

## EXPLORING TRADITIONAL AND MODERN TECHNIQUES OF TAXIDERMISTRY IN FOWL PRESERVATION

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### ABSTRACT

Taxidermy is a general term encompassing various techniques of preserving vertebrates by stuffing and mounting them over an artificial armature. Animal remains are preserved for exhibition, research, or memorialization through the art and science of taxidermy, typically by stuffing or mounting them to create lifelike reproductions. The current study concentrated on the taxidermy of three bird species, describing the complex procedure for mounting and conservation studies. Carefully choosing a specimen was the first step in the process, which was followed by painstaking dissection to preserve the bird's skin and bones. Then, with meticulous attention to every feather and anatomical feature, the preserved skin was carefully fitted to a molded body. Final details like painting the beaks and feet and inserting glass eyes gave the mounted fowl a more lifelike appearance. The completed specimen was shown in a controlled setting. This study emphasizes the value of taxidermy as a teaching tool and in conserving the beauty of nature for future generations by showcasing the integration of scientific methods and artistic talent.

**Keywords:** Mounting, Preservation, Bird, Fowl, Skin, Taxidermy.

### INTRODUCTION

Taxidermy is a cutting-edge method for restoring and conserving dead specimens for long-term display and storage (Bock & Quaisser, 2019). Taxidermy is a highly enduring profession for the taxidermist since an individual must have the patience to deal with the methods to bring out a great result. In addition to being an artist, a taxidermist must have an excellent awareness of the morphology and anatomy of the varied species (Kabir *et al.*, 2021). New bird enthusiasts, ornithologists, researchers, students, ecologists, field inspectors, foresters, and members of the public all benefit immensely from it by learning about the morphology and anatomy of closely related species and their characteristic identification qualities. From the Greek terms "Taxis," which means order and arrangement, and "derma," which means skin, the word taxidermy is derived, meaning "arrangement of skin" (Hawkins & Price, 2018; Straughan, 2015). The art of taxidermy involves using the prepared skins and other supporting elements of animals, usually birds and mammals, to create convincing reproductions of them. The

taxidermy process involves a series of steps that are highly sensitive and require a high level of expertise. It starts with the preservation of animals, followed by mounting the hide to provide the animal's natural shape. Taxidermy can be accomplished by tanning, painting, and sculpture.

Numerous methods have been identified by previous research investigations to efficiently do taxidermy. Among the methods are dermoplasty, alcohol preservation, and pelt preservation. Taxidermy is a way to honor departed pets. A taxidermist needs to be an artist in addition to possessing a thorough knowledge of the morphology and anatomy of the species they specialize in. One of the most challenging aspects of taxidermy is getting the animal to have an organic and realistic pose. An in-depth knowledge of the animal's anatomy and habits is necessary for this. The ability to accurately and elegantly reproduce the animal's natural motions and postures is a prerequisite for professional taxidermists. To succeed in the field, one needs a great deal of dedication, honesty, hard work, skill, and knowledge. With the advent of new mounting techniques and significant advancements in skin

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preparation, the emphasis on realism in displays grew, and animals were positioned in dynamic, lifelike poses that reflected their behavior in the wild. These realistic scenes frequently featured entire habitats, augmented with painted scenery, artificial or natural plants, and other environmental details (Shoffner & Brittingham, 2013). Because taxidermy allows us to study species that might otherwise be endangered or extinct in their native environments, it may play a crucial role in our understanding of biodiversity in the future. It will enable us to appreciate and explore the beauty of the natural world, whether it is on exhibit in museums or held in private collections (Péquignot, 2006). The study provides insight into the complex techniques of taxidermy through the preservation of fowl. This method combines science and the fine arts and has educational applications beyond aesthetics. Moreover, the present innovative method involves less time, cheaper chemicals, and containers.

The meticulous set of steps required to conserve a specimen of a fowl requires a deep comprehension of both taxidermic preservation and the anatomy of the birds. To create a realistic and scientifically accurate representation, every step of the process from obtaining the specimen to mounting and presenting must be carried out with care and precision (Manton, 1882). Conservation and an appreciation of nature are crucial if we wish to ensure that future generations can continue to enjoy the joys of birds in the wild, especially fowls. The study of bird taxidermy is an example of a skill that blends artistic and scientific elements. Taxidermists meticulously preserve and mount specimens of fowl to honor these amazing birds and showcase their beauty.

## MATERIALS AND METHODS

### Tools and Equipment for the Taxidermy Procedure

Borax/Cornmeal/non-iodized salt meal, Thick wire, Thin wire, Wire cutters, Knife, Needle, Strong thread, Fresh dead bird, Scissors, Tweezers, Cotton balls, Artificial eyes for birds, Colors (Figure 2).

### Chemicals needed for the taxidermy procedure

5% Formal Saline, Sodium chloride – Thymol (5:1) solution (by parts), Formalin injection, Borax powder.

### Specimen collection

A bantam chicken (*Gallus gallus domesticus*), which had been bought to keep it dry, and a dead rooster were found in one of the farms on the morning of September 25, 2024; there was no blood or sign of an attack (see Figure 1). Additionally, a dead Yellow Lutino Lovebird (*Agapornis roseicollis*) was found along the Kalahandi district's National Highway in Odisha. Furthermore, a deceased Chinese gamebird known as the golden pheasant (*Chrysolophus pictus*) was recovered from Chindaguda, Khariar Tehsil, Nuapada District, Odisha.

### Taxidermy preparation of specimen

To preserve the fowl specimens for research and educational purposes, the taxidermy process was conducted using standard taxidermy techniques to preserve anatomical accuracy and natural posture. The process included several important steps, such as skinning, preservation, stuffing, and final mounting, all of which were completed with care and ethical considerations.



**Figure 1.** Dead Bantam Chicken.



immediately, preserving the hen's and cock's skin, fur, and feathers. After that, it was properly cleaned with water to get rid of any blood stains. To absorb moisture, drying animal hides, and deter insect infestation, the split skin can be sprinkled with a mixture of borax, salt, or cornstarch inside the body after the inside surface of the cavity has been cleaned. Keep it somewhere out of children's and dogs' reach for at least 72 hours. Upon drying, fluff up the feathers to make them appear attractive. There is a significant chance of rot if the salt used here is not iodized.

### Stuffing

Cotton balls are used for stuffing; they are stretched to fit snugly into the bird's neck, and once the neck is filled, it is sewn up (see Figure 3). Another cotton ball is added for the torso, and we can stuff them in different ways depending on the size and shape of the bird, but the neck is always kept slim (Maynard, 2022).



**Figure 3.** Cotton Balls Stuffing Procedure.

### Stitching up

It is the most tedious part. Stitching the bird's body within the mass of needle thread and exceedingly careful about feathers getting in the way, and sought to maintain the edge of the skin. Careful sewing is necessary to prevent the skin from not setting properly after closing (Kabir *et al.*, 2021).

### Posturing and Positioning of bird

The galvanized wire was used to support and position the bird, allowing for maximum realism and flexibility, as we wanted it to be, and once it was in that position, the wire cutter was taken, and the wire was cut as close as possible without causing any damage. The feet were then used to attach the wire to a mount, and darker feathers were painted under the eyes, the beak, and the feet to give them a natural appearance (see Figure 4).

### Finishing

After mounting, the eyes were also positioned correctly into the eye sockets, providing a lifelike gaze that captured the essence of the bird. The beak and feet were meticulously painted to match the bird's natural coloring. A duplicate tongue was made from wax and placed inside the beak (Navodita & Gupta, 2024.). These final touches transformed the biological specimen into a work of art (Bezan & McHugh, 2019).

### Yellow Lutino Lovebird Taxidermy

A dead Yellow Lutino Lovebird was spotted at the side of the road in the Kalahandi district of Odisha, on the national highway. By severing the ventral surfaces and extracting the internal organs, this was disemboweled. The interior of the body was treated with a solution of five parts sodium chloride (NaCl) and one part thymol, which was left overnight. Specimens are submerged in 5% produced saline for a month after that. For the specimen's necessary posture, cotton can be gently inserted within the skin using wiring (see Figure 5). The procedure is repeated here using British bantam chicken and rooster.

### Golden Pheasant Taxidermy

To preserve the Golden Pheasant's (*Chrysolophus pictus*) vivid plumage and natural appearance, the bird must be carefully skinned, preserved, and mounted in taxidermy. The specimen is carefully peeled after euthanasia to prevent damage to the feathers. Insect infestation and breakdown are avoided by treating the skin with borax or other non-toxic preservatives. Following cleaning and drying, the skin is placed on a mannequin or specially constructed armature that mimics the bird's natural posture (see Figure 6). For authenticity and structural integrity, wire supports, and artificial eyeballs are inserted. The mounted specimen is left to dry completely before final grooming and detailing. Naphthalene balls were used to protect the specimen from insect damage post-taxidermy. This approach ensures long-term preservation for exhibition and teaching.

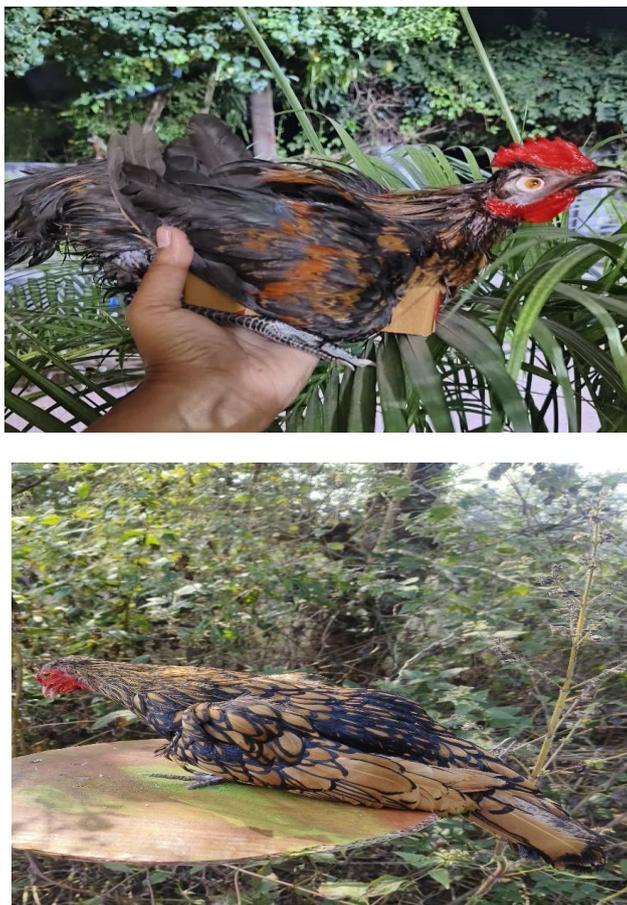


Figure 4. Wires are used to position British Bantam chicken to produce a finished mount.



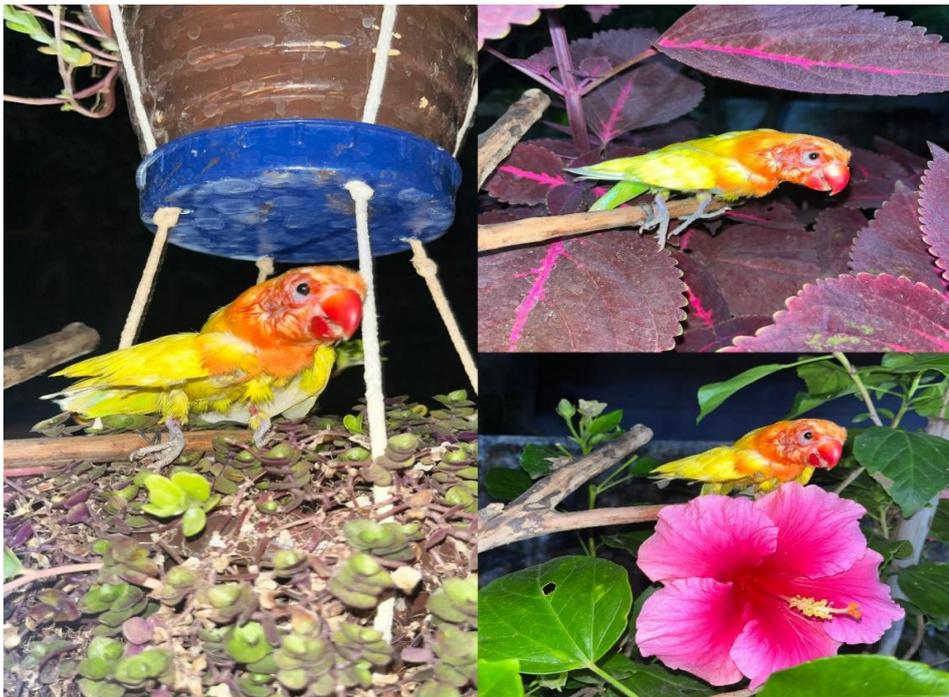


Figure 5. Overall process for the taxidermy of a dead Yellow Lutino Love Bird.



Figure 6. Golden Pheasant Mount.

## RESULTS AND DISCUSSION

Three bird specimens were subjected to taxidermy processes; the British Bantam Chicken, Yellow Lutino Lovebird, and Golden Pheasant produced excellent mounts that maintained their original posture and anatomical details. Cheap supplies and common taxidermy equipment, such as cotton stuffing, galvanized wire, and false or artificial eyes, were used to prepare each specimen. Observers noted that limb anatomy, head position, and feather alignment were remarkably well-preserved. The successful execution of taxidermy on three avian specimens—the Bantam Chicken, Yellow Lutino Lovebird, and Golden Pheasant—demonstrates that traditional preservation techniques, when executed with precision and care, can yield anatomically accurate and aesthetically pleasing results. Compared to earlier approaches outlined by Hormann (1931) and Metcalf (1981), the present study adopted a simplified, cost-effective method that maintained the lifelike features of the birds without compromising structural integrity. (Browne, 1896) was the first taxidermist to describe different methods for skinning and mounting birds. He also described the regional anatomy in relation to the pigeon specimen's mounting. Metcalf studied the anatomy, fixation, and skin preservation of birds and mammals in addition to documenting other facts about these creatures (Metcalf, 1981). Hormann described several bird collection techniques, such as skinning, preservation paste application, specimen equipment maintenance, and live bird slaughter, although he focused on fat removal. He used wires for the body, legs, and tail to create fictitious bodies for mounting (Hormann, 1931). The incorporation of affordable tools and easily accessible chemicals such as borax, 5% formal saline, and a NaCl–thymol solution ensured both preservation and safety throughout the process. In contrast to earlier research or demonstrations,

the quality attained meets accepted standards for taxidermy. To make dead animals look realistic, a lot of artistic creativity and experience are required; simply injecting formalin into the proper animal and letting it dry is insufficient. Maintaining updated records of an animal's sex, body length, tail length, mounting position, and—most importantly—microbial infestation is a critical component of taxidermy. Following all measures, the animal is skinned, which entails removing the skin entirely from the body and preserving the tissues in a 5:1 NaCl–thymol solution, which serves as an antifungal preservative (Kim *et al.*, 2020). However, sodium arsenite paste and alcohol can also be utilized for the same (Burnside, 2023). When skinning, the opposite side of the animal should be covered to keep the skin moist; at this point, borax powder and water can be used to keep the skin moist. Semi-prepared skins should be kept at 15°C in a regular refrigerator and 4°C in the deep section of a refrigerator; two hours is enough to allow for working on them again. After taking the skin out of the refrigerator, sawdust or borax powder should be applied, followed by two hours of waiting, and then blowing or air exposure will be sufficient to soften the skin. A popular absorbent for birds and small animals is borax. Additionally, it serves as a drying agent for animal skeletons and skins (see Table 2). It extracts moisture, which is essential for the specimen's preservation. In the taxidermy of various animals and birds, it can also be utilized as a saturated solution. After skinning, the animal was mounted to preserve its shape and create a lifelike display. The finishing involved the employment of artificially colored eyes, glasses, and other accessories. When the body is alive, the taxidermal method helps to preserve its natural expression, color, shape, and attitude. But the entire procedure requires a great deal of chemicals, time, and experience.

**Table 1.** Skinning and mounting tools and their applications in bird taxidermy.

S. No.	Equipment	Use
1.	Scissors	Cutting
2.	Needles	Chemical insertion within the specimen
3.	Galvanized wire	Posturing
4.	Knife and Scalpel	Cutting skin
5.	Tweezers	Preparing skin and arranging feathers
6.	Artificial eyes	Mimic the original eye of the specimen
7.	Colors	Coloring of the model (finishing)
8.	Wood file	Internal form of animal mount (shaping material)
9.	Threads	Stitching
10.	Cotton balls	Placing inside specimens (Stuffing)
11.	Artificial plants	Natural habitat
12.	Refrigerator	Preservation of specimens
13.	Polybags	Storing
14.	Forceps	Holding
15.	Naphthalene balls	Insect deterrent

Source: (7. Hossain, M. D. (2016). *Modern Technologies in...* - Google Scholar, 2016.)

Additionally, a set of simple yet scientifically proven compounds was used to accomplish preservation. Because of this, the mounted specimens were able to maintain their vivid color and structural integrity throughout time by halting disintegration, fungal development, and tissue degradation.

**Table 2.** Summary of chemicals and their usage in taxidermy.

S. No.	Chemical	Use
1.	Borax	Used in powder form as an insecticide and has antifungal properties as well. It helps with drying the animal hides. Moreover, it is used to neutralize skin and assist in the tanning process
2.	5% formal saline	Preservative and fixative (skin preservation). It prevents decomposition and preserves tissues and the natural color of specimens
3.	NaCl – thymol (5:1)	Antifungal preservation of the specimen
4.	Formalin	Hardens tissue, prevents decay, and aids in long-term storage

**Source:** (7. Hossain, M. D. (2016). *Modern Technologies in...* - Google Scholar, 2016.; Kabir & Hawkeswood, 2020).

Overall, the method proved fast, affordable, and replicable with minimal damage to tissue or feathers. The British bantam chicken and golden pheasant stood out for their exceptionally vivid plumage and realistic poses, validating the technique's suitability for museum displays and educational use. Every taxidermist has a favored technique, and they frequently alter their methods throughout the course of their careers (Péquignot, 2006). Out of all the preservation methods, taxidermy is the finest since it allows the entire animal to be studied thoroughly over an extended period, because it is kept and will not be wasted after death (Koch, 2006). With this study, we have attempted to introduce a new taxidermy approach. The model is helpful for teaching and gives a realistic picture of an animal. All the materials were inexpensive and easily available. The strategy is crucial to conservation efforts because it allows for the preservation of species that could otherwise become extinct due to climate change. One of the most challenging parts of storage is keeping pests under control. In order to prevent dust accumulation and pest infestation, which over time may deteriorate the specimen's quality, it is imperative that specimens be covered with glass or acrylic containers. Other challenges encountered during the procedure included delicate operations such as brain removal, leg wiring, and stitching the incision while maintaining the skin's integrity and feather alignment. However, with careful management and anatomical understanding, issues were successfully controlled.

In addition to its technical achievements, the taxidermy method had important conservation and educational benefits. Students and scholars can learn about ornithological anatomy and morphology from preserved specimens. Taxidermy aids in the documentation and knowledge of species in conservation contexts, particularly when it comes to rare or endangered birds that are no longer seen in the wild. The capacity to thoroughly examine conserved specimens improves our comprehension of the diversification and evolution of birds. Ethically, the study adhered to responsible taxidermy practices by using only birds that were already deceased and collected. This permits the use of specimens for

scientific and instructional purposes while guaranteeing that the technique complies with wildlife protection guidelines. This method is especially appropriate for areas with limited resources because of its low cost, successful aesthetic outcome, and minimal chemical use. In summary, the present study reinforces that with the correct tools, chemicals, and techniques, traditional bird taxidermy remains a valuable method for both preservation and education. Its importance keeps increasing in disciplines like conservation biology, zoology, and museum curation.

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#### CONFLICT OF INTERESTS

The authors declare no conflict of interest

#### ETHICS APPROVAL

Not applicable

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#### AI TOOL DECLARATION

The authors declares that no AI and related tools are used to write the scientific content of this manuscript.

#### DATA AVAILABILITY

Data will be available on request

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