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Red Wattled Lapwing (Vanellus indicus) of external morphology of posterior sided toe (Rudimentary toe) of a typical bird and how does the posterior toe affect the bird's gait

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Red –Wattled Lapwing: -
Introduction: -
Scientific classification: -

Domain :-	Eukaryota
Kingdom :-	Animalia
Phylum :-	Chordata
Class :-	Aves
Order :-	Charadriiformes
Family :-	Charadriidae
Genus :-	Vanellus
Species :-	V.indicus


RED–WATTLED LAPWING

Note: -Binomial name (Vanellus indicus) was given by Pieter Boddaert in 1783.

- The Red-wattled lapwing (Vanellus indicus) is an Asian Lapwing or large plover, a wader in the family charadriidae.
- Like other birds (Lapwing's) they are ground birds that are incapable of perching.
- Their characteristic loud alarm calls are indicators of human or animal movements and the sounds have been variously Rendered as did he do it or pity to do it leading the the colloquial name of did he do it bird.
- Usually seen in pairs or small groups not far from water.
- They nest in a ground scrape laying three to four camouflaged eggs.
- Adults near the nest fly around, diving at potential predatiors while calling noisily.
- The crptically patterned chicks hatch and immediately follow their parents to feed, hiding by lying low on the ground or in the grass when threatened.

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Taxonomy: -

- The Red-wattled lapwing was first described in a book by the French polymath Georges-lois leclerc, Comtede Buffon in his Histoire naturelle des oiseaus in 1781.
- In 1783 the dutch naturalist Pieter Boddaert used the binomial name Tringa indica in his catalogue of the planches Enluminees.
- Across their wide range there are slight differences in the plumage and there are four Recognized subspecies: -
  (i) V.i. aigneri (Laubmann,1913) – Southeast Tukey to Pakistan.
  (ii) V.i. indicus (Boddaert,1783) – Central Pakisthan to Nepal, Northeast India and Bangladesh
  (iii) V.i. Lankae (Koelz, 1939) –Sri Lanka.
  (iv) V.i. atronuchalis (Jerdon,1864) - Northeast India to south china, southeast Asia, Malay Peninsula and North Sumatra.

Description: -

- Red-wattled Lapwings are large waders, about 35 cm (14 Inch) long.
- The wings and back are light brown with a purple to green sheen, but the head, a bib on the front and back of the neck are black.
- Prominently white patch runs between these two colours, from belly and tail,flanking the neck to the sides of crown.
- Short tail is tipped black.
- A Red fleshy wattle in front of each eye, black – tipped Red bill, and long legs are yellow. In flight, prominent white wing bars formed by the white on the secondary coverts.
- Males and females are similar in plumage but males have a 5% longer wing and tend to have a longer carpal spur.
  - The length of the birds is: - 320-350 mm
    - The wing of of the birds is: - 208-247 mm
    - with the nominate Averaging 223mm, Sri Lanka – 217 mm.
    - The bill is 31-36 mm and tarsus of 70-83 mm.
    - Tail length is: - 104-128 mm.
- It usually keeps in pairs or trios in well – watered open country, ploughed fields grazing land, and margins and dry bed of tanks and puddles.
- It runs about in short spurts and dips forward obliquely (with unflexed legs) to pick up food in typical plover manner.
- They are said to feed at night being especially active around the full moon.
- Is uncannily and ceaselessly, vigilant, day or night, and is the first to detect intrusions and raise an alarm, and was therefore considered a nuisance by hunters. Flight rather slow, with deliberate flaps, but capable of remarkable agility when defending nest or being hunted by a hawk.
- Its striking appearance is supplemented by its noisy nature, with a loud and scolding did-he-do-it call, uttered both in the day and night.

Note: - The local names are mainly onomatopoeic in orgin and include titahari (Hindi), titawi (Marathi),tittibha(kannada),tateehar(Sindhi),titodi(Gujarati),hatatut(Kashmiri),balighora(Assamese),yennappachitawa(telugu),aal-kaati(Tamil,meaning''humanindicator'')

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Distribution: -

- it breeds from west Asia (Iraq,Swiran, Persian Gulf) eastwards across SouthAsia (Baluchistan, Sri Lanka, Afghasnisthan, Pakistan,the entire Indian subcontinent up to Kanyakumari and up to 1800 meter in Kashmir/Nepal), with another sub-species further east in Southeast Asia.
- May migrate altitudinally in spring and autumn (e.g. in N.Baluchistan or NW Pakistan), and spreads out widely in the monsoons on creation of requisite habitats, but by and large the populations are resident.

Behaviour And Ecology: -

V.i. aigneri eggs from MHNT

Chicks and eggs on a scrape nest.The young hatch in synchrony and the cryptically plumaged chick typically lies still when alarmed. [13]

- The breeding season is mainly March to August.
- The courtship involves the male puffing its feathers and pointing its beak upward.
- The male then shuffles around the female.Several males may display to females and they may be close together.
- The eggs are laid in ground scrape or depression sometimes fringed with pebbles, goat are hare droppings.
- About 3-4 black blotched buff eggs shaped a bit like a pegtop (pyriform), 42x30mm on average.
- Nests are difficult to find since the eggs are cryptically coloured and usually mathes the ground pattern.
- Both the male and female incubate the eggs and divert predators using distraction displays or flash their wings to deter any herbivores that threaten the nest.
- Males appear to relieve females incubating at the nest particularly towards the hot part of noon.
- The eggs hatch in 28 to 30 days.

Note: -

1. The reproductive success is about 40%.
2. Eggs mortality is high (~43%) due to predation mongooses, crows and kits.
3. Chick has a lower mortality (8.3%) and their survival improves after the first week.
    - Like other lapwings, they soak their belly feathers to provide water to their chicks as well as to cool the eggs during hot weather.
    - They sometimes rest on the ground with the tarsi laid flat on the ground and at other times may rest on one leg.

Note: - Mortality caused by respiratory infection by *Ornithobacterium rhinotracheale*, or ORT, has been recorded in captive birds in Pakistan.

Diet: -

- The diet of the lapwing includes a range of insects, snails and other invertebrates mostly picked from the ground.
- They may also feed on some Grains.
- They feed mainly during the day but they may also feed at night.
- They may sometimes make use of the legs to disturb insect prey from soft soil.

In Culture: -

- In parts of India, A local belief is that the bird sleeps on its back with the legs upwards and an associated Hindi metaphor Titahri se asman thama jayega("can the lapwing

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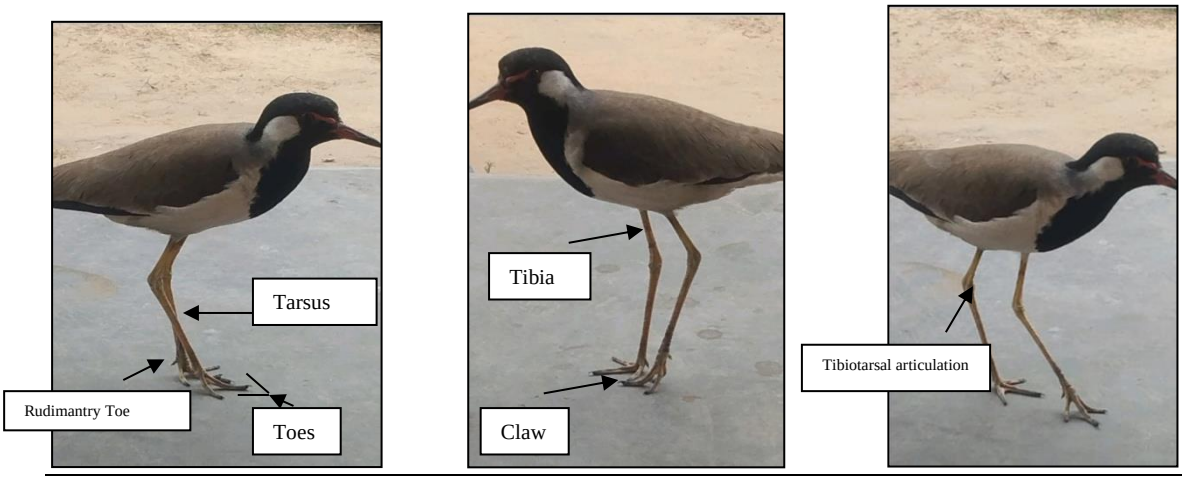
support the heavens''?) is used to refer to persons undertaking tasks beyond their ability are strength.

- In parts of Rajasthan, it is believed that the laying of eggs by the lapwing on hight ground was an indication of good rains to come.
- The Bhils of Malwa believed that the laying of eggs by Red –wattled lapwings in the dry beds of streams as forewarnings of delayed rains or droughts.
- Eggs laid on the banks on the other hand were taken as indications of normal rain.

Research / Observation Over External Anatomy (Topography) Or Morphology Of A Typical Bird (Red-Wattled Lapwing) :-



- Mainly birds have four toes but, in Red –wattled lapwing there are three full size toes in Anterior side (cranially) while one is Rudimentary toe (Above view -1) towards Posterior side (Caudally) and which is look like spur (Like in poultry) But, Acutually this is not a spur. it is a toe which is Rudimentry size in these birds.

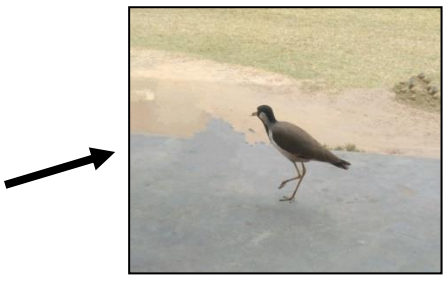
Observation That – How Does The Rudimentary Toe Affect The Bird's Gait And Why This Bird Not Sitting On The Tree :-

Why The Red-wattled lapwing is unable to sitting on the tree?

- The reason behind that the posterior sided (caudally) toe is Rudimentary while Remaning three toe is in anterior sided (cranially) so, with these three toes the bird is unable to grip the branches of a tree properly and the Posterior side toe is short and not reach to grip the branches of a tree.

How the Bird GAIT affect……...?

- There is no back supported by a toe when the bird's walking (Rudimentary toe at posterior side) due to this the bird (Red-wattled lapwing) during walking balancing himself or herself and **the gait show like** putting one foot forward and the other foot back side.



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Gross Morhpological Studies on Sternum and Shoulder Girdle of Re –Wattled Lapwing (Vanellus Indicus): -

- The present study was conducted on the sternum and shoulder girdle of Red –wattled lapwing.
- Bones were collected by Maceraton technique.
- The sternum was boat shaped in outline.
- Dorsal surface presented a longitudinal median groove and smooth due to Pneumatic foramen. However, a triangular depression and two foramina/ fenestrae were observed at the cranial and caudal ends of dorsal surface, respectively.
- A well - developed sternal crest projected from ventral surface.
- Caudolateral process enclosed a lateral notch on either side of lateral border.
- Cranial border of sternum displayed a transverse groove enclosed by a dorsal and a ventral ridge.
- The dorsal ridge consisted of a faint notch and ventral ridge showed sternal spine.
- The shoulder girdle comprised of three bones namely scapula, coracoid and furcula.
- Together these bones formed foramen triosseum by their proximal ends.
- Scapula was in the shape of a sword directed backwards and parallel to the vertebral column. It displayed a proximal extremity and a shaft. proximal extremity unveiled lateral facet, coracoid process and a medial process.

The shaft of scapula was smooth on both lateral and medial process.

- Proximal extremity of coracoid was hook like and presented two processes viz Procoracod and acrocoracoid.
- A round articular cavity was present at the base of procoracoid process.
- An articular facet was present just below the acrocoracoid process.
- A foraman was present at the juncition of shaft and base of procoracoid an obtuse angle with respect to each other.
- The furcula was in the form of U-shaped structure.

Note: - Lack of very distinct pneumatisation in both the sterum and shouler girdle of Red-wattled lapwing suggests its flying ability.

Key point of sternum and shoulder girdle given Below the points: -

Note: - Thoracic processes were found to be absent in Red – wattled lapwing.

- In contrast to current study,where only single lateral notch was observed, two lateral notches in the sternum of pigeon, and none in owl have been documented.
- Pneumatic foramen was absent in the medial process of Red-wattled lapwing.

Note: - Presence of articular cavity at the proximal aspect of coracoid is characteristic finding owing to its absence in a number of birds like pigeon, crow,owl, green-winged macaw and peahen.

- The coracoid of Red-wattled lapwing lacked. the role of coracoids ist to hold the wings away from sternum during flight.
- Hypocledium, a projected bony part at the fusion of clavicles in certain birds, was characteristically absent in Red-wattled lapwing due to this further supports weak flying ability of this bird.

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