

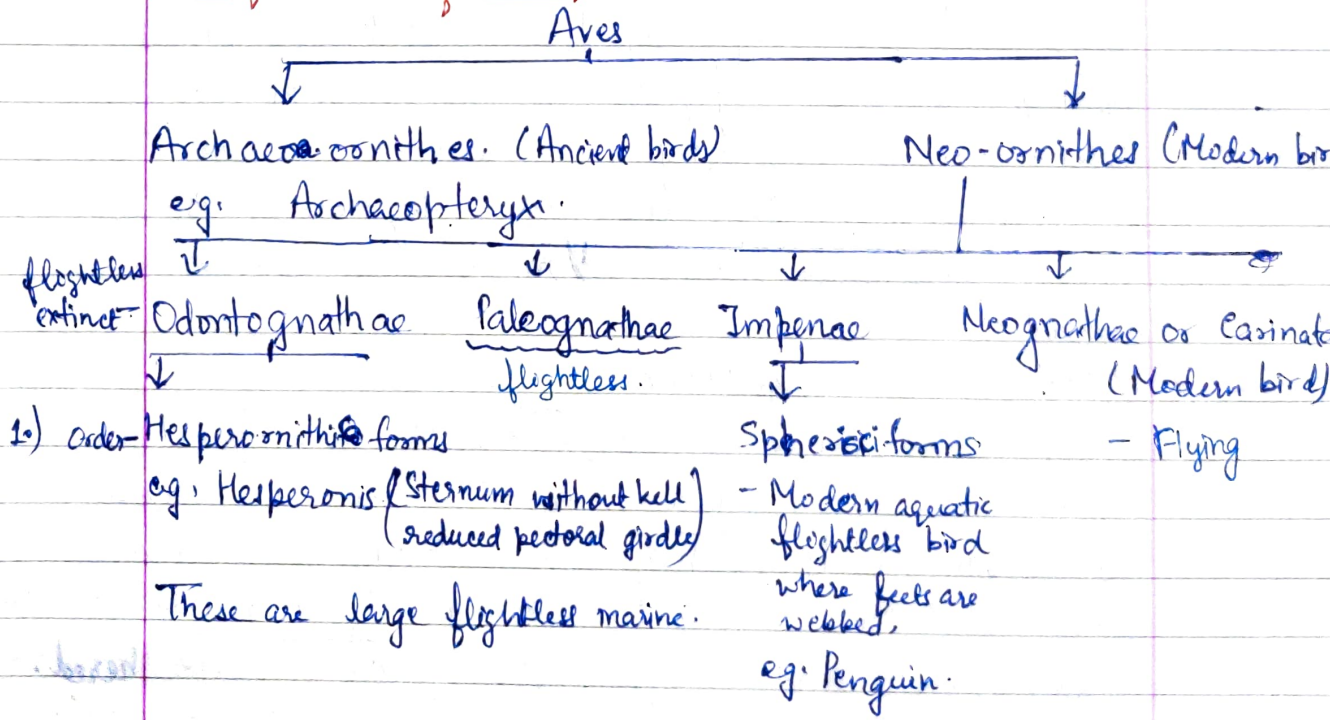
## # FLIGHTLESS BIRDS #

### Adaptations for flight -

- Bone is pneumatic that makes almost 50% wt. loss.
- Presence of air sacs it make body very lighter.
- They are having flight muscles (6 types) these reduces to tiredness during flight and they can fly for longer duration.
- Feathers (various types)
- Size and wt. of birds is reduced for flight. If size is big and weight is more then it will make bird less flying.

In flightless birds pneumatic bone are not found or if found then in less amount. Here air sac is poorly developed. Size and weight is more. Adapted for cursorial movement.

### Classification of birds



- Paleognathae have paleognathous type of palatal system.
- Bird can respire and feed simultaneously only due to palatal system. It is first found in main birds and mammals only. Here separate nasal and oral aperture.

Paleognathae or Ratitae

old<sup>+</sup> jaw      Raft<sup>+</sup> like keel

It is divided into 7 diff. orders.

- |                     |   |   |
|---------------------|---|---|
| 1. Struthioniforms  | ] Major group of flightless diving birds. |   |
| 2. Rheiforms        |   |   |
| 3. Casuariforms     |   |   |
| 4. Apterygiforms    |   |   |
| 5. Dinornithiforms  |   | * Flightless birds are flightless due to    |
| 6. Aepyornithiforms |   | laziness. Their ancestors were flying. They |
| 7. Tinamiforms      |   | are localized only in restricted areas.     |

- There are big sized flightless birds having floppy figure without keel. Wings are rudimentary. Feathers are devoid of interlocking system. Skull is paleognathous. **Vomer** is larger and broad.

Order- 1. Struthioniforme - eg. Ostrich.

- There are four species <sup>known</sup> which are found in Africa and Arabia. ~~which~~ <sup>These</sup> are the largest flightless birds. They are polygamous in nature and height may go 2.5 m to 4 m. Body wt = 150 kg.
- Head, neck and legs are <sup>sparsely</sup> feathered.
- Speed is 80 km/h, they are well equipped for cursorial life.
- Egg - 1.5 kg (second)



Ostrich - 1st largest flightless bird  
 Emu - II<sup>nd</sup> " "  
 Casuary - III<sup>rd</sup> " "

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- They have only 2 toes (3<sup>rd</sup> & 4<sup>th</sup>)
- Weight = 150kg



0-2. Rheiforms -

eg. Rhea americana (American Ostrich)

- Smaller.
- Lives in a group.
- Height is smaller than 1.5 m.
- 3 claws in toes.
- Head and neck are feathered.
- Male is polygamous (several female with single male).
- Male prepare nest where female lays egg.
- 50 eggs in a time and incubation period = 50 days.
- There are 3 species of Rheas.

0-3. Casuariiforms - emu, Casuarines (20 sp.)

- <sup>1<sup>st</sup> mod</sup> largest flightless bird in densely wooded part of Australia.
- 20 spp of casuarines.
- Very shy in nature.
- They are fond of bathing.
- There are 3 claws in toes.
- Males are very attacking (offensive).

eg. Emu, All casuarina (20 spp.)  
 ↳ 2<sup>nd</sup> largest flightless bird

0-4. Apterigiforms -

eg. Apteryx (Kiwi) National bird of New Zealand.

- Smallest living flightless bird.
- Size = Domestic hen
- 3 <sup>toes</sup> in toes in front.
- Wings are rudimentary.



Comparative

New Kolpal

Kowl, woodpecker  
 Pigeon  
 Duck, keleka  
 Cows:

Drom eog nathous  
 — Schizognathous  
 Des magnathous  
 Aegagnathous

Neognathous

Paleognathous = Ostrich, Kiwi & Tinamous

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