MIGRATION OF BIRDS

By

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OUTLINES

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- **Bird migration** is the regular seasonal movement, often north and south along a flyway, between breeding and wintering grounds. Many species of **bird migrate**. ... It occurs mainly in the northern hemisphere, where **birds** are funneled on to specific routes by natural barriers such as the Mediterranean Sea or the Caribbean Sea.

The word “migration” has come from the Latin word migrar which means going from one place to another. According to L.Thomson(1926),bird migration may be described as “changes of habitat periodically recurring and alternating in direction, which tend to secure optimum environment conditions at all times”. Definition of Bird Migration

Migration of Birds

- At least 4,000 species of bird are regular migrants, which is about 40%of the total number of birds in the world. Birds can reach great heights as they migrate.bar –headed geese are the highest-flying migratory birds, reaching altitude of up to five and a half miles above sea level while flying over the Himalayas in India. But the bird with the record for the highest altitude ever is the Rappel's griffon vulture which collided with a plane at 37,000 feet in1975 and was unfortunately sucked into its jet engine. Migration Facts♣ ♣ ♣

- The Arctic tern has the longest migration of any bird in the world. These black –capped ,red-billed birds can fly more than 49,700 miles in a year, making a round trip between their breeding grounds in the Arctic and the Antarctic, where they spend their winters. The lucky bird gets to see two summers a year ! And over its lifespan of more than 30 years, the flights can add up the equivalent of three trips to the moon and back. Speaking of long distance, the northern wheatear travels up to 9,000 miles each way between the Arctic and Africa, giving it one of the largest ranges of any songbird. What makes this an amazing feat is the tiny bird weighs less than an ounce ,on average.

- The award for fastest bird goes to the great snipe: It flies around 4,200miles at speeds of up to 60mph. The bar-tailed godwit can fly for nearly 7000 miles without stopping, making it the bird with the longest recorded non-stop flight. Even birds that don’t fly migrate. emus, the large Australian birds, often travel for miles on foot to find food, and many populations of penguins migrate by swimming.

- The major wintering areas for North American migrating birds are the southern United States and Central America. Four major flyways south: the Atlantic flyway , the Mississippi flyway, the flyway ,the central flyway, and the Pacific flyway Migration Flyways

- Why Do Birds Migrate ?
- The reasons are complex and not fully understood. But a simple explanation is food and a safe place to breed. Birds which breed in the summer in the extreme north such as the summer in the Arctic benefit from an abundance of food as plants and insect life flourish in the long daylight hours; and because few large permanent predators can survive the harsh winter. Many birds that breed in the Arctic simply lay their eggs on the ground. Being able to fly, they can avoid the harsh winter conditions, and be the first to arrive to enjoy the summer benefits. Why Do Birds Migrate ?

- Behavior is inherited. however, birds will not migrate in the absence of certain physiological environment cues. In the late summer, the decrease in sunlight stimulates a migrating bird's pituitary gland to produce the hormone prolactin and its adrenal gland to produce the hormone corticosterone. These hormones, in turn, cause the birds to accumulate large amounts of fat just under the skin, providing them will enough energy for the long migratory flights.

- Migration may be : also called called as Types of Migration
- 1.Latitudinal
- 2.Longitudinal
- 3.Altitudinal or Vertical
- 4.Partial
- 5.Total
- 6.Vagrant or Irregular
- 7.Seasonal
- 8.Diurnal
- 9.Nocturnal

The latitudinal migration usually means the means the movement from north to south and vice versa. Cuckoo breeds in India and spends the summer at south-east Africa and thus covers a distance of about 7250km. Some tropical birds migrate during rainy season to the outer tropics to breed and return to the central tropics in dry season. Puffinus (great shearwater) breeds on small islands and migrates as far as Greenland in may and returns few months.Latitudinal migration

- Latitudinal migration • Penguins migrate by swimming and cover a considerable distance of few hundred miles.

- Longitudinal migration • The longitudinal migration occurs when the birds migrate from east to west and vice versa. Starlings (Sturnus vulgaris), a resident of east Europe and west Asia migrate towards the Atlantic coast. California gulls, a resident and breed in utah, migrate westward to winter in the pacific coast

- Altitude migration • • • The altitude migration occurs in mountainous regions. Many birds in habitating the mountain peaks migrate to low lands during winters. Golden plover (pluvialis) starts from Arctic tundra and goes up to the plains of Argentina covering a distance of 11,250 km

- Partial Migration • • Only Several members of a group take part in migration . Coots and spoon bills (platalea) of our country may be example of partical migration

- Total migration • When all the members of a species take part in the migration, it is called total migration

- Vagrant or irregular migration • • When Some of the birds disperse to a short or long distance for safety and food, it is called vagrant or irregular migration. Herons ,black strok (Ciconia nigra),Glossy ibis (Plegadis falcinellus),spotted eagle (Aquila clanga) and bee eater (merops apiaster

- Daily migration • • Some birds make daily journey from their nests by the influence of environmental factors such as temperature, light, and humidity also . Examples are crows, herons and starlings.

- Seasonal migration • Some birds migrates at different seasons of the year for food or breeding , called seasonal migration. e.g., cuckoos, swifts, swallows etc. They migrate from the south to the north during summer. These birds are called summer visitors. Again there are some birds like snow bunting, red wing, shore lark, grey plover etc. Which migrate from north to south during winter. They are called winter visitors.

- Nocturnal and Diurnal Flight Diurnal migration Many larger birds like crows, robins, swallows, hawks, jays, blue birds, pelicans, cranes, geese, etc. Migrate during daytime for food .

- Nocturnal migration Some small-sized birds of passerine groups like sparrows, warblers, etc . Migrate in darkness, called nocturnal birds. The darkness of the night gives them protection from their enemies.

General patterns of migration

Flocks of birds assembling before migration southwards (probably common starling)

Migrating waders in Roebuck Bay, Western Australia

- Migration is the regular seasonal movement, often north and south, undertaken by many species of birds. Bird movements include those made in response to changes in food availability, habitat, or weather. Sometimes, journeys are not termed "true migration" because they are irregular (nomadism, invasions, irruptions) or in only one direction (dispersal, movement of young away from natal area). Migration is marked by its annual seasonality.[1] Non-migratory birds are said to be resident or sedentary. Approximately 1800 of the world's 10,000 bird species are long-distance migrants

- Many bird populations migrate long distances along a flyway. The most common pattern involves flying north in the spring to breed in the temperate or Arctic summer and returning in the autumn to wintering grounds in warmer regions to the south. Of course, in the southern hemisphere the directions are reversed, but there is less land area in the far south to support long-distance migration.

- The primary motivation for migration appears to be food; for example, some hummingbirds choose not to migrate if fed through the winter. Also, the longer days of the northern summer provide extended time for breeding birds to feed their young. This helps diurnal birds to produce larger clutches than related non-migratory species that remain in the tropics. As the days shorten in autumn, the birds return to warmer regions where the available food supply varies little with the season.

- These advantages offset the high stress, physical exertion costs, and other risks of the migration. Predation can be heightened during migration: Eleonora's falcon *Falco eleonorae*, which breeds on Mediterranean islands, has a very late breeding season, coordinated with the autumn passage of southbound passerine migrants, which it feeds to its young. A similar strategy is adopted by the greater noctule bat, which preys on nocturnal passerine migrants.The higher concentrations of migrating birds at stopover sites make them prone to parasites and pathogens, which require a heightened immune response.

- Within a species not all populations may be migratory; this is known as "partial migration". Partial migration is very common in the southern continents; in Australia, 44% of non-passerine birds and 32% of passerine species are partially migratory. In some species, the population at higher latitudes tends to be migratory and will often winter at lower latitude. The migrating birds bypass the latitudes where other populations may be sedentary, where suitable wintering habitats may already be occupied. This is an example of *leap-frog migration*. Many fully migratory species show leap-frog migration (birds that nest at higher latitudes spend the winter at lower latitudes), and many show the alternative, chain migration, where populations 'slide' more evenly north and south without reversing order.

- Within a population, it is common for different ages and/or sexes to have different patterns of timing and distance.
  Female chaffinches *Fringilla coelebs* in Eastern Fennoscandia migrate earlier in the autumn than males do and the European tits of genera *Parus* and *Cyanistes* only migrate their first year.

- Most migrations begin with the birds starting off in a broad front. Often, this front narrows into one or more preferred routes termed flyways. These routes typically follow mountain ranges or coastlines, sometimes rivers, and may take advantage of updrafts and other wind patterns or avoid geographical barriers such as large stretches of open water. The specific routes may be genetically programmed or learned to varying degrees. The routes taken on forward and return migration are often different.A common pattern in North America is clockwise migration, where birds flying North tend to be further West, and flying South tend to shift Eastwards.

- Many, if not most, birds migrate in flocks. For larger birds, flying in flocks reduces the energy cost. Geese in a V-formation may conserve 12–20% of the energy they would need to fly alone. Red knots *Calidris canutus* and dunlins *Calidris alpina* were found in radar studies to fly 5 km/h (3.1 mph) faster in flocks than when they were flying alone

Northern pintail skeletons have been found high in the Himalayas

- Birds fly at varying altitudes during migration. An expedition to Mt. Everest found skeletons of northern pintail *Anas acuta* and black-tailed godwit *Limosa limosa* at 5,000 m (16,000 ft) on the Khumbu Glacier.Bar-headed geese *Anser indicus* have been recorded by GPS flying at up to 6,540 metres (21,460 ft) while crossing the Himalayas, at the same time engaging in the highest rates of climb to altitude for any bird. Anecdotal reports of them flying much higher have yet to be corroborated with any direct evidence. Seabirds fly low over water but gain altitude when crossing land, and the reverse pattern is seen in landbirds. However most bird migration is in the range of 150 to 600 m (490 to 1,970 ft). Bird strike aviation records from the United States show most collisions occur below 600 m (2,000 ft) and almost none above 1,800 m (5,900 ft).

- Bird migration is not limited to birds that can fly. Most species of penguin (Spheniscidae) migrate by swimming. These routes can cover over 1,000 km (620 mi). Dusky grouse *Dendragapus obscurus* perform altitudinal migration mostly by walking. Emus *Dromaius novaehollandiae* in Australia have been observed to undertake long-distance movements on foot during droughts.
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- Disadvantage of bird migration
- Many young's are not, able to reach the destination because they die during the course of the continuous and tiresome journey. Sudden changes in the climate such as storms and hurricanes, strong current of wind, fog are the causes for death of migratory birds. Sometimes man-made high tours and light houses cause the death of migratory birds. Man themselves are responsible for the death of the migrants. They shoot at these poor birds just for their own leisure and amusement.