Migration remains one of the most compelling aspects of the avian world. Twice a year, billions of birds migrate vast distances across the globe. Typically, these journeys follow a predominantly north-south axis, linking breeding grounds in arctic and temperate regions with non-breeding sites in temperate and tropical areas. Many species migrate along broadly similar, well-established routes known as flyways. Recent research has identified eight such pathways: the East Atlantic, the Mediterranean/Black Sea, the East Asia/East Africa, the Central Asia, the East Asia/Australasia, and three flyways in the Americas and the Neotropics.

The Pacific Americas Flyway stretches from the permafrost tundra of the high arctic, south along the Pacific seaboard to Tierra del Fuego, the southernmost tip of the South American mainland. Many of the millions of migratory waterbirds that nest on Alaska’s expansive tundra embark on remarkable southern journeys along this flyway. They are joined by travellers from even more distant breeding grounds, including Cackling Geese Branta hutchinsii leucopareia from the Aleutian Islands and Long-billed Dowitcher Limnodromus scolopaceus from across the Bering Sea in Arctic Russia. Most birds follow the Alaskan coast south via traditional staging sites such as the Copper River Delta. Others, such as seaducks and the Cackling Geese, cross the Gulf of Alaska directly from their breeding grounds on the Alaska Peninsula and Aleutian Islands, joining the Pacific coast near the Queen Charlotte Islands. From here, the flyway stretches south, through the Canadian provinces of British Columbia and the Yukon Territory, along the Pacific Cordillera. Bordered by the Rocky Mountains to the east, the flyway continues down through the USA to Mexico and Central America.
As well as waterbirds, huge numbers of migratory landbirds travel along this section. Some Rufous Hummingbird *Selasphorus rufus*, for instance, undertake an annual 19,000km round-trip along the flyway from Alaska to Central Mexico. For many migrants, such as the Townsend's Warbler *Dendroica townsendi*, Vaux's Swift *Chaetura vauxi* and Hammond's Flycatcher *Empidonax hammondii*, Mexico and Central America represent the terminus of their journeys. Others, however, continue on into South America. For example, the Olive-sided Flycatcher *Contopus cooperi* (NT), which has the longest migration route of any North American tyrannid, migrates all the way from the boreal forests of Alaska to winter in the Andean foothills as far south as Bolivia.

Although very little is known about bird migration systems in South America, it appears that the continent is home to numerous austral migrants. For example, the South American section of the flyway is home to several species of ground-tyrant (*Muscisaxicola*) that migrate north from breeding grounds in Patagonia. These include the Cinnamon-bellied Ground-tyrant *Muscisaxicola capistratus*, which migrates from breeding grounds in Tierra del Fuego to spend the austral winter (Apr-Oct) in Peru.
Important Bird Areas (IBA) on the Flyway

**Copper River Delta, USA**
An important staging site for passage waders including 4,100,000 Western Sandpiper and 950,000 Dunlin.

**Boundary Bay - Roberts Bank - Sturgeon Bank (Fraser River Estuary), Canada**
30,000 American Wigeon and 29,000 Dunlin in winter; 500,000 Western Sandpiper on passage.

**Upper Bay of Panamá, Panamá**
One of the most important areas for migratory waders in the Americas (1,091,000 Western Sandpiper, 165,000 Semipalmated Sandpiper and 30,000 Semipalmated Rover.

**Humedales de Pagoa, Ecuador**
A series of coastal lagoons hosting 20,000 to 30,000 Wilson's Phalarope each winter.

**Laguna de Ita, Peru**
An important coastal with large numbers of wintering Elegant Tern.

**Stikine River Delta, USA**
Important for passage waders including 164,480 Western Sandpiper.
Threats along the Flyway

Unfortunately, many of the world’s migratory birds are in decline. Many characteristics of migrants render them particularly vulnerable to a variety of threats. Undertaking such dramatic movements pushes birds to the limit of their endurance. They are reliant on favourable weather conditions and must find sufficient food resources at multiple sites throughout their migratory journey. Several species that use the Pacific Americas Flyway are now listed as ‘Near threatened’ on the IUCN Red List. These include the Peruvian Pelican *Pelecanus thagus*, Elegant Tern *Sterna elegans* and Olive-sided Flycatcher *Contopus cooperi*.

Along the flyway, important habitats for migrants are under threat from **infrastructure and housing development**, **energy development** (e.g. mining or drilling for fossil fuels), **tropical deforestation** and the **spread and intensification of agriculture**. Historically, **hunting** was a major threat to migrating birds along the flyway, as the infamous demise of the Passenger Pigeon *Ectopistes migratorius* bears tragic witness. At one time the species was likely the most numerous on the planet. Enormous migratory flocks containing many millions of birds would stretch across the sky for hundreds of miles. However, the species was persecuted on such a tremendous scale that by the beginning of the 20th century it was extinct. Although hunting no longer occurs on this catastrophic magnitude, it remains a serious threat along the flyway. The thousands of lead shotgun pellets fired every year pose a significant hazard to some species of waterfowl and scavenging raptors. For example, lead shot ingestion accounts for up to 15% of recorded post-fledging mortality in North American Bald Eagle *Haliaeetus leucocephalus*, and the poisoning of the Critically Endangered California Condor *Gymnogyps californianus* by lead bullet fragments is seriously jeopardising its re-establishment in the wild. However, well-managed hunting can provide a strong financial incentive for the retentions of natural habitat and can even help keep some populations in check. Reduced hunting pressure on North American Snow Goose *Anser caerulescens* populations has resulted in overgrazing of the species arctic breeding areas. In addition to hunting, migrating birds are at risk through **collision with man-made structures** such as powerlines, wind turbines and telecommunications masts. Conservative estimates suggest that at least four million birds are killed in the USA each year by collisions with mobile phone towers. In Wisconsin, a single radio tower has caused at least 120,000 bird deaths since it was constructed, and there are at least 100,000 large towers of this sort in the USA alone.

Migratory waterbirds are particularly prone to periodic outbreaks of **infectious disease** at sites where they congregate. The most significant source of mass mortality is botulism, caused by a neurotoxin in the bacillus Clostridium botulinum. In some years, losses from botulism can be considerable. For example, 4–5 million waterfowl deaths were attributed to botulism in the western United States in 1952, whilst in 1996 an outbreak in California killed nearly 15% of the western population of American White Pelicans *Pelecanus erythrorhynchos*. Recently the role of migratory birds in spreading High Pathogenicity Avian Influenza (“bird flu”) has received considerable attention. However, all evidence suggests that the role of infected migratory birds in spreading the disease is very minor. Far more serious is the trade in poultry and poultry products, the trade in caged birds and human movements. Unfortunately, misinformation and media hysteria has fuelled public paranoia and adversely impacted conservation efforts. These ill-founded fears have resulted in calls for wild-bird culls and the destruction of wetland habitats.
In the face of such a diverse array of threats, the conservation of migratory birds depends on international collaboration and a coordinated response along entire flyways. Key to this is the identification and management of a coherence network of critical sites for migrants. BirdLife International’s Important Bird Areas (IBAs) programme provides the foundations for effective conservation action.

Surfbird

The Surfbird *Aphriza virgata* is one of several "rock-pipers" that inhabit rocky shorelines along the Pacific coasts of the Americas. The species remote mountain breeding grounds were only discovered in 1926, and its breeding ecology remains poorly understood. Over 75% of population breeds in Alaska, with smaller numbers in the (western) Yukon Territory of Canada. The species has perhaps the longest wintering range of any bird in the world; extending along the Pacific Coast of the Americas from south-eastern Alaska to southern Chile. The most significant sites for migrating Surfbird are Alaska's Homer Spit and the Northern Montague Island. These IBAs have hosted as many as 40,000 and 56,000 birds, respectively, during spring migration. Important passage sites in British Columbia include the White Islets and Wilson Creek IBA and the Barkley Sound IBA.

The Surfbird’s global population was estimated at 70,000 individuals in 2000. Christmas Bird Count data from the North American Pacific Coast reveals that the species declined by an average of 1.2% per year from 1959 to 1988. The species is inherently vulnerable because the majority of the population becomes concentrated in the region of Prince William Sound and the Gulf of Alaska during migration. The 1989 Exxon Valdez oil disaster in Prince William Sound occurred within just a few kilometres of Northern Montague Island IBA. Luckily, on that occasion the Surfbird were largely unaffected; however, there remains a considerable risk of a catastrophic oil spill. The species is also threatened from residential and industrial developments along the Pacific Coast, especially along the coast south of Vancouver Island.
**Elegant Tern**

The Elegant Tern *Thalasseus elegans* has an extremely restricted breeding range. The bulk of the breeding population occurs at Isla Rasa IBA in Mexico’s Gulf of California. The population there was estimated at 44,000 individuals in the early 1990s; 90-95% of the global breeding population. A smaller colony of about 550 birds exists to the north on Isla Montague within the Delta del Río Colorado IBA. The species has only recently started breeding along the Pacific Coast of southern California, with a colony first discovered at San Diego Bay in 1959. In 1996, this colony was estimated to number 3,740 birds, but the population has since declined considerably. A second Californian colony, which once occurred at the Bolsa Chica Ecological Reserve, has since shifted north to the Terminal Island Tern Colony IBA in Los Angeles harbour.

Post breeding dispersal begins in late May. Birds initially disperse northwards along the coast to central and northern California, and the species can occur as far north as southern British Columbia. Numbers peak along coastal North America between July and September, after which point the terns head towards South America for the winter. Most birds have departed the US coast by October. The wintering range extends from Nayarit in Mexico south to Chile. The highest wintering densities occur south of Ecuador, with especially large numbers present at the Reserva Nacional de Paracas IBA in Peru.

The species was once more widespread, breeding on a least a dozen islands throughout the Gulf of California. Unfortunately, commercial egg harvesting and the introduction of mammalian predators caused the population to decline sharply. In 1975, the population at the Isla Rasa IBA had been reduced to between 9,400 and 15,500 individuals. Although the collection of eggs is no longer a serious problem and the Isla Rasa population has recovered, the species future remains precarious due to its heavily-concentrated breeding population. Introduced mammals continue to prevent the colonisation of further breeding sites and, as recently as 1982, stray dogs killed over a hundred Elegant Tern at the San Diego Bay IBA. The species is also threatened by overfishing, entanglement in fishing equipment and urban development in southern California.
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