

ENVIRONMENT

As winter birds flock to several parks in North India, we try to understand why and how birds migrate in the first place?

MILES TO GO BEFORE I SLEEP

The word "migration" has come from the Latin word 'migrara' which means going from one place to another. In birds, migration means two-way journeys — onward journey from the 'home' to the 'new' places and back journey from the 'new' places to the 'home'. This movement occurs during specific periods of the year and birds usually follow the same route. There is a sort of 'internal biological clock' which regulates the phenomenon.

cluding altitudinal, longitudinal, and more. They follow set routes that provide places to rest and refuel along the way. Many species share similar routes, known as flyways, which are essentially bird super-highways across the sky.

Migrate we must

A bird's urge to migrate is hormonal, with the change in natural sunlight triggering hormones that make them

become restless, gather in flocks, and eat more food to stock up for the long journey ahead. The technical term for this is 'Zugunruhe', which means migratory restlessness and comes from the German words 'zug' (meaning to move) and 'unruhe' (restless anxiety).

Climate change is key

Climate change is expected to impact migratory birds' survival over the coming decades. Some species are migrating earlier and arriving before food is available. One of the major effects of climate change is the loss of habitats. The habitats migratory birds depend on are in danger to change and to disappear due to increasing temperatures, flooding, or desertification. This could trigger an indirect effect where birds miss the optimal time to breed and rear hatchlings, threatening their survival.

VARIOUS GUIDING MECHANISMS

Theorists propose that birds are guided by several agencies in migration:

THE SUN: The concept that birds are guided by the position of the sun was advanced by Gustav Kramer in Germany and G V T Matthews in England. They have shown by intensive experimentation that homing pigeons and many wild birds use the sun as the compass and that they possess a 'time sense' which allows them to take account of motion of the sun across the sky.

STARS: In 1957 Franz and Eleanor Saur collected data from a series of experiments in which birds were placed inside an enclosed planetary dome. The Saur's were able to demonstrate that birds do use the stars for migration.

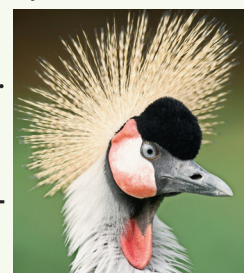
Internal biological clock: How do birds know the time of day? They have possibly a built-in time keeping mechanism (internal clock) which is synchronised with the earth's rotation.

TRIVIA

Bye Bye Birdy

We live in a world where species fall off the map daily

Today, the Grey Crowned Crane of eastern and southern Africa is endangered. Standing 3 feet tall, these birds find their grasslands and wetlands taken from them, their marshes polluted and their eggs removed. Those who survive face wildlife traffickers as capturing these 'golden crowns' is a status symbol, despite the birds declining by 79%.

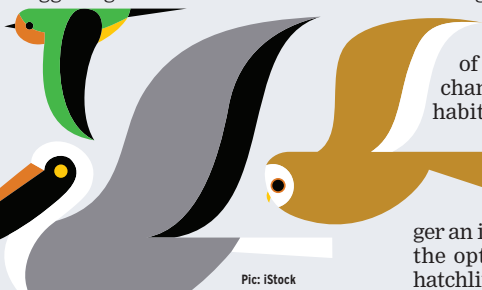


The flightless dodo isn't endangered — it is extinct. In the 1600s, Dutch sailors stopped at Mauritius seeking food and freshwater — they hunted the resident dodo relentlessly, destroyed its nests and cut down its forests. In 80 years, the dodo, which evolved 40 million years ago, was erased from Earth.

DID YOU KNOW?

My way or the highway

Bird migration is a regular, extensive movement between their breeding regions and their wintering regions. Most birds migrate from northern breeding areas to southern wintering grounds. However, there are many kinds of migratory patterns followed by birds, in-



Pic: iStock

WHERE TO GO BIRDING RIGHT NOW?

It's that time of the year when India will see hundreds of species of migratory birds as it falls right in the middle of their annual migration route!

There are several bird sanctuaries in India, where you can see these migratory and resident birds. These designated wildlife areas offer a safe home for these birds, away from the disturbances of busy towns and cities. A trip will leave you hungry for more!



Pic: iStock

BHARATPUR BIRD SANCTUARY

Renowned for hosting over 370 species of migratory and resident birds, this bird sanctuary is a prime avian destination in Rajasthan.

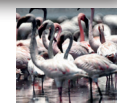
RANGANATHITTU BIRD SANCTUARY:

Situated along Karnataka's Cauvery river in Mandya district, this sanctuary is home to over 170 bird species including winter visitors like the Spot-billed pelican and pied kingfishers.

SULTANPUR BIRD SANCTUARY: Located in Haryana, its famous for

WATCH OUT!

1 Mumbai's DPS Lake has been a famous abode for Flamingos.



2 Egrets and Herons set up nests to breed and roost in Chennai every year.



3 Hundreds of bar-headed geese are found in Kabini backwaters near Mysuru every winter season.



hosting over 250 species of birds species annually including migratory ones like Siberian cranes, greater flamingo and ruff.

CHILIKA LAKE: Asia's biggest internal salt-water pond and one of the biggest breeding places of flamingos in the world.

SALIM ALI BIRD SANCTUARY: Named after Salim Ali, the eminent Indian ornithologist, this sanctuary is one of the smallest protected areas of Goa and home to rare birds like black bittern, red knot, jack snipe and pied avocet.

TEAM NIE

SCIENCE-TECH

How radioactive dating helps solve mysteries

Ever wondered how scientists uncover the Earth's age and solve mysteries about dinosaurs and ancient civilizations?

What is Radiometric Dating?

Radiometric dating is like a super-sleuth detective that helps scientists figure out how old rocks, fossils, and artifacts are. It relies on the natural decay of radioactive elements.

RADIOACTIVE DECAY: The key player

Think of radioactive elements as tiny clocks inside rocks or fossils. They decay over time, changing into stable elements. By measuring the ratio of radioactive elements to stable ones, we can



calculate how much time has passed since the rock or fossil formed.

CARBON-14 DATING: Solving mysteries of recent history

Imagine you find an old piece of wood in a forest. Carbon-14 dating comes to the rescue! It helps us date objects up to around 50,000 years old. This method helps archaeologists uncover secrets about civilizations.

DATING DINOSAURS: A Real-Life Mystery

Have you ever wondered how scientists know when dinosaurs roamed the Earth? Radiometric dating of fossils and the rocks around them provides the answers. This method reveals that dinosaurs lived millions of years ago.

EXPLAINED

Pics: iStock

THE GRAND PUZZLE: Earth's Timeline

Radiometric dating pieces together Earth's intricate timeline. By dating different layers of rocks and fossils, scientists construct a detailed history of our planet, from its fiery birth to the emergence of life and the reign of the dinosaurs.



There is uranium-lead dating, potassium-argon dating, rubidium-strontium dating, and radiocarbon dating.

DID YOU KNOW?

DID YOU KNOW

3 surprising science facts

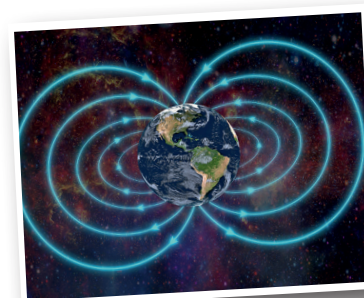
The Universe's average colour is called 'Cosmic latte'

In a 2002 study, astronomers found that the light coming from galaxies averaged into a beige colour that's close to white or 'latte'. The 'beigeness' of the universe is because there are slightly more regions that produce red, yellow and green light than those that produce blue.

Pics: iStock



A day is longer than a year on Venus



Venus takes 243 earth days to finish one rotation and 225 earth days to orbit the sun. Venus also rotates backwards compared to the Earth and most of the other planets.

You can't burp in space

Burping in space is impossible. When you burp on earth, gravity keeps down the solid and liquid food you ate. So, you only exhale the gas. In absence of gravity, gas can't separate from liquid or solid.



LET'S EXPERIMENT

Newton's Balloon Car

Learn about fundamentals of engineering design, kinetic and potential energy that an object has because of its position or rather state along with having fun in racing them.



WHAT DO YOU NEED?

Balloons, plastic straws, wooden skewers for axles, empty plastic bottles or cardboard

containers, plastic bottle lids to make wheels of the car, and transparent tape and glue.

- Cut the top of the bottle.
- To make the car wheel axles cut the plastic straws in half. Attach these straws at the bottom of the bottle or container
- Tape each half of the straw crosswise on the bottom
- Insert the wooden skewers through the straws
- Create a hole at the center of the bottle lids for wheels.
- Make a hole at the backside of the bottle
- Attach a balloon to a straw
- Pass the straw attached balloon through the holes
- Blow the balloon from the other end of the straw!

TECHMINOLOGY

Most popular tech terms used on social media

ALGORITHM: Rules to determine how data is displayed and used. With social media, algorithms determine the content on a person's feed by ranking search results.



Pics: iStock



CLICKBAIT: It describes manipulative or misleading content that encourages users to click on it. These items can be an article, headline, image or video.

ORGANIC CONTENT: This is unpaid marketing content shared on social media. It can be images, posts, videos or stories.

MEME: A meme is popular text, video or images shared on social media platforms.

