



## Reptilian taxidermy in the Jamuna Bridge Regional Museum of Bangladesh

By

Mamata Rani Das<sup>1</sup>, Ashraful Kabir<sup>2</sup>, Jewel Rana<sup>3</sup>

<sup>1</sup>Department of Natural History, Bangladesh National Museum, Shahbag, Dhaka – 1000, Bangladesh

<sup>2</sup>Department of Biology, Cantonment Public College, Saidpur Cantonment – 5311, Nilphamari, Bangladesh

<sup>3</sup>Jamuna Bridge Regional Museum, Bhuiyanpur, Tangail, Bangladesh



### Article History

Received: 25/12/2024

Accepted: 28/12/2024

Published: 31/12/2024

Vol – 3 Issue –12

PP: - 190-193

### Abstract

Taxidermy goes something look similar to what it is supposed to make adjustments making it correct. With the casual taxidermy, new chemicals and body making process were different to complete turtle, cobra, monitor-lizard, and crocodile (Plates 1-4) in the Jamuna Bridge Regional Museum of Bangladesh. End result was a testament to skill and expertise in the field taxidermy art. Taxidermied reptiles were the most favourite piece of collection and obtained from natural death. Also bringing out its natural elegance with characteristics. The lifelike poses of mounting reptiles highlighted the artistry-mediated taxidermy which requires skill in preserving the reptiles while creating realistic expressions and stances.

**Keywords:** Taxidermy, Reptiles, Conservation, Jamuna Bridge Regional Museum, Bangladesh

## INTRODUCTION

Reptiles are a group of animals that include snakes, turtles, lizards, and alligators/crocodiles. Only survivors of a primitive group of reptiles, most of which died out 100 million years ago. Reptiles include four main groups: turtles and tortoises, lizards and snakes, crocodiles and alligators, and tuatara the only species left from the ancient group of reptiles during Mesozoic Era [5]. Taxidermy is an ancient practice with roots in ancient Egypt, involves preserving and mounting reptiles to replicate their appearance. The origin of modern taxidermy is thought to have started when the demand of clothes, decided to display the skins of animals they hunted for sport. Taxidermy is a controversial practice due to its ethical, environmental, and cultural implications. Critics argue that it is inherently cruel, as it involves the death of reptiles for display purposes, and raise concerns about the illegal use of endangered species. While proponents argue that regulated hunting can support conservation efforts, critics question its effectiveness and impact on ecosystem. Aesthetic and cultural perspectives [3] further complicate the debate, with some viewing taxidermy as a skilled art form and others as a distasteful practice. Additionally, taxidermy can serve educational and scientific purposes for all [6,7]. The controversy reflects broader debates about wildlife conservation, animal rights, and cultural values [6]. The objective of this paper is to represent four taxidermied

vulnerable reptilian species in order to motivate people to conserve them.

## MATERIALS AND METHODS

**Used chemicals and instruments:** The sharp scalpel is the necessary instrument for skinning turtle, snake, lizard, crocodile and there is an advantage in having several with various sized blades. The following tools and chemicals were used for the taxidermy of different type of reptiles.

Table 1. Materials for Reptiles taxidermy

Taxidermy steps	Tools, materials, and chemicals
Measurement	Slide calipers, flexible measuring tape, weight scale
Skinning and de-fleshing	Scalpel, scraper, tweezers, forceps, scissors (small pointed, large, curved), wire brush, normal knife, pliers (diagonal, lineman's, slip joint, flat-nose, needle-nose), small hammer, needle and syringe
Cleaning agents	Hydrogen peroxide (3% or 6%), dish soap, and water

<b>Tanning</b>	Normal salt (NaCl <sub>2</sub> ), copper sulphate (CuSO <sub>4</sub> ), borax powder, boric acid powder, alcohol, formaldehyde solution, alum, detergent, shampoo, litmus strips
<b>Tissue preservation</b>	Deep fridge, airtight plastic vial
<b>mannequin making</b>	Polyethylene (PE) foam, paper knife, sand papers, hand saw, cotton, threads, measuring tape, markers
<b>Mounting</b>	Galvanized iron (GI) wires, copper wires, cotton, mud (mixture of silt, soil, clay), glue-gun, silicon glue, threads, diagonal plier, pins, artificial realistic eyes, acrylic colors, clear white varnish, glue, paint brushes, airbrush, branches of plants, wood board, polyethylene foam, screws, nails
<b>Containers</b>	Plastic or glass containers for soaking and cleaning
<b>Safety gear</b>	Gloves, mask, and goggles

**Carcass collection and taking photographs:** For this reptilians taxidermy, a smart phone (Redmi 12C) were used. Photographs shows the right posture, color, size, and shape of the reptilian specimens.

**Turtle taxidermy**

**Preparation of skin:** Separate the top and bottom with a sharp scalpel that is strong enough to withstand considerable force. Need to apply a lot of pressure, but not too much that will crack the shell. Open the shell with sharp scalpel, and remove the skin and flesh attached to the breastplate and top layer. Wash out the shell with soap water and let it dry. Then pass GI wire through the legs, and then stuff them with cotton, PE foam, silicon glue, etc. If removed the skull, replace it and then stuff the head and neck with cotton. Sew back the skin into one complete piece. Join the front sternum and the back with strings or wires. Cut loose skin around the lower edges of the top plate and then drill four holes on each side. Skin through the legs and then remove the muscles. Do the same thing for the tail and remove the tailbone. Skin the neck until the level of the skull. Remove the brain, eyes, tongue, and face muscles. Wash and clean the skin and the remaining plate, then preserve the turtle in 100% alcohol solution. The skin kept into the solution for 1-3 hours. Alcohol increases the longevity of the skin and prevents decomposition. After tanning, a mixture of 100gm/l copper sulfate (CuSO<sub>4</sub>) solution should be lightly applied with a cotton swab to the inner side of upper carapace, lower plastron, front head, and tail. Copper sulfate helps to repel insects. The inner surface of the skin is treated with a dry chemical mixture (borax, boric acid, and insect repellent powder) in a ratio of 1:1:2. Formaldehyde should be injected into the soft parts of the turtle's legs, neck, and the junction of the carapace and plastron. The entire body of the turtle should be wiped with formaldehyde in a cotton ball.

**Mounting and display:** A piece of wood supports the head and legs. Insert wires through the legs and tail and then through the neck. Put back the plate that was removed and then sew back the edges. Insert colored eye glass into the eye sockets and then coat the whole turtle in shellac (Fig. 1).



**Fig. 1. Mounting of a marine water Green Turtle (*Chelonia mydas*).**

**Cobra taxidermy**

**Preparation of skin:** When attempting to taxidermy a venomous snake, care must be taken not to damage their head, and at first take out the fangs and poison glands using pincers and then proceed. Extreme care should be taken not to disfigure the snake while skinning and should wear thick, double-layered gloves. Put on a mask, and goggles to protect yourself from poison or chemical. Wash the snake's mouth repeatedly with soapy water. Clean the head and then remove the brain and skull. To taxidermy a venomous snake, cut along only one side. Make an opening through the side where the snake's scales terminate. This is usually down the middle of the belly, starting from the lower jaw's midpoint to the end of the tail. Do not cut through the middle of the scales as they are essential in identifying different species. Remove the skin completely then place it on the side. Once fully cleaned, the skull should be placed back into the body. Wash and clean the skin and the remaining plate, then preserve the skin in 100% alcohol containing tanning solution. The skin kept into the solution for 1 hour. After tanning, a mixture of 100gm/l copper sulfate (CuSO<sub>4</sub>) solution should be lightly applied with a cotton swab to the inner side of the skin. The inner surface of the skin is treated with a dry chemical mixture (borax, boric acid and insect repellent powder) in a ratio of 1:1:2.

**Mounting and display:** Take a wire the length of the snake and wrap it in a thick layer of tow and then wrap the layer of tow with a sliver. Place the wire inside the skin and sew up the scales. And sew the scales on both sides of the body together. As a result, the stitches will no longer be visible and will be covered by the scales. Formaldehyde should be injected into the soft parts of the body. Then place the snake in the desired position. Place the eyes in and wait for the snake to dry. Set of eyes and paint around the eyes. Painted the snake's hood. The snake's hood is very important in exhibitions (Fig. 2). Add a coat of varnish and go to the

display. For long-lasting durability, the snake should always be displayed support on its belly.



Fig. 2. Mounting of Spectacled cobra (*Naja naja naja*).

#### Monitor-lizard taxidermy

**Preparation of skin:** Place the lizard in a tray. Use scissors or a sharp scalpel to make a careful incision along the belly to access the internal organs. Be gentle to avoid damaging the bones. Remove the internal organs using forceps. Once the skin is removed, then also remove any remaining flesh and muscle tissue. Dry skin of lizard in the cage dehydrates the monitor. After skinning, use a small brush to gently scrub the bones with a few drops of dish soap. Rinse the skins thoroughly with clean water. Place the skin in a container of alcohol for 1-3 hours. Allow it to soak for a few hours to loosen any remaining tissue. After tanning, a mixture of 100gm/l copper sulfate ( $\text{CuSO}_4$ ) solution should be lightly applied with a cotton swab to the inner side of the skin. The inner surface of the skin is treated with a dry chemical mixture (borax, boric acid and insect repellent powder) in a ratio of 1:1:2. Take a wire the total length of the monitor-lizard and wrap it in a thick layer of tow or PE foam then wrap the layer of tow with a sliver. For the protection of monitor-lizard and all about the reptilians and amphibians of Bangladesh some research works and books were mentionable [1, 5].

**Mounting and display:** Place the wire inside the skin and sew up the skin. Formaldehyde should be injected into the soft parts of the body like neck, eyes, and legs. Then place it in the desired position. Place the eyes in and wait until drying. Add a coat of varnish color and go to the display or storage.



Fig. 3. Mounting of a Yellow monitor-lizard (*Varanus flavescens*).

#### Crocodile taxidermy

**Preparation of skin:** Skinning, stuffing, mounting, painting, and finishing a giant life-size crocodile is very challenging project. First, the head will have to be removed and cleaned. Because the head rots first. Start by cutting out the inside roof palate, all the way to tip of nose all the way around. Cut about 1 inch or less away from teeth. To cut from side to side in the back at the rear of jaws. About 1/2 from top of outer skull. This will get down to the brain cavity, and open up the eye area. It will remove out in one big hunk if cut correctly. The end at the nose is hardest making sure do not cut all the way through. Next cut away as much tissue in the cheek area. Turn the head on its side to cut out the inside of the bottom jaws. Start about half way down towards the front. It will look like a half of a football cut. Cut about 1/2 inch away from both edges. Just remove the hunk of tissue exposed. Next remove the eyes and surrounding tissue from the inside as they should be exposed now. Drill small holes about 2 inches apart in bottom jawbone where it is uncut. If cut everything out correctly, wash it, and do not take much of a soak in denatured alcohol for a week. As put plugs in eyes while drying or set eyes with epoxy clay as soon as it comes out of soak. Skin of the front and hind legs and tail must be removed. Soak them in denatured alcohol/water for two months, then allow a month drying time. There is also a three day pickle in 30 gallons of water, 20 lbs of salt, 2 cups of alum, and a little detergent. Be sure to place plugs in the eye sockets prior to keep them open when drying. Do not cut out the roof of the mouth. If cut the stuff loose from inside and just make a split on the inside of the lower jaw. Soak them in the old stand by formaldehyde and then once the flesh gets rubbery.

**Mounting and display:** The molds are prepared of PE foam, cotton, silicon glue, etc. The front feet and the back feet twisted toes and claws should be properly trimmed with skin. Rebuilding missing fingers in toes. Most taxidermy crocodiles have glass eyes, with eyes made from shells, marbles, and even epoxy clay eyes, etc. Loose eyelid will be glued and blended. Eyelid blended and pupils painted. Mouth painted, and ready for clear coating. Once it is dry, rub it with a preservative like  $\text{NaCl}_2$  is 200gm/l of water solution. The tricky thing about painting taxidermy is that skin is never one color. Painting always requires multiple coats. With the crocodile, started with a few shades of brown, but in the end added yellow, black, and even green to get a natural look (Fig. 4).



Fig. 4. Mounting of a real Fresh water crocodile (*Crocodylus palustris*).

## RESULTS AND DISCUSSION

Modern techniques combine preservatives, molds, and skilled craftsmanship to create lifelike reptiles displays. While often associated with hunting reptiles, taxidermy also serves scientific and educational purposes [3]. Ethical debates surround the practice, particularly regarding its impact on conservation and the use of endangered species. High-quality taxidermy is considered an art form, requiring significant skill and training, and antique mounts can be restored to maintain their historical value [3]. Sometimes it takes up to three months to taxidermy a crocodile. Here this piece features a carefully crafted reptile mount against a rustic tree trunk, creating a natural woodland scene. The base, constructed from rich, textured wood, has been lightly burned to bring out the grain, giving it a warm, handcrafted feel and added realistic greenery at the base to mimic the underbrush of the forest, along with a carefully placed reptile mount that adds a touch of authenticity. This setup captures the essence of the outdoors and highlights the artistry in preserving wildlife as well as birds [2, 7, 11]. Through this, they are showing dedication to blending craftsmanship with the beauty of nature. A variety of rare snakes are often collected in very mutilated state. A taxidermist is then mounted to show the snake in the best possible way. The highest quality materials and techniques to create one of a kind objects that preserve the beauty and intricacies of the natural world [3]. To focus human history in a museum evidences are important as a whole [4], and the value of a museum is still significant all over the world [9]. A true diorama in a museum always get credit to focus biodiversity [8]. This reptiles are responsibly sourced from sustainable farming projects and never taken from the wild.

## CONCLUSION

Reptiles taxidermy is merely a medium, and is very diverse in its methods, materials, practitioners, and so on. It is the art of preserving the skin, with other animals. It can be hard to keep reptiles taxidermy in perfect condition. If taxidermy is completed properly with cool temperature, low humidity, less exposure of light, cleaned of bugs [12], and not frequently touched by our oily hands then it can last over 50 years or more. In Bangladesh, we have dearth of books on taxidermy, only one significant book is mentionable in this aspect [10]. Displaying an reptile in a life-like pose and placing it in a diorama or showcase or glass jar with aspects of its natural environment helps the visitor to interpret information about it.

## ACKNOWLEDGMENTS

The authors would like to express their deep gratitude and thanks to the authority of Jamuna Bridge Regional Museum, Bhuiyanpur, Tangail for all kinds of support during this work.

## REFERENCES

1. M. F. Ahsan, "Varanus salvator (Laurenti, 1768). Pp. 104-105. In: *Encyclopedia of Flora and Fauna of Bangladesh*," Vol. 25. Amphibians and Reptiles. S. M. H. Kabir, M. Ahmad, A. T. A. Ahmad, A. K.

- A. Rahman. Z. U. Ahmad, Z. N. T. Begum, M. A. Hasan, M. Khondker (eds), Asiatic Society of Bangladesh, Dhaka, 2009, pp. 204.
2. S. Afroz, M. R. Das, A. Kabir, S. Mandal, "Collection and Taxidermy: A Pallas's Fish Eagle (*Haliaeetus leucoryphus*) (Pallas, 1771) (Accipitriformes: Accipitridae)," *Mathews J. Vet. Sci.*, 2024, 8(5):53.
3. F. Fairouz, M. A. Islam, N. Haither, M. R. Das, M. A. Uddin, "Preservation of Natural History and Biodiversity of Bangladesh: Effort of Bangladesh National Museum," *American Journal of Pure and Applied Biosciences.*, 2024, 6(4): 133-151.
4. Fowler, D. Don, "A Natural History of Man: Reflections on Anthropology, Museums, and Science," *Fieldiana. Anthropology.*, 2003, 36: 11-21.
5. IUCN Bangladesh, "Red List of Bangladesh Volume 4: Reptiles and Amphibians," IUCN, International Union for Conservation of Nature, Bangladesh Country Office, Dhaka, Bangladesh, 2015, pp. xvi+320.
6. A. Kabir and T. J. Hawkeswood, "A review on wildlife taxidermy: preservation for conservation," *Calodema.*, 2020, 845: 1-8.
7. A. Kabir, M. R. Das, T. J. Hawkeswood, "A study on the theoretical concepts of quality mammalian taxidermy: clues for conservation,". *Calodema.*, 2021, 854: 1-10.
8. M. Khondker, M. A. H. Bhuiyan, M. A. Bashar, "Towards an Appraisal of Biodiversity in Bangladesh,". *J. of Biodiversity Conservation and Bioresource Management.*, 2023, 9(1): 79-100.
9. A. V. Suarez and N. D. Tsutsui, "The value of museum collections for research and society," *Bio Science.*, 2004, 51(1): 66-74.
10. M. D. Hossain, "Modern Technologies in Taxidermy (in Bangla)," Publisher: Md. Delwar Hossain., 2016, pp. 133.
11. N. Mondol and S. I. Khan, "Taxidermy and preservation of dead birds in the National Museum (in Bangla)," Newsletter (July-September), 2007, pp. 22-26.
12. M. A. Hasan, M. D. Hossain, M. M. Hasan, M. S. Rahman, "A pest of stuffed museum specimen *Anthrenus scrophulariae* (L.) (Coleoptera: Dermestidae)," *University Journal of Zoology, Rajshahi University.*, 2007, 26: 99-102.