

Biology's Amazing Processes: Migration

Mammals, birds, fish and even insects undergo long and tiresome treks, risking life and limb to complete an epic journey we call migration.

PRACTICAL SCIENCE WITH PHIL FREDA

What is migration?

The definition of migration, according to the [Encyclopedia Britannica](#), is the regular, usually seasonal, movement of all or part of an animal population to and from an area.

This definition seems cut and dry, but it fails to illustrate the magnificence of these amazing journeys in which individuals die in the process.

So, why do animals do it?

Why do animals migrate?

There are three main motivators behind migration, according to [Live Science](#): food, breeding and climate. The simplest answer to the question is that resources on Earth constantly fluctuate with the seasons.

The warm summer months are followed by the cold winter. With these changes in temperature, plants and other foods die or become scarce.

This is why birds fly south for the winter—to take advantage of where and when food is available.

Additionally, animals want to breed in areas that are abundant in resources, which may require traveling long distances.

Let's take a look at some of the most amazing [animal travelers](#) from [National Geographic's Great Migrations site](#).

- **Wildebeest (*Connochaetes taurinus mearnsi*)**: The white-bearded wildebeest is the subspecies of wildebeest that makes up the large herds seen in the [Serengeti](#). Wildebeest feed on short grasses and must move with the seasons to find fresh food and water. Every January or February, the wildebeests amass in the southeastern Serengeti, move west toward [Lake Victoria](#), and then north into the [Maasai Mara](#). Approximately $\frac{1}{4}$ of them die during the journey from run-ins with predators or from exhaustion. The wildebeests return to the Serengeti in November after exhausting grazing areas. In total the round trip of the migration is about 2,000 miles!
- **Red crab (*Gecarcinoides natalis*)**: The red crab of [Christmas Island](#) is one amazing [crustacean](#). Red crabs depend on moisture to breathe and stay in the moist forests of the island for most of the year. After the monsoon season, however, when the humidity rises to a balmy 90 percent, the crabs venture to the shoreline of the island to breed. Females can produce 100,000 eggs each! Usually, only a few of the offspring survive just

to make their own trek back to the safety of the forest. The area covered by the red crab is only about 2.5 miles, which is actually a lot for a crab, but they also have to face yellow crazy ants. These ants were introduced to the island during the 20th century. They multiply rapidly and attack the red crabs by spraying acid in their eyes and mouths, rendering them helpless from attack.

- **Golden jellyfish (*Mastigias papua*):** This species of jellyfish is found only in Jellyfish Lake in [Palau](#). These [Cnidarians](#) don't travel an incredibly long distance but repeat it each and every day. These jellies, like many others, harbor [photosynthetic](#) algae inside of their bodies that are involved in a [symbiotic](#) relationship with them. These [zooxanthallae](#) provide the jellyfish with nutrients that help supplement their diets. However, the key is that the jellyfish must provide enough sunlight for the zooxanthallae to properly photosynthesize. The golden jellies start at the west side of the lake at dawn and swim eastward toward the rising sun. After several hours, they reach the eastern rim of the lake and bask in the sun's light. During the journey, the golden jellies must watch out for their one and only predator, the [white sea anemone](#).
- **Great white shark (*Carcharodon carcharias*):** These large predatory fish cover over 15,000 miles a year! Unfortunately however, it is currently unknown why these efficient predators travel as much as they do. Previous theories suggested that these sharks traveled in coastal waters to more easily track sea lions and other prey. Radio-tagging paints a different picture. Many different migratory patterns are evident, including one where an individual crossed both the Indian and Pacific Oceans and back!
- **Little red flying Fox (*Pteropus scapulatus*):** These bats can travel more than 600 miles a year in the search for food. The flying fox follows the blossoms of the [eucalyptus trees](#) around the continent of [Australia](#). Flying foxes leave their roosts at dusk and can travel more than 60 miles a night searching for food.
- **Whale shark (*Rhincodon typus*):** The largest fish on the Planet Earth is actually a [filter feeder](#). An individual can travel as much as 8,100 miles in a year. The main theory for their traveling behavior is that they are searching for richer waters in the search for food in the form of plankton and other small prey.
- **Monarch Butterfly (*Danus plexippus*):** I saved the most amazing animal migration story for last. This multi-generational migration covers up to 5,600 miles for a round trip and spans a distance as far as southern Canada to central Mexico. Most monarchs that join the trip from the north each fall are usually three to four generations removed from those that made the journey the previous year. The "super-generation" of monarchs that survive the winter in Mexico can live eight to nine months, making them the longest-lived of all butterflies. Monarchs navigate using the sun and their antennae. Migration is truly one of the most amazing animal abilities.

Whether for breeding reasons, food acquisition or to keep up with the sun's warmth, animals risk their very lives to complete these dangerous journeys.

Think about it!

If you are interested in more animal migrations, check out these pages about [whale migration](#), [salmon migration](#) and [swallow migration](#).