Our Changing Climate and Migratory Birds – The Story of the Arctic Tern

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Migratory Bird intro:

Migratory birds are birds that travel long distances from one place to another. They need to make this journey every year at specific times to find food, safe places to breed, and warmer climates. In Oregon, we live along a bird travel route called the Pacific Flyway, where some birds fly from Alaska to Patagonia – that's up to 4,000 miles! It's kind of like a global superhighway for birds. Just like us, when they travel long distances they need places to rest and eat. With one of the goals being to protect these birds and the places they stop along their migration, the Migratory Bird Treaty Act was established in 1918.

Learn more:

- USFWS Migratory Bird Program: https://www.fws.gov/birds/index.php
- Migratory Bird Treaty Act: https://www.fws.gov/birds/policies-and-regulations/laws-legislations/migratory-bird-treaty-act.php

Here are some of the local migratory birds found at the zoo in our Great Northwest section:

- Northern Shoveler - *Anas clypeata* – The Northern Shoveler is a dabbling duck, named for its large bill that looks like a spatula. Dabbling means that this type of duck eats by dipping its beak into shallow water to find food like insects, plants, and seeds. They migrate later in the spring than most other dabbling ducks.
- Green-winged Teal - *Anas crecca* – The Green-winged Teal is a small dabbling duck that remains farther north during the winter than other teals. They travel in small packs, but on stopovers during their fall and spring migrations they can sometimes be found gathered in the thousands.
- Bufflehead – *Bucephala albeola* - Buffleheads are small, black and white, highly active, diving ducks. Their name is a combination of "buffalo" and "head," named for how the male's head looks like a buffalo when he puffs his feathers. The bufflehead migrates in early spring and late fall, and in the fall they travel in flocks of over 500.
- Ruddy Duck - *Oxyura jamaicensis* – The Ruddy Duck is considered a stiff-tailed duck. It has a set of spiky tail feathers usually sticking up into the air. Ruddy Ducks dive down into the water to search for food, and chicks are able to swim and dive well very soon after they're born. They migrate at night and in small flocks and they don't often associate with other ducks when wintering. In the breeding season males have a beautiful blue bill!

Prop: Image of each migratory bird with information

It's a Perilous Journey!

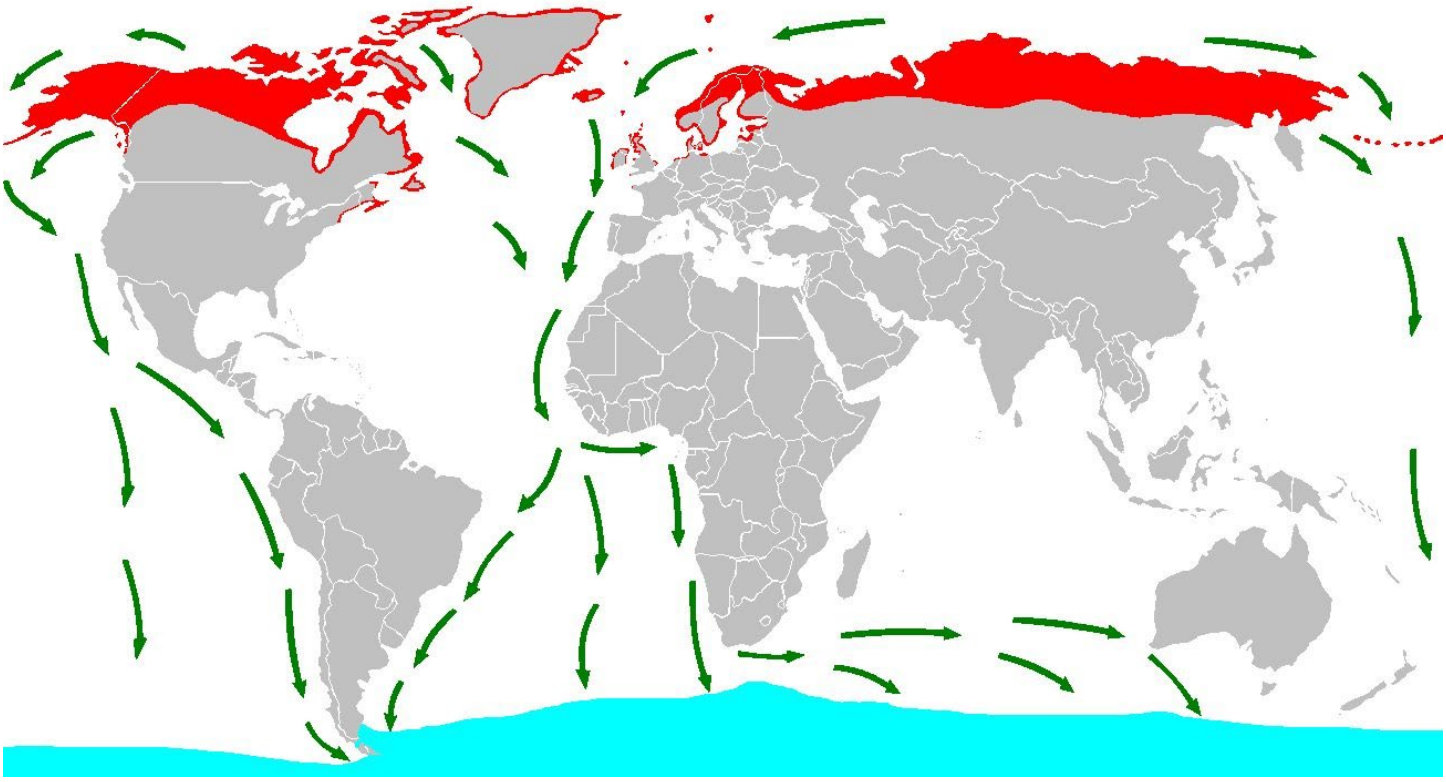
The long journey migratory birds take is not an easy one. Along the way they face a multitude of threats that could easily change their course, both human as well as natural caused. Habitat loss, outdoor cats, window collisions, pollution, toxic pesticides, disease, etc. all make their journeys difficult. The harmful impacts caused by climate change (e.g., warming temperatures, drought, lack of resting places, fires, extreme weather events, etc.) make their journeys even harder. Since 1970, nearly three billion birds have disappeared in the U.S. and Canada. To better understand the plot of migratory birds and the impacts of climate change, let's take a closer look at the Arctic Tern.

Learn more:

- USFWS Threats to Birds: https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php#:~:text=Both%20natural%20and%20human%2Dcaused%20sources%20of%20bird%20mortality%20contribute,%2C%20agriculture%2C%20and%20forestry%20practices.
- Cornell Lab of Ornithology, *3 Billion Birds Gone*: https://www.birds.cornell.edu/home/bring-birds-back/

Introducing the Migratory Bird Star Athlete: The Arctic Tern

Meet the Arctic Tern! This migratory bird has the longest journey of them all. They travel about 44,000 miles round-trip each migration. That's like taking a road trip from Portland to New York City and back over 7 times, or three roundtrips to the moon! Because Arctic Terns need more time, and have a farther distance to travel, the changing climate affects birds like these the most. It's much harder to predict the weather when you are very far away from your destination, so when climate change affects the Arctic Terns' normal migration pattern the journey won't always go as planned.
Prop: Image of Artic Tern and their migration pattern



Artic Tern Migration Routes (Photo Credit: Creative Commons)

For more information:
USFWS *Birds connect Arctic Refuge with the World*: https://www.fws.gov/refuge/arctic/birdworldmig.html

Let's Join the Arctic Tern for One Leg of Their Journey…

Directions: Using a map that includes both North and South America, mark the following locations for each of the stops listed below.

Stop 1 - Alaska/Northern Canada:
Warming Temperatures -> Missed Departure

Question: *Why would a bird want to leave and travel south during the winter?*
Answer: They go where there is warmth and food

Migratory birds schedule their migration journeys around the temperatures and length of day, both of which change with the seasons. As the climate changes, temperatures may stay warmer in autumn, causing birds to alter their routines; some might even cancel their migration journeys all together. It's kind of like an alarm clock that doesn't go off when you are trying to catch an early morning flight. Birds travelling the longest distance, such as the Arctic Tern, are hit the hardest. Changes or delays in their timing can have serious consequences on their ability to survive – harsh winters can come quickly. Another reason that birds migrate is to take advantage of abundant resources during different seasons. For instance, Alaska lands and waters are so productive during the summer, it's worth the long trip to spend the summers there, but it's too cold for most of them during the winter.
Prop: Alarm clock

Stop 2 - Pacific Northwest/Portland:
Lack of Food

Question: *When traveling how do you maintain your energy?*
Answer: Snacks!!!
Just like on a long road trip, migratory birds need food to stay energized. Warming temperatures can cause some birds to arrive at their breeding grounds too early. Early warmth can also cause the plants that birds eat to bloom and fruit too early so they miss their meal. By the time their offspring have hatched, there is no food left to feed their young. Additionally, without food to fuel their journeys the birds don't have the energy to complete their trip, and sometimes they don't survive.
Prop: Empty lunch box

Stop 3 - Mexico: Loss of Resting Habitat

Question: *If you had an eight hour road trip would you be able to make it without stopping?*
One of the effects of a warming climate is unpredictable, extreme weather patterns. In addition to warming temperatures these extreme weather patterns (whether it's no rain, or too much rain) can all affect the habitat that birds stop to rest in. A migratory bird's rest stop is called a "stopover site." Too much rain can cause flooding. Not enough rain leaves stopover sites dry with no food or safe habitat. So when the birds arrive to their usual, trusted spots, the conditions don't provide them with a suitable resting point, making their journeys much harder.
Prop: "Rest Area Closed" sign

Stop 4 - Peru: Crowded Resting Spots

Question: *Have you ever traveled during a busy time and not been able to find a hotel room?*
With some birds arriving earlier than usual, and some birds not leaving on their journeys at all, many usual resting spots for birds become over crowded – causing the birds to have to compete for food or space to rest and breed. Imagine driving for hours and arriving at a hotel where you find there aren't any rooms available, or having to wait at a restaurant for hours before getting a table to eat. You're already tired from the long journey, and then you have to deal with overcrowded or totally booked up places where you can fuel up and rest, just like the birds.
Prop: "No Vacancy" sign

Stop 5 - Arctic: A Disappointing Vacation

Question: *Have you ever made a long journey only to have a disappointing vacation?*
All of the changes you've learned about affect the migratory bird's final destination. Some may choose to stop to breed sooner, and those that do arrive may find temperatures or conditions that weren't expected. As birds alter their final destinations to match a changing climate, the issues you've learned about like over-crowding or lack of food, become worse and worse, and survival and reproduction becomes harder and harder for migratory bird species to complete their long journeys.
Prop: Melted snowman globe

CONCLUSION:

Some Good News - We All Can Help Migratory Birds!

There are many things you can do to help make migratory birds' journeys be less challenging:

- **Make your backyard a stopover site**: Put bird feeders and bird baths out where you live, this can provide fuel and places to rest that might be lacking at other stopovers. Landscape for all four seasons so birds have food year-round. Support native birds by planting native species. Make sure there's plenty of bushes and trees for birds to build their nests.
    - **Learn Seven Simple Actions to Help Birds**: https://www.birds.cornell.edu/home/seven-simple-actions-to-help-birds/
    - **Learn more ways you can help birds from your home:** https://www.fws.gov/Oregonfwo/promo.cfm?id=177175850
- **Keep your cat indoors or build a catio:** Free roaming, outdoor cats are one of the biggest dangers to native wildlife! Free roaming cats kill billions of species around the world each year, and over 2.4 billion birds per year in the United States. Native wildlife, like coyotes and raccoons, can also put your feline in harm's way. To protect native wildlife, and your beloved furry friend, keep your cat indoors, or build a protected catio.
- **Don't let dogs run off-Leash:** Keeping dogs on leashes is the best way of stopping them from chasing birds, which often causes our feathered friends to abandon their homes. It also helps migrating birds conserve their limited energy reserves, which is necessary if they are to survive their long journey.
- **Combat climate change by decreasing your use of fossil fuels**: Turn off lights and electronics when you aren't using them. When you can, choose to walk, bike, or take public transit.
- **Become a migratory bird champion:** Participate in different events around your community, such as visiting a National Wildlife Refuge, to see first-hand where migrating birds stop to rest. Some refuges have work days where you can help plant native plants that birds love. You can also look for events like World Migratory Bird Day that may have volunteer opportunities aimed at helping birds.
- **Learn more through the Junior Duck Stamp Program:** https://www.fws.gov/birds/education/junior-duck-stamp-conservation-program.php