e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
( Peer-Reviewed, Open Access, Fully Refereed International Journal )
Volume:04/Issue:08/August-2022 Impact Factor- 6.752 www.irjmets.com

# BIRD MIGRATION: NEED OF EXISTENCE

**Dr. Pushpa Choudhary*1**

*1Assistant Professor, Department Of Zoology, ANDNNMM Kanpur, India.

## ABSTRACT

Our world is full of biodiversity, we can see different kinds of birds, animals and plants all around us. There are different species of animals and plants that use various strategies to survive and keep the cycle of life going. One such strategy that birds use is called migration. Migration is a regular seasonal movement of birds in large groups. It happens in the case of migratory birds when they have to leave their home place to migrate to some other favourable place and for that, they have to adopt a long journey in which there is no guarantee whether they will be able to return back or not but if they do not migrate, in that case as well, their survival is not possible, thus they used to have migrated in any case. In this article, we will be talking about migratory birds and all about their migration. This research article will help you to understand one of the most important behavioural patterns of the animal world, and will increase your subject knowledge as well.

**Keywords:** Migration, Migratory Birds, Non-Migratory Birds Etc.

## I. INTRODUCTION

Animal migration is among the most conspicuous of animal behaviors. The best-known examples involve large numbers of individuals that synchronously migrate long distances over inhospitable terrain, and make the return journey only a few months later. In no other group is annual, cyclical migration as well-studied as in birds. A great deal of research has been devoted to elucidating the patterns of migration exhibited by different taxa (Dingle 1996, Gauthreaux 1996), and more recently, to explain how such migrations operate at physiological and genetic levels (e.g., Alerstam 1991, Berthold 1991). Migration is the cyclic or periodic travel of an animal as it returns eventually to its original place of departure. Migration is often annual and is closely linked with the cyclic pattern of the seasons. It is most evident among birds, which have a highly efficient means for traveling swiftly over long distances. The migration of most birds is a yearly cycle. Birds migrate to move from areas of low or decreasing resources to areas of high or increasing resources. The two primary resources being sought are food and nesting locations. Birds that nest in the Northern Hemisphere tend to migrate northward in the spring to take advantage of burgeoning insect populations, budding plants and an abundance of nesting locations. As winter approaches and the availability of insects and other food drops, the birds move south again. Escaping the cold is a motivating factor but many species, including hummingbirds, can withstand freezing temperatures as long as an adequate supply of food is available.

Not all birds migrate. The more severe the climate of an area, the greater percentage of nesting birds migrate. Two-thirds of bird species found in the United States migrate, some only short distances to more southern states. Those that do migrate have adaptations not seen in their non-migratory relatives. Migratory birds can build fat stores as an energy source for long flights. Migratory birds usually have longer, more pointed wings and weigh less than related non-migratory birds.

Migration of birds is one of the most fascinating phenomena in which birds travel from one habitat to another in search of favourable conditions and increased resources for survival and it also involves the journey to return to the original place. It also happens during seasonal change or movement between breeding and non-breeding locations. Migration is not an easy process, as birds have to cover long distances in order to reach their destinations and during these journeys, they need a lot of energy, food, water, sufficient rest, etc and not all the migration journeys become successful and some of the birds die as well in these journeys. Those birds who migrate from one location to another location in order to breed, feed, and raise their offspring, are known as migratory birds. They usually migrate from unfavourable locations to some favourable places which are having suitable conditions along with sufficient food and water resources and are also safe as well. The majority of the birds migrate during the breeding season and others migrate for food resources and because of change in seasons.

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
( Peer-Reviewed, Open Access, Fully Refereed International Journal )
Volume:04/Issue:08/August-2022 Impact Factor- 6.752 www.irjmets.com

**TYPES OF MIGRATING BIRDS**

The types of migrating birds can be judged through the type of migration they adopt which can be cleared from the following:

- Seasonal Migration: It happens with the change in seasons. Birds migrate from a location when they are not able to survive in harsh conditions.
- Latitudinal or Longitudinal: This kind of migration happens between different latitudinal or longitudinal locations. Either North to South or East to West or vice - versa.
- Altitudinal: It generally happens for those birds who give birth at high altitude areas, and when they have to migrate again because of the harsh conditions over there.
- Loop: Those who follow this kind of migration, those birds usually follow annual migration in a cycle again and again to enjoy the resources of two locations.
- Nomadic: Understanding exact patterns and their timings are not easy, they stay in one place until sufficient resources are available otherwise they will migrate.
- LeapFrog: It is a kind of skip migration in which birds migrate to long distances in order to skip a sedentary population.
- Reverse: Aberration among birds is seen when they are confused and choose an unexpected path and go in the opposite direction.

**FEATURES OF MIGRATORY BIRDS**

- These birds are known to have good morphology as well as physiology because of which they can cover long distances by flying fast and observing various other things.
- They have the ability to navigate things with good accuracy. They use the sun, the stars, the Earth's magnetism, etc.
- They know when to migrate and when to return. For their specific reasons, they do not hesitate to migrate to far present locations.
- They can fly as far as 16000 miles and some of the birds fly at a speed of 30mph to reach their destination. With this speed, they can reach in 533 hours whereas if they fly on the Basis of 8 hours per day, they can reach the final destination in 66 days.
- They fly at different speeds and at different altitudes. Some fly at low altitudes where we can see them whereas some birds fly at high altitudes as well such as Songbirds who travel at 500 to 2000 feet whereas if we talk about Geese or Vultures, they used to fly at 29,000 to 37,000 feet altitudes.
- Before migration, they prepare themselves for the journey by increasing their body weight or by keeping food reserves.
- Different birds migrate at different timings but most of the birds prefer to fly at night because usually, the night is much safer for them due to fewer predators or having cooler air at night with which they can fly and rest easily.

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
( Peer-Reviewed, Open Access, Fully Refereed International Journal )
Volume:04/Issue:08/August-2022 Impact Factor- 6.752 www.irjmets.com

- They also prepare for their return as well because, after exhaustion of their whole energy in the long-distance journey, they usually feel hungry and require food and water.

**WHY DO BIRDS MIGRATE?**

The major ecological processes proposed to explain the evolution migration in birds are of food limitation (e.g., Cox 1968, Levey and Stiles 1992), predation (e.g., Fretwell 1980, Greenberg 1980), and intolerance of climatic conditions (e.g., Ketterson and Nolan 1976). Spatial and/or temporal variation in one or more of these three factors underlies all explanations for bird migration. Yet each hypothesis relies on a different combination of factors acting through various potential mechanisms to produce observed patterns of migratory behavior. Part of the complexity lies in the fact that different parts of the migratory cycle may best be explained by different sets of selective pressures. For instance, birds may migrate to their breeding grounds because the risk of nest predation is lower on breeding grounds than on non-breeding grounds. However, they may migrate away from the breeding grounds because they cannot find enough food there to survive during the non-breeding season (Greenberg 1980). Often, climatic extremes, food availability, and density of potential predators covary in such a way that isolating which factor has been the most important in the evolution of migration is extremely difficult.

- There are several reasons, a few of which are mentioned below:
- Food is one of the major reasons for their migration. If they all stay at one place then food will be exhausted & scarce during the breeding time and thus breeding will be less successful. Thus, they migrate to food-abundant areas.
- During the nesting season, the depletion of food will not only affect the adult birds but also attract a lot of predators because they become an easy meal for them.
- Birds usually migrate for their family or we can say for healthy breeding. They always require healthy conditions for raising their offspring. These conditions depend upon different species such as sources of food, weather, habitat, adequate shelter, breeding colonies, safety, etc.
- Another reason can be a change in the climatic conditions. Any severe change in these conditions can cause their migration because it makes it difficult for them to survive in harsh conditions be it extra warm or extra cold.
- They also can migrate to save themselves and their offspring from predators and diseases. They usually migrate to places that are inaccessible to predators.
- There is less competition for nesting space.
- The climate is milder, or
- The daylight hours are longer. These enhance the chances of survival of a bird and its brood. Most birds require a rich, abundant supply of food at frequent intervals because of their high metabolic rate. Adequate food is not available throughout the year in most regions. North American birds must endure the hazards of winter or migrate to more friendly climates. In winter they migrate to the warmer, southern regions of the United States, Caribbean, Mexico, Central America and South America where food is abundant. In the spring, these birds fly north to habitats where spring and summer provide more food production and less competition for food and nesting sites than in their winter habitat. Summertime at northern latitudes also means more daylight hours to seek food for themselves and their nestlings.

**ECOLOGICAL IMPLICATIONS WITH MIGRATION**

There are many ecological implications of migration. The sequence of migratory movement is closely integrated with the annual cycle of ecosystems that are characterized by productivity fluctuations. The food resources of some regions could not be adequately exploited without bird populations moving. Migratory behavior occurs in species located at specific trophic levels where maximum fluctuation in food production occurs in both breeding and wintering regions. Many migrant birds avoid primary equatorial forests where productivity is usually constant throughout the year and food surpluses do not occur. They do, however, congregate in savannas where productivity varies with the seasons

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
( Peer-Reviewed, Open Access, Fully Refereed International Journal )
Volume:04/Issue:08/August-2022 Impact Factor- 6.752 www.irjmets.com

**HUMAN CAUSED HAZARDS FOR MIGRANTS**

Flying at night or in fog, many birds collide with tall structures. Lighthouses and skyscrapers are notorious killers of migrants. Reflective windows can be deadly. Birds see reflections of sky or trees and fly into them. Electronic towers for radio, television, cellular phones, etc. and their supporting cables kill thousands of migrating birds during migration. Habitat loss and degradation is a much greater problem. Habitat needed for food and shelter in winter is disappearing in Latin America. Clearing of forestland and plowing of grassland for crops destroys the diverse habitat that is necessary for many species of birds to survive. In the United States and Canada there is often not enough habitat for some species to raise their young. Where there is appropriate habitat, it may be too close to human disturbances or be too small an area. The populations of many bird species have decreased severely over the last 100 years. A serious man-caused hazard to migratory birds is pet cats. Free-roaming cats take a high toll on migratory birds. Scientific studies show that each year cats may kill hundreds of millions of migratory songbirds. Cats are serious threats to fledglings, birds roosting at night and birds on nests. An indoor cat is the best kind of cat.

## II. CONCLUSION

Approximately 20% of bird species are migratory, their seasonal movements causing a redistribution of bird diversity that radically changes avian community composition worldwide. And yet, bird migration has been largely ignored in studies of global avian biodiversity. When birds migrate from one place to another there can be many threats to them. It took a lot of energy to cover these long-distance journeys. The major threats include exhaustion, starvation, injuries, threats from predators or hunters, diseases, pollution, natural calamities or disasters, etc. For their conservation, need of CMS which means Convention on Migratory Species at the international level which is also famous as the Bonn convention which aims to protect migratory species such as territorial, avian, or marine, throughout their ranges and all the countries coordinate with each other for their conservation. Avian migration is not an easy task but also important for the birds as well. They require favourable conditions in order to survive and raise their young ones for which they adopt long journeys which are exhausting for them and in these journeys they have to cross the boundaries which can lead to more problems and threats for them and for which every country should adopt conservation measures for them.

Migration has considerable ecological significance. It enables fast-moving animals to exploit fluctuating resources and to settle in areas where they could not live if incapable of rapid travel. On the other hand, peaks of food production would be unexploited without the periodic presence of migratory populations.

## III. REFERENCES

[1] Alerstam, T. 1990. Bird Migration, English edition. Cambridge University Press, Cambridge, UK. Alerstam, T. 1991. Bird flight and optimal migration. Trends in Ecology & Evolution 6:210-215.

[2] Berthold, P. 1991. Genetic control of migratory behavior in birds. Trends in Ecology & Evolution 6:254-257. Berthold, P. 1999. A comprehensive theory for the evolution, control and adaptability of avian migration. Ostrich 70:1-11.

[3] Cox, G. W. 1968. The role of competition in the evolution of migration. Evolution 22:180-192.

[4] Cox, G. W. 1985. T5221he evolution of avian migration systems between temperate and tropical regions of the New World. American Naturalist 126:451-474.

[5] Dingle, H. 1996. Migration: the Biology of Life on the Move. Oxford University Press, NY.

[6] Fretwell SD (1980) Evolution of migration in relation to factors regulating bird numbers. In: Keast A, Morton ES (eds) Migrant Birds in the Neotropics. Smithsonian Institution Press, Washington, DC, pp 517-527

[7] Gauthreaux, S. A. 1996. Bird migration: methodologies and major research trajectories (1945-1995). Condor 98:442-453.

[8] Greenberg R (1980) Demographic aspects of long-distance migration. In: Keast A, Morton ES (eds) Migrant Birds in the Neotropics. Smithsonian Institution Press, Washington, DC, pp 493-504

[9] Ketterson, E. D., and V. Nolan Jr. 1976. Geographic variation and its climatic correlates in sex-ratio of eastern wintering Dark-eyed Juncos (Junco hyemalis hyemalis). Ecology 57:679-693.

[10] Ketterson, E. D., and V. Nolan Jr. 1983. The evolution of differential bird migration. Current Ornithology 1:357-402.

[11] Levey, D. J., and F. G. Stiles. 1992. Evolutionary precursors of long-distance migration: resource availability and movement patterns in Neotropical landbirds. American Naturalist 140:447-476.