



Fig. 1. Picture of a young Tinamou.

Source: [A Bird in Hand... - ZooBorns](#)

Introduction:

The uropygial gland is located at the base of the tail and is encapsulated in a dense connective tissue capsule. This capsule contains reticular and irregular elastic fibers (Shafiiian & Mobini. 2014). The Uropygial gland is a lipidic secreting gland that functions in waterproofing, feather maintenance, defense against microorganisms, and pheromone production (Galván & Møller. 2013). The tuft of the uropygial gland has a function in spreading the lipidic secretions to the surrounding feathers. The size of the gland has been studied to vary in ways of seasonal variations, habitat, and body weight of the birds (Montalti & Salibián 2000). In most species of birds, this gland is a distinct bilobed structure; however, in *Tinamus major* it is a more discrete (Johnston. 1988). This discrete aspect is accompanied by either the absent or small papilla tuft.

Methods and Materials:

In this study, the histological features of the uropygial gland in prehatching *Tinamus major* was examined. The uropygial gland from the specimens were obtained. These sample were then processed into paraffin and sectioned at $7\mu\text{m}$. They were then stained with Mason's Trichrome stain.

The Histological Features of the Uropygial gland in *Tinamus major*

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Results:

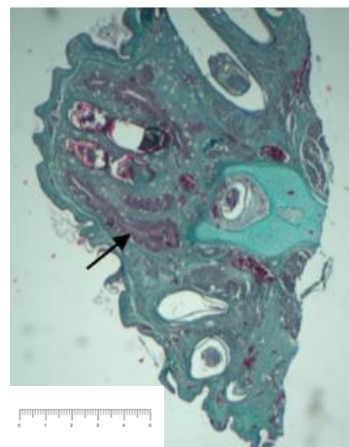


Fig 3. Slide TS4-15

A slide photo of the uropygial gland displaying the indistinct bilobed structure.

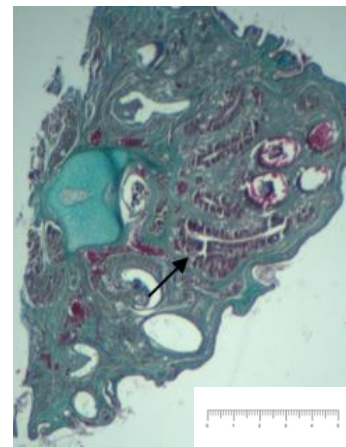


Fig. 4. Slide TS4-17

A slide photo of the progression in size of the uropygial gland using 25x magnification.

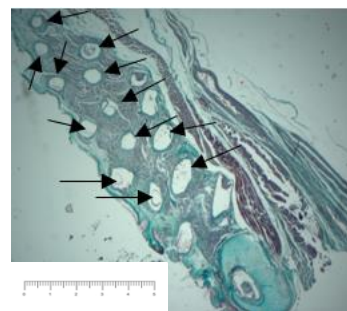


Fig. 5. TS5-20

A photo of the multiple branching ducts of the gland.

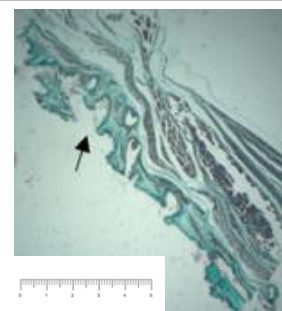


Fig. 6. TS5-27

The progression of multiple branching ducts coalescing to form a single opening to the skin.

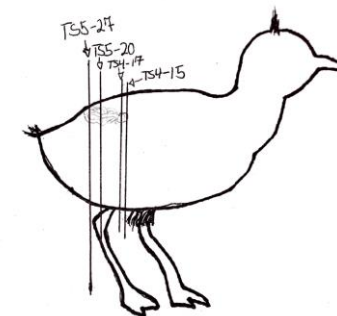


Fig. 2. Diagram of where the cuts were made for the resulting slides TS4-15 and 17 and TS5-20 and 27.

Discussion:

The purpose of this research study was to determine the histological feature of the uropygial gland in prehatching *Tinamus major*. It was determined that the gland itself is a bilobed structure with multiple branching ducts that coalesce to a singular pore to the skin and feathers. The uropygial glands bilobed structure can be seen in figure 3 and 4 (arrow). Figure 4 depicts the progression of gland size while sectioning towards the base of the tail. Going further in this direction, it was found that the gland then branches into multiple ducts (figure 5) with an average size of $126\ \mu\text{m}$ (1.26 mm). At the base of the tail, it was discovered that these multiple branching ducts open through a singular opening displayed in figure 6.

References:

- Galván, I. and Møller, A.P. 2013. Odor Transmission and Olfaction: The Tuft of the Uropygial Gland and Olfactory Ability in Birds. *The Cooper Ornithological Society* 115(4): 693-699.
- Johnston DW. 1988. A Morphological Atlas of the Avian Uropygial Gland. *Bulletin of the British Museum* 54(5): 199-259.
- Montalti, D. and Salibián, A. 2000. Uropygial Gland Size and Avian Habitat. *The Neotropical Ornithological Society* 11: 297-306.
- Shafiiian, A.H. and Mobini, B. 2014. Histological and Histochemical Study on the Uropygial Gland of the Goose. *Bulgarian Journal of Veterinary Medicine* 17(1): 1-8.
- A bird in hand...ZooBorns. (2009, November 16). Retrieve April 3, 2022, from <https://www.zooborns.com/zooborns/2009/11/elegant-crested-tinamou-and-pygmy-falcon-chicks-national-zoo.html>