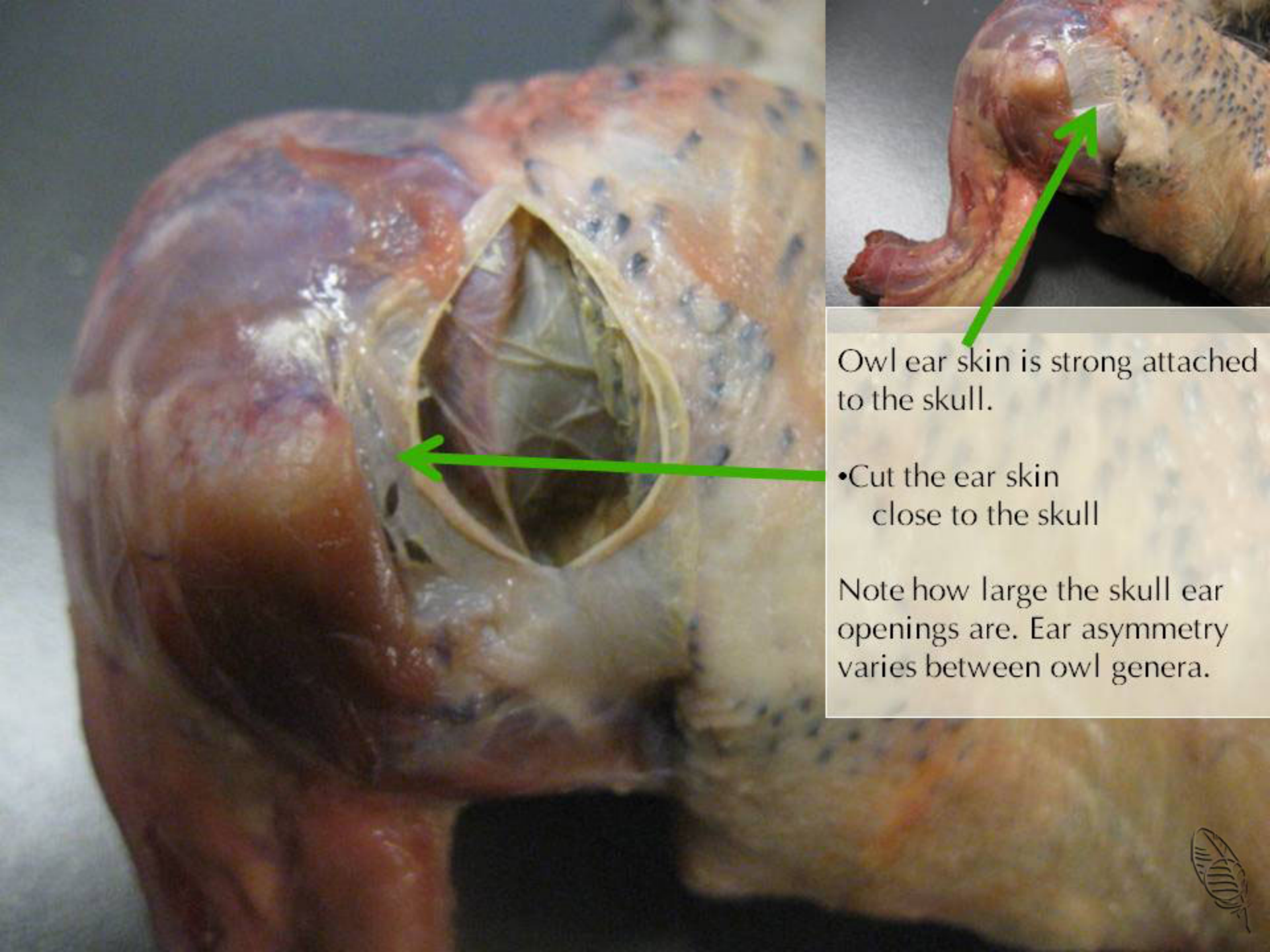
Photo taken at the Louisiana State University museum of natural science

Bird eyes have 12 flexible bones forming a sclerotic ring.

In owls, the sclerotic ring is huge. It forms an asymmetrical armoured casing which resemble car tire rims.
Especially in *Bubo* owls, reinserting the sclerotic rings adds depth to the face.

Great Horned Owl eye: Complete

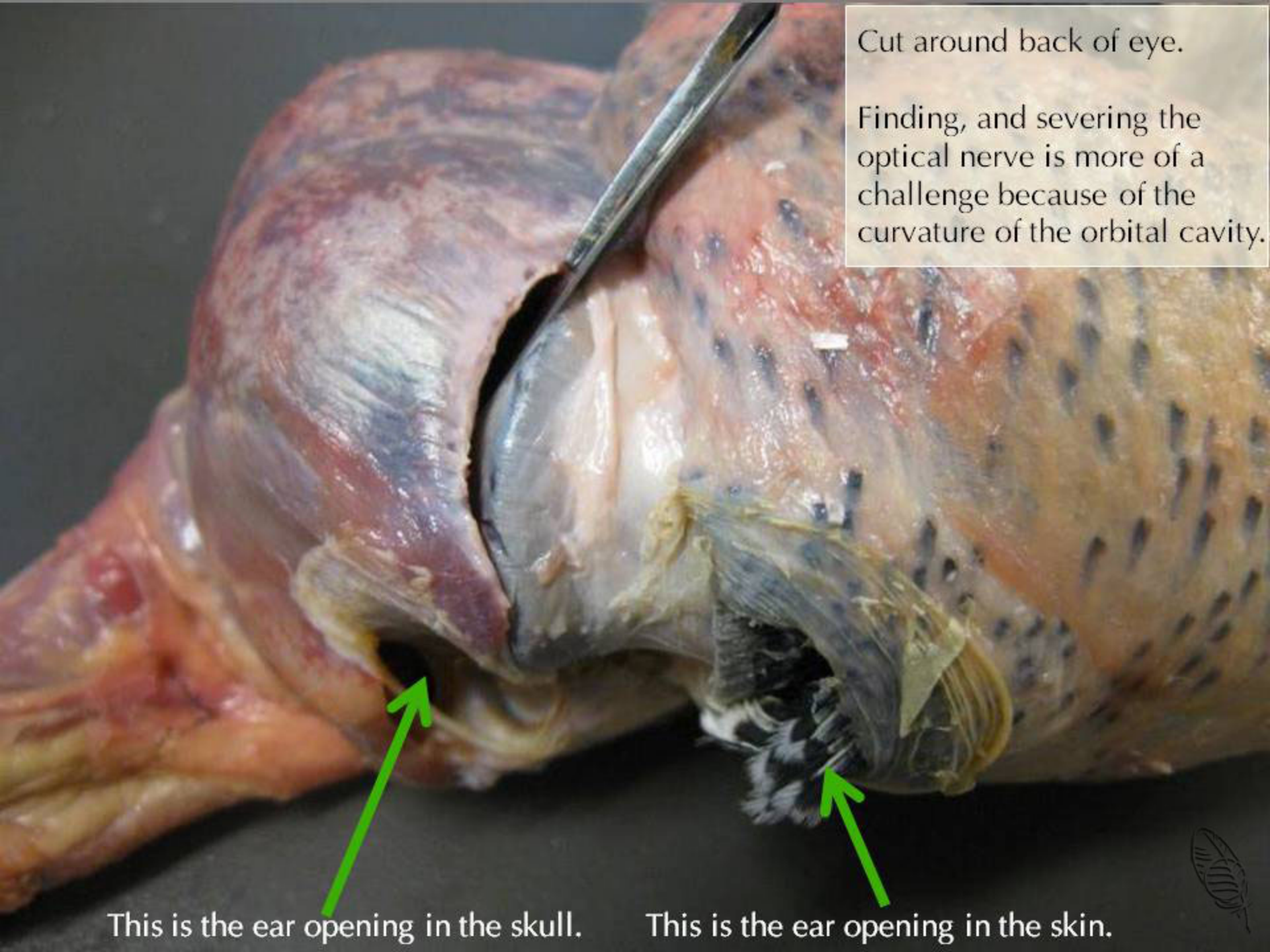
Partially cleaned



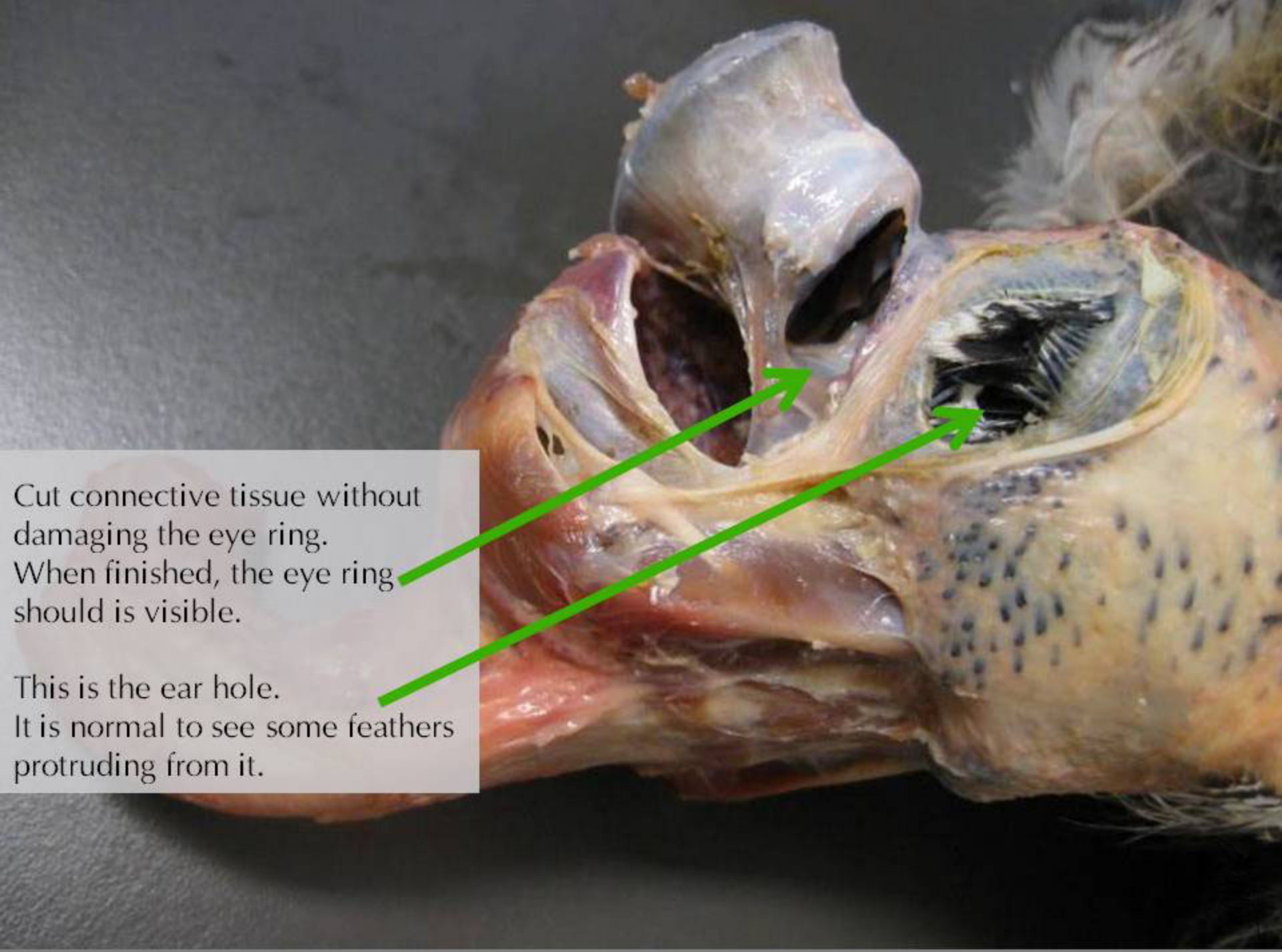
Owl ear skin is strong attached to the skull.

•Cut the ear skin close to the skull

Note how large the skull ear openings are. Ear asymmetry varies between owl genera.


Cut around back of eye.
Finding, and severing the optical nerve is more of a challenge because of the curvature of the orbital cavity.
This is the ear opening in the skull.
This is the ear opening in the skin.

Pull the eye out of the socket.
Keep steady tension on the eye.


Cut connective tissue without damaging the eye ring.
When finished, the eye ring should is visible.
This is the ear hole.
It is normal to see some feathers protruding from it.

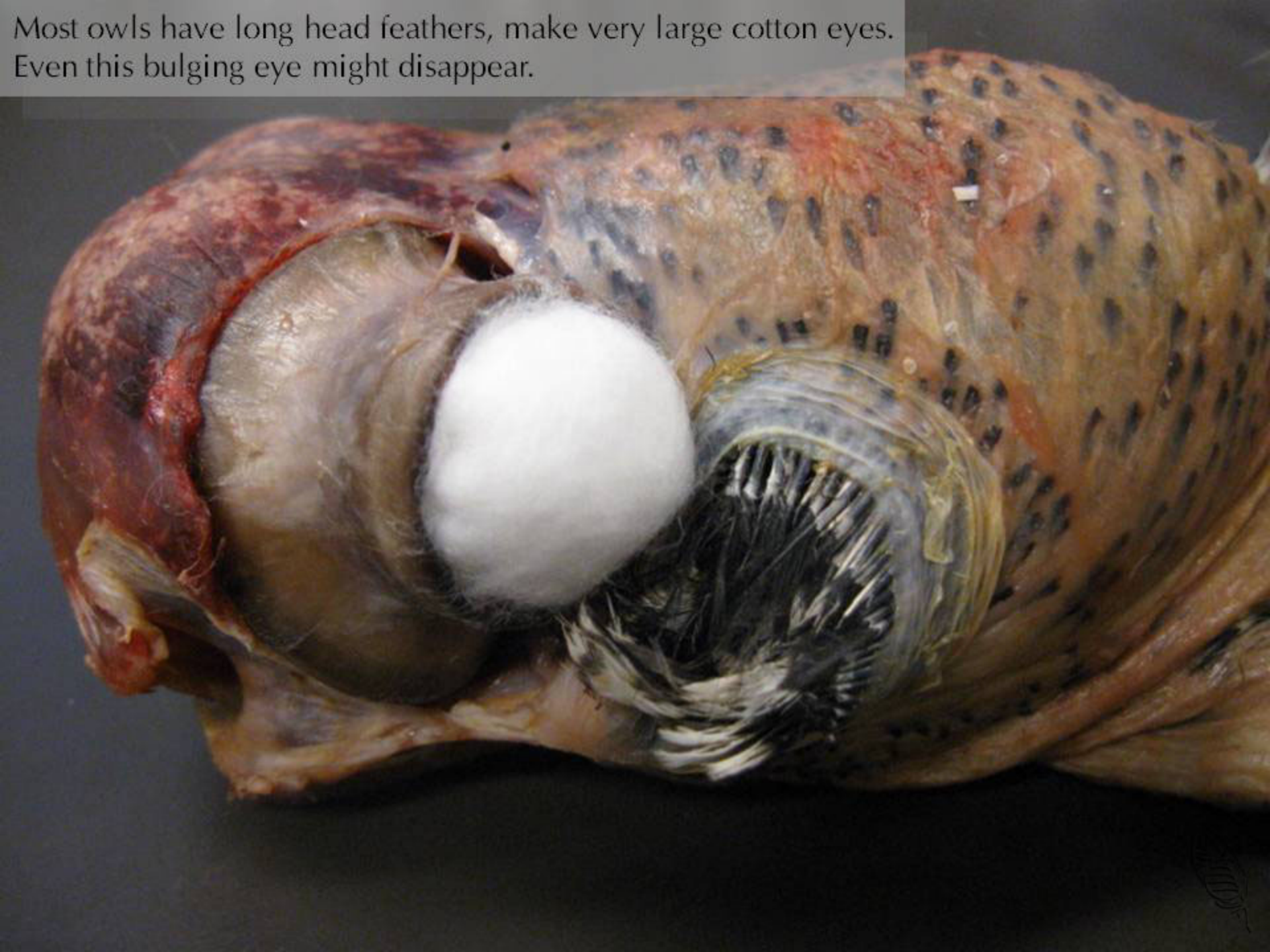
- Cut the back out of the eye
- Remove the iris, lens, vitreous humour*, muscle attachments, etc.
- Wash

* vitreous humour permanently stains clothing

Temporary blood supply for growing feathers shows up as dark spots on the inside of the skin. This owl is undergoing heavy body moult.

Keep track of the right and left eye. There is only one way that they fit snugly back into the eye sockets.

Experiment, and sort out which goes where and at what angle before creating the cotton wool eyes.


Most owls have long head feathers, make very large cotton eyes.
Even this bulging eye might disappear.

Side-cut Method

The advantage of this method is that the folded wing covers the incision.
Consider using a side-cut for:

- Waterfowl
- White birds
- Birds with intricate breast feathers

Locate the top of the leg. Cut along the green line to the shoulder.

If combining with a spread wing prep, make sure that the flank feathers on the wingless side are in good condition.

- Locate the top of the leg
- Cut from the top of the leg to the shoulder-wing joint
- Find and sever the femur or the knee on the same side as the incision
- Find and sever the humerus or disarticulate the shoulder on the same side
- Loosen the skin around the body
- Sever the tail
- Find and sever the other knee joint
- Lift the body out and turn the skin inside out
- Cut the last humerus or disarticulate the other shoulder
- Skin the neck and head

Most ducks have short sturdy tails.
The dowel is almost always buried inside the body

Ducks often have a thick layer of fat.
For information on removing fat, download:
Part 10 - Recording fat levels &
Cleaning fatty or stinky skins


Head dehydration is common.
If the beak will not open,
consider soaking the head in water
while skinning the body.

Try skinning large birds on the floor.

IN MEMORIUM

DR. REX KENNER

Former Curator of the Cowan Tetrapod Collection who encouraged me to begin this project.

Special thanks to Gail Kenner, Donna Dittmann, Michel Gosselin, Phil Unitt, Ellen Paul, and all the wildlife rehabilitators, bird banders, pathologist, museum curators and collection managers who has helped and encouraged me to complete this project. I take full responsibility for any remaining mistakes.

Without the technical assistance of Derek Tan, this project would never have gotten off the drawing board. Dr. Darren Irwin kindly suggested and made the arrangements for this series to be posted on the Beaty Biodiversity Museum website. A huge thank you to the staff and volunteers at the Cowan Tetrapod Collection for providing space and creating a terrific work environment.

Unless otherwise indicted, all pictures were taken by the author at the Cowan Tetrapod Collection, University of British Columbia Beaty Biodiversity Museum.

OTHER PRESENTATIONS IN THIS SERIES

Introduction: The look of the bird & A few things to look for
- Part 1 - Spread wings, a good way to start
- Part 2 - Skinning your first bird
- Part 3 - Other skinning methods
- Part 4 - Stuffing your first bird
- Part 5 - Other stuffing and pinning methods & Bird parts
- Part 6 - Sexing birds using gonads (includes 2 quizzes with answer sheets)
- Part 7 - Determining skull pneumatization & Skeleton preparation
- Part 8 - DNA tissue sampling & Gut analysis
- Part 9 - Washing skins for ectoparasites & Drying washed skins
- Part 10 - Recording fat levels & Cleaning fatty or stinky skins
- Part 11 - Flat skins, shmoos, and other types of study skins
- Part 12 - Preserving eggs and shell fragments (in prep)
- Part 13 - Determining cause of death
- Part 14 - Labelling: the most important step

To download another PowerPoint presentation in this series go to:
http://www.beatymuseum.ubc.ca/research/birds