UNIVERSITY OF SINDH JOURNAL OF ANIMAL SCIENCES
Vol. 4, Issue 3, Pp: (4-9), September, 2020
Email: editor .usjas@usindh.edu.pk
Website: http://usindh.edu.pk/index.php/USJAS
ISSN (P): 2521-8328
ISSN (E): 2523-6067
Published by University of Sindh, Jamshoro
(USJAS)

KEY MORPHOLOGICAL VARIATIONS OF BEAKS FOUND IN WADER BIRDS INHABITING IN DISTRICT LARKANA

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ARTICLE INFORMATION

Article History:
Received: 5th August 2020
Accepted: 30th October 2020
Published online: 31st December 2020

Author's contribution
All authors contributed equally.

Key words:
Wader birds, crop field, stream bank, creatures, transport.

ABSTRACT

The point of interest about this study work is to perceive the morphological characteristics and their bionomics to learn about the wading fowl's body plan, inhabiting in larkana. During the study period the several families of wading fowls i.e *Ardeidae, Recurvirostidae, charadridae, Rallidae* and *Scolopacidae.* The species of the above-mentioned families are *Ardea intermedia, Himentopus himentopus, Ardeola grayii, Gallinula chloropus, Bubulcus ibis, Nycticorax nycticorax,Vanellus indicus, Vanellus leucurus, Ardea cineria* and *Tringa solitaria*. The above-mentioned species were captured from a number of biotopes of one's community corresponding to woodland, stream bank and crop field.

1. INTRODUCTION

Wading birds are one of the most important creatures in the biological and ecological system in order to transport a variety of things through the environment. Waders represent a well- known species having varying shapes, masses, colors in addition to different patterns of anatomical and biological differences found in them. These waders occur through the environment on all regions apart from Antarctica. These waders set up in both fresh as well as salt waters, but most species tend to favor fresh water as their habitats. They flourish in marshes, shorelines, ponds and flooded areas as their popular habitats, but most of the species of waders indulge themselves in damp habitations some species particularly winches and ibises remain within zones through generally changing aquatic ranks and may even be found in nearby dry fields. (By Melissa Mayntz Updated 10/04/17)

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Wading birds possess long legs, they are more beautiful they have long agile necks which help them to forage for food. Size also varies within wading birds from which the grey heron was observed as a largest wading bird, and the smallest wader was collected from wetlands was white-tailed lapwing. Their food pattern consumption preference differs from seasons, regions, species and habitats. The number of waders is adaptable feeders catching foodstuffs by using beaks to seek the holes, spar fresh, crustaceans, amphibians or to picking vertebrates also more comestible things in aquatic habitats. (By Melissa Mayntz Updated 10/04/17). Large waders tend to flourish in paddy fields more than other micro-habitants select. Black-winged stilts are the lovers of shallow waters and median egrets as the shallow waters are mostly found in paddy fields. All the species above of shallow water mainly use single habitat. Most of the (WB) fed upright or resting above superficial aquatic regions not as much of than 12 (inches). Waders robe alone or on groups of varying sizes (By Melissa Mayntz Updated 10/04/17).

Nearly all of wading birds devour small-scale invertebrates glean in regard to mud practically defined soil. The various lengths in reference to bills facilitate the different species that one may feed from the same surroundings, especially in the drift, after immediate competition in the direction of food. A number of waders deliver delicate nerve endings ultimately coming from their bills which approve them becoming determine prey specifications invisible in clay or rather soothing soil.(Thomas, Gavin H.; Wills, Matthew A. & Székely, Tamás (2004a).

Bill length and shapes have important implications on foraging behavior. Time spend upon feeding also varies with respect to size of the bird , i.e. large birds spent less time foraging than smaller birds by eating comparatively than larger birds in their search for prey. Waders stake many bodily features that helped waders as a different kind of species on the following specific characteristics including: that many of the waders have different types of long shaped bills with specific curves and angular position mostly with pointed tips according to the bird's appetite and preference of food they want to consume in their surroundings. Long agile necks are another commonality among the wading birds, which they utilize very smartly in connection with their postures in order to search food so much so that the size of neck varies depending upon their hunting in a specific way effectively by not spearing their prey such as egrets and herons. (J. Burger, S. A. Carlucci, C. W. Jeitner, and L. Niles, 2007.)

Bills are also meaningful tools for preening. Efficient preening is necessary for the straightening and oiling of feathers farther for the discharge of dirt from the body expanse. Preening is also meaningful for defense opposed to echo freeloaders. In valuable preening lean an accelerated raise in echo freeloader load, that reduces continuity and mating realization. Recently, researched the utile meaning of bill-related preening behavior. Long bills perhaps less active at preening than birds with precise bills, that stretch in egrets is more astonishing through their head. Posterior feathers upright and gestured. They considered as a greeting ceremony of the Ardea. (Kushlan, J. A. 2011).

2. MATERIALS AND METHODS

Data collection and methodology:

Experimental study of wading birds was conducted from Larkana and its adjoining areas. The collected species of wader birds such *as Ardea intermedia Ardeola garyii, Himentopus himentopus, Vanellus indicus,Vanellus leucurus, Ardea cineria, Nycticorex nycticorex, Gallinula chloropus,Bubulcus ibis* and *Tringa soliteria*, the total number specimens of 110 specimens, including 72 females and 38 males were collected from various different localities of district larkana such as Dokri,Rato dero, Nuadero, Badah and Rato dero These specimens were collected mostly form ponds, crop fields and from trees.

These species were captured from different areas with the help of net, a trapping device and a gun was used to access wader from trees. Every field was investigated around three to four times in week. The experimental work started from January to mid October 2016 -2017.

These species were after collected from field were carried for further measurement purpose, these species were measured under following parameters such as Body measurement lengthwise, Beak measurement. Wings measurement, Feet measurement, body weight and tail measurement. While the necessary association has enormous changeability of its specific plumes which enables them to adjust them in various biomes. The morphological study of all the species of wading birds were (measured) with skull (parameters), prior to measuring the(skull) was washed and scraped along with pincers.

3. RESULTS AND DISCUSSION

This chapter represents all measurements of collected specimens of various genera of wading birds in graphical and tabulation form as well as in statistically data are included. Waders represent a well- known species having varying shapes, masses, colors in addition to different patterns of anatomical and biological differences found in them. Experimental study of wading birds was conducted from Larkana and its adjoining areas. Various wading birds allow the several morphological measures. Their bill length and shapes analysis their foraging behaviors and time spending at feeding areas. The black-winged stilt or common stilt commonly called as Teeto (in Sindh).). They have long, black thin bill whose statistical value is (66.675±0.122474). The next wader species is pond heron (*Ardeola grayii*) is also called paddy bird. It is also called as kot bugh (in sindh). Pond heron has yellow bill with a hostile tip. Intermediate egret It is often referred as bagla (in Sindh), in Great Egret Large beak is blooming amidst orange tip, which ranges the (64.79091±0.4009460). The Cattle egret is commonly called as Gae bagla in Sindh. It has a similarly shortened plenteous neck, bulky bills, and an arched pose. (Fig: 3.3.17.2.). The Solitary sandpiper can be a trifling shore wader The beak of this plover is grayish having a threatening tip, and the *Vanellus leucurus*: This wader has a somewhat long, ominous bill, feet are dull grassy.

Measuring beak of Pond heron in zoology lab

Measurement of beak of Intermediate egret

Measuring beak of common moorhen

Beak measurement of Cattle egret.

Black sharp pointed beak of night heron

Stout black bill of white-tailed lapwing

Dark black probing bill of sand piper

Spear shaped bill

Table.1. Beak measurements of various species of wading birds.

Name of species	Maximum values
Himentopus himentopus	66 mm
Bubulcus ibis	63 mm
Ardeola grayii	63.1 mm
Galinulla choloropus	23 mm
Ardea cineria	66.1 mm

Table.2. Maximum values of beak of various species of waders.

Name of species	Maximum values
Ardea intermedia	63
Vanellus indicus	37
Nycticorax nycticorax	64
Vanellus leucurus	25.2
Tringa solitaria	25.4

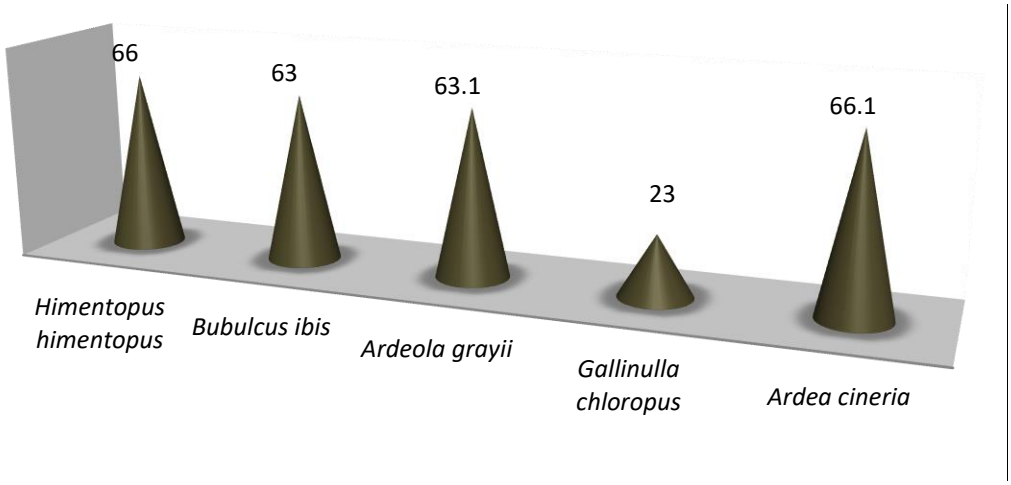

Figure.1. Beak measurements of wading species in graphic form

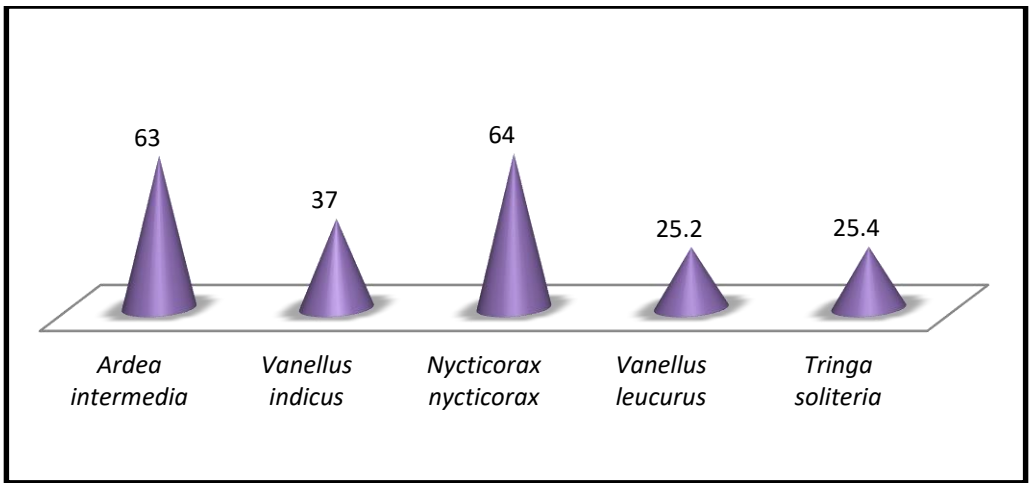

Figure.2. Measurement of beaks of various species of waders

Comparison of beak of male intermediate egret and Cattle egret

Group-3	Body parameters	Intermediate egret	Cattle egret
1-	Beak length	64.47778±o.259915	64.75±0.128174

Comparison of beak of female intermediate egret and Cattle egret

Group-3	Body parameters	Intermediate egret	Cattle egret
1-	Beak length	64.79091±0.400946	64.78889±0.157762

Comparison between beak length of male Red-wattled lapwing and Black-winged stilt

Group-3	Body parameters	Red-wattled lapwing	Black-winged stilt
1-	Beak length	37.775±0.132288	66.675± 0.122474

Comparison between Beak length of female of Red-wattled lapwing and Black-winged stilt

Group-3	Body parameters	Red-wattled lapwing	Black-winged stilt
1-	Beak length	38.8±0.129099	66.64 ± 0.26007

Comparison between Beak length of male Pond –heron and Grey-heron

Group-3	Body parameters	Pond -heron	Grey-heron
1-	Beak length	62.425±0.193649	65.85±0.122474

Comparison between Beak length of female Pond –heron and Grey-heron

Group-3	Body parameters	Pond-heron	Grey-heron
1-	Beak length	62.66667±0.218218	67.4± 0.326599

Comparison between beak length of male Night- heron and Common moorhen

Group-3	Body parameters	Night- heron	Common moorhen
1-	Beak length	64.9±0.070711	21.63333±0.227303

Comparison of beak between female male Night- heron and Common moorhen

Group-3	Body parameters	Night-heron	Common moorhen
1-	Beak length	65.8±0.129099	22.9±0.070711

Comparison of beak of male White-tailed lapwing and Solitary sand piper

Group-3	Body parameters	White-tailed lapwing	Solitary sand piper
1-	Beak length	24.925±0.48734	25.13333±0.216025

Comparison of beak of female White-tailed lapwing and Solitary sand piper

Group-3	Body parameters	White-tailed lapwing	Solitary sand piper
1-	Beak length	24.66667±0.227303	24.76667±0.108012

4. ACKNOWLEDGEMENTS

I would like to thanks to the chairperson of Zoology Department Dr. Naheed Blaoch. She had provided the feasible lab facilities. My special thanks to Afsha khan, Saed Ahmed, Sohail khan, Raheela khan, Mehjabeen khan, Hina Jabeen. I am deeply and strongly obliged to all the faculty members for their research consultancy and non-teaching staff for their cooperation as well as my friends and research fellows for their encouraged and cooperative behavior throughout this work.

5. CONFLICT OF INTEREST

All authors have declared that there is no conflict of interests regarding the publication of this article.

REFRENCES

[1] Akoto O. and Adiyiah, J., (2007),"Chemical analysis of drinking water from some communities in the Brong Ahafo region", International Journal of Environmental Science and Technology, 4(2), pp 211-214.

[2] Akpoveta O.V., Okoh, B.E., Osakwe, S.A., (2011), "Quality assessment of borehole water used in the vicinities of Benin, Edo State and Agbor, Delta State of Nigeria", Current Research in Chemistry, 3, pp 62-69.

[3] Wastewater", 20th Edition, American Public Health Association, Washington, DC. Boominathan, R. and Khan, S.M., (1994), "Effect of distillery effluents on pH, dissolved oxygen and phosphate content in Uyyakundan channel water", Envionmental Ecology, 12 (4), pp 850-853.

[4] Gurunathan, A. Shanmugam, C.R, (2006): Customary Rights and their Relevance in Modern Tank Management: Select Cases in Tamil Nadu, Paper prepared for the workshop entitled 'Water, Law and the Commons' organized in Delhi from 8 to 10 December 2006

[5] Jafari, A., Mirhossaini, H., Kamareii, B., Dehestani, S., (2008), "Physicochemical analysis of drinking water in kohdasht city lorestan, Iran", Asian Journal of Applied Science, 1, pp 87-92.

[6] Gill, F & D Donsker (Eds). 2018. IOC World Bird List (v8.2). doi : 10.14344/IOC.ML.8.2.

[7] Kushlan, J. A. 2011. The terminology of courtship, nesting, feeding and maintenance in herons. [online] www.HeronConservation.org)

[8] Dutson, G.; Watling, D. (2007). "Cattle egrets (Bubulcus ibis) and other vagrant birds in Fiji" (PDF). Notornis. 54 (4): 54–55.

[9] S. Nebel, D. L. Jackson, and R. W. Elner, "Functional association of bill morphology and foraging behaviour in calidrid sandpipers," Animal Biology, vol. 55, no. 3, pp. 235–243, 2005. View at Publisher · View at Google Scholar.