

RATITAE (Flightless Bird)

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A ratite is any of a diverse group of flightless and mostly large and long-legged birds of the infraclass Palaeognathae. Kiwi, however, are relatively much smaller and shorter-legged, as well as being the only nocturnal ratites.

Flightless birds

- Also called Running birds- lack ability to fly
- Have smaller wings
- Keel absent
- Easiest to take care in captivity
- More feathers than flying bird

Orders of Flightless Birds

- ▣ The living flightless birds belong 4 orders of the superorder Palaeognathae :

Order 1. Struthioniformes :- Ostriches of Southwest Asia and Africa.

Order 2. Rheiformes :- Rhea of South America.

Order 3. Casuariiformes :- Cassowaries and Emus of Australia and adjacent islands

Order 4. Apterygiformes :- Kiwis of New Zealand.

Classification

- ▣ There are two taxonomic approaches to ratite classification: the one applied here combines the groups as families in the order Struthioniformes, while the other supposes that the lineages evolved mostly independently and thus elevates the families to order rank (e.g. Rheiformes, Casuariformes etc.).

Loss of flight

- ▣ Loss of flight allows birds to eliminate the energetic cost of maintaining flight-enabling pectoral muscle mass.
- ▣ The basal metabolic rate of volant species is much higher than that of flightless terrestrial birds.
- ▣ But energetic efficiency can only help explain the loss of flight when the benefits of flying are not critical to survival.

- ▣ Research on flightless rails indicates the flightless condition evolved in the absence of predators.
- ▣ An increase in leg size compensates for a reduction in wing length in insular birds that have not lost flight by providing a longer lever to increase force generated during the thrust that initiates takeoff.

Description

- ▣ Ratites in general have many physical characteristics in common, which are often not shared by the family Tinamidae, or tinamous.
- ▣ The breast muscles are underdeveloped.
- ▣ They do not have keeled sterna.
- ▣ Their wishbones (furculae) are almost absent.
- ▣ They have a simplified wing skeletons and musculature.
- ▣ Their legs are stronger and do not have air chambers, except the femurs.

- ▣ Their tail and flight feathers have retrogressed or have become decorative plumes.
- ▣ They have no feather vanes, which means they do not need to oil their feathers, hence they have no preen glands.
- ▣ They have no separation of pterylae (feathered areas) and apteria (non-feathered areas).

MAJOR DIFFERENCES

- ▣ Ostriches have only two toes, with one being much larger than the other.
- ▣ Cassowaries have developed long inner toenails, used defensively.
- ▣ Ostriches and rheas have prominent wings; although they don't use them to fly, they do use them in courtship and predator distraction.

FEEDING AND DIET

- ▣ Ratite chicks tend to be more omnivorous or insectivorous.
- ▣ Similarities in adults end with feeding, as they all vary in diet and length of digestive tract, which is indicative of diet.
- ▣ They are also mainly herbivores, concentrating on broad-leafed plants.

- ▣ They will eat insects if the opportunity arises.
- ▣ Ostriches, with the longest tracts at 14 m (46 ft), are primarily herbivorous. Rheas' tracts are next longest at between 8–9 m (26–30 ft), and they also have caeca
- ▣ Cassowaries have nearly the shortest tracts at 4 m (13 ft).
- ▣ kiwi have the shortest tracts and eat earthworms, insects, and other similar creatures.
- ▣ Moas and elephant birds were the largest native herbivores in their faunas.

REPRODUCTION

- ▣ Ratites are different from the flying birds in that they needed to adapt or evolve certain features to protect their young.
- ▣ First and foremost is the thickness of the shells of their eggs.
- ▣ Their young are hatched more developed than most and they can run or walk soon thereafter.
- ▣ Most ratites have communal nests, where they share the incubating duties with others.

- ▣ Ostriches are the only ratites where the female incubates; they share the duties, with the males incubating at night.
- ▣ Cassowaries and emu are polyandrous, with males incubating eggs and rearing chicks with no obvious contribution from females.
- ▣ Ostriches and rheas are polygynous with each male courting several females.
- ▣ Male rheas are responsible for building nests and incubating while ostrich males incubate only at night.

- ▣ Kiwis stand out as the exception with extended monogamous reproductive strategies where either the male alone or both sexes incubate a single egg.

RATITES AND HUMANS

- ▣ Ratites and humans have had a long relationship starting with the use of the egg for water containers, jewelry, or other art medium.
- ▣ Male ostrich feathers were popular for hats during the 18th century, which led to hunting and sharp declines in populations.
- ▣ Ostrich farming grew out of this need, and humans harvested feathers, hides, eggs, and meat from the ostrich.

- ▣ Emu farming also became popular for similar reasons and for their emu oil.
- ▣ Rhea feathers are popular for dusters, and eggs and meat are used for chicken and pet feed in South America.
- ▣ Ratite hides are popular for leather products like shoes.

Examples of Flightless birds.

Ostrich :-

- It is the largest living flightless birds attaining a height of more than 2.5 meter and weight 150 kg.
- It can run speed of 80 km/hour.
- Male are polygamous.
- Egg is very large, weight 1.5 kg.
- Easily to domesticated.



Emu:

- Second largest living flightless bird
Height 1.5 meters, confined from Australia .
- Flesh is moderately good for eating .
- There eggs are use as artistic ornaments .



Kiwi :

- It is the smallest living flightless bird about the size of a large domestic hen.
- Their wings are rudimentary and lacking tail feathers possess a keen sense of smell, unique in birds.
- Kiwis are nocturnal and burrowing in habit.
- It is the national bird of New Zealand so the gov. of New Zealand set aside reserves for their protection.



- ▣ Cassowary :
- ▣ The world's third largest flightless bird live in Densely wooded part of Australia.
- ▣ They are shy nocturnal and rarely seen.



Rhea :-

- South American Ostrich.
- They live in group, smaller than Ostrich but their habit is quite similar.
- Male are polygamous .
- Nest is dug by male, all females use to lay eggs in same nest, male incubates them.



Penguin :

- ▣ Aquatic flightless bird, large head, short neck and elongated body.
- ▣ It show upright posture on land .
- ▣ All adult are countershaded dark on the dorsal surface and white on the ventral surface.
- ▣ Native of Southern hemisphere, found in cold climates



THANK YOU