



# GALLERY ON BIRD DIVERSITY IN RAJASTHAN



## Rajiv Gandhi Regional Museum of Natural History

(Ministry of Environment, Forest & Climate Change)

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The Gallery on Bird Diversity in Rajasthan is a Thematic & Curriculum based attempt to highlight the extensive information on Birds of Rajasthan to the students, researchers, youth, bird watchers and general public etc. Birds are precious indicators of Biodiversity and plays important role in pest control; slow the spread of disease by scavenging the dead animals, facilitate in pollination and in seed dispersal.

### **Scavenger**

Scavenging birds play a vital role in our ecosystems by consuming dead animals or carcasses before they rot. Scavengers aid in overcoming fluctuations of food resources in the environment. They keep the climate stable, oxygenate air and transform pollutants into nutrients.



### **Forest**

Forest supports the greatest diversity of bird species. The Walk through forest open diorama is highlighted to variation of forest from one area to another and in respect of climate, altitude and vegetation. Rajasthan has three major physiographic regions, viz. the western desert (Thar Desert), The Aravalli Hills and the southern eastern plateau.



### **Koeladeo Ghana National Park**

Keoladeo Ghana National Park or Bharatpur Bird Sanctuary is known the world over as a birds' paradise. The sanctuary became a Ramsar site in 1981, and later was named as Keoladeo Ghana National Park in 1982 and UNESCO recognised it World Heritage site in 1985.



## Sambhar Salt Lake

The Sambhar Salt Lake is the largest inland salt Lake and this is the largest source of salt, Sambhar means salt. Sambhar Lake stands as a massive array of bird life. This is one of the best places for bird watching.



## National Bird the Indian Peacock

National bird of India is the Indian Peafowl commonly termed as Indian Peacock, (*Pavo cristatus*), is a colourful, swan-sized bird, with a fan-shaped crest of feathers, a white patch under the eye and a long, slender neck. The male of the species is more colourful than the female, with a glistening blue breast and neck and a spectacular bronze-green tail of around 200 elongated feathers.



## Desert National Park

Desert national park situated about 42 km in the southwest of the city of Jaisalmer. The park seems endless and covers a huge area extending from Jaisalmer/Barmer all the way to the India-Pakistan border. It is considered not only the largest in the state of Rajasthan but among the largest in India. The entire area is covered with thorny bushes, cacti and a few desert plants. It is a marvel in itself at how living life forms prosper in these brutal conditions at Desert National Park.



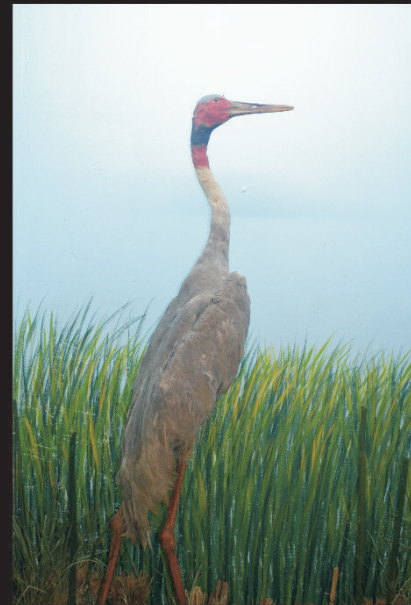
# Great Indian Bustard or Godawan

The majestic Great Indian Bustard or Godawan is the Sate bird which is a protected species and can be spotted in many areas in the desert region of Rajasthan.



# Sarus crane

Sarus crane-the tallest birds in the world to fly, is the only resident crane found in pairs or small family groups in the southern parts of the States.



### ऑकिगोटैरिक्स - पक्षी व सरीसृप वर्ग के मध्य संबंधी कड़ी

#### CONNECTING LINK BETWEEN BIRD AND REPTILE

Based on fossil and biological evidence, most scientists accept that birds are a specialized subgroup of theropod dinosaurs, and more specifically, they are members of Maniraptora, a group of theropods which includes dromaeosaurs and coelurosaurs, among others. As scientists have discovered more theropods closely related to birds, the previously clear distinction between non-birds and birds has become blurred. Recent discoveries in the Late Jurassic of feathered dinosaurs, which demonstrate many small feathered feathered dinosaurs, contribute to this ambiguity.

The Late Jurassic Archaeopteryx is well known as one of the first transitional fossils to be found, and it provided support for the theory of evolution in the late 19th century. Archaeopteryx was the first fossil to display both clearly traditional reptilian characteristics, such as clawed fingers, and a long, lizard-like tail, as well as wings with flight feathers similar to those of modern birds. It is not considered a direct ancestor of birds, though it is possibly closely related to the true ancestor.

Fossil specimen of *Archaeopteryx lithographica*

Archaeopteryx lived in the Late Jurassic period around 150 million years ago, in a low, shallow coastal region. It was about 50 cm long and weighed about 1 kg. It had a long, lizard-like tail, and its wings were made of a single large feather.

Fossil specimen of *Archaeopteryx lithographica*

Archaeopteryx is a genus of early, three-toed primitive dinosaurs. The genus *Archaeopteryx* consists only of the type species *Archaeopteryx lithographica*, named for its discovery in southern Bavaria.

#### Avian Character

- Presence of feathers.
- Fore limbs are modified as wings.
- Tail bars modified as wings.
- Tail bears two rows of feathers.
- Rounded brain case.
- Beaks are present.
- Bones in the skull are intimately fused.
- Bones of limbs and girdles are bird like.
- A keel is present of the sternum.
- Tibia and fibula are separate.
- Y-shaped furcula is present.

#### Reptilian Character

- Jaws are provided with homodont teeth.
- Long, lizard like tail with 20 free caudal vertebrae.
- Bones are not pneumatic.
- Cervical vertebrae are fewer, 9 to 10.
- Amphicoelous vertebrae as in *Sphenodon*.
- Sternum is weak or absent.
- Eyes are provided with sclerotic ossicles.
- Scales are present.
- Carpals and metacarpals are free; there is no carponotacarpus.

### पक्षियों के मुख्य प्राकृतिक आवास

#### MAIN HABITATS OF BIRDS

**Great Hornbill**

Known for their large and colorful casques, hornbills belong to the group of woodpeckers. They are found in tropical and subtropical forests. The casque is made of keratin and is used for defense and display.

**Tetraodon**

These fish have bumpy skin and are known for their ability to inflate their bodies. They are found in freshwater and marine environments. They are known for their ability to survive out of water for long periods.

**Sarus crane**

Widely distributed in the Indian subcontinent, the Sarus crane is a large wading bird. It is known for its long neck and legs. It is found in wetlands and grasslands.

**Godawan**

Endemic to the Indian subcontinent, the Godawan is a large wading bird. It is known for its long neck and legs. It is found in wetlands and grasslands.

**Whistling thrush**

Known for their melodious whistles, these birds are found in forest habitats. They are known for their ability to sing for long periods.

**Caspian gull**

One of the most common gulls, the Caspian gull is found in coastal areas. It is known for its white plumage and black wings. It is found in Europe, Asia, and North America.

### पक्षियों के पंख

#### Feathers in Birds

#### Parts of Feather

The feather is composed of several parts. The rachis is the central shaft. The vane is the flat part of the feather. Barbs branch out from the rachis, and barbules branch out from the barbs. Hooklets connect the barbules, giving the vane its flat surface.

Feathers are epidermal growths that form the distinctive outer covering or plumage on birds. They are considered the most complex integumentary structures found in vertebrates and a premier example of complex evolutionary novelty. They are unique to the phylum Chordata, and they distinguish the avian taxa from other living groups. Although feathers cover most of the bird's body, they also occur on certain non-flight structures on the skin. They are in flight, thermal insulation, and waterproofing. In addition, various types help in communication and predation.

**Parts of Feathers:** Down, 2.Hacks 3.Barb 4.Other feather 5.Hooks dark, calcium

**Type of Feathers:**

- Wing Feathers:** The wing feathers specialized for flight are characterized by uniform windproof surfaces on either side of the central shaft that are created by an interlocking microstructure. The feathers consist of a flat vane, a central rachis, and a shaft. The rachis is the central shaft. The vane is the flat part of the feather. The shaft is the central shaft. The rachis is the central shaft. The vane is the flat part of the feather. The shaft is the central shaft.
- Tail Feathers:** Most tail feathers, or rectrices, feature an interlocking microstructure similar to wing feathers. Arranged in a fan shape, these feathers support precision steering in flight.
- Contour Feathers:** Contour feathers are arranged in an overlapping pattern like shingles, the "waterproof" tips are exposed to the elements and the fluffy bases are tucked close to the body.
- Semiplume:** Mostly hidden beneath other feathers on the body, contouring a fluffy insulating structure.
- Down:** Similar to semiplumes with a loosely branching structure but little or no central rachis.
- Pinfeathers:** Short simple feathers with free barbs to sense the position of the contour feathers.
- Broods:** Broods are the simplest feathers, with a soft rachis that usually lacks barb branches. Most are normally found on the head, broods may protect the bird's eyes and face.

**Feather Growth:**

Like hair, feathers develop in a specialized area in the skin called a follicle. As a new feather develops, it has an artery and vein that extend up through the shaft and nourish the feather.

**Feather color:**

Feather color is determined by the presence of various pigments, including melanins (black), carotenoids (yellow, orange, red) and porphyrins (red and green).