

Lesson 9: Migration, Immigration, and the Importance of Diversity

Background for Educators

Mannahatta was home to hundreds of different bird species. But many of these species did not make their permanent home on the island – instead, they spent part of the year there, or might even have just passed through on their way to migrating north or south. The most common migration pattern involves flying north to breed in the summer, and south to warmer areas for the winter, where food is more plentiful year-round. The reason it benefits migratory species to go north in the summer is that the longer days in the northern latitudes give diurnal birds more daylight hours in which to find food to feed their young – and there are also fewer predators in colder climates. Because they are able to produce larger numbers of offspring, it is worth it to these species to migrate, even though migration itself is a stressful and risky experience.

How do birds know which way to fly when they migrate? Many birds are able to navigate by the position of the sun in the sky. Birds also use visual cues when they travel. Many birds, for instance, follow a continent's north-south coastlines. Mannahatta was a good place for migratory birds because it was just inside the coastline, yet protected from the storms of the open sea – and abundant in food sources. For some birds, Mannahatta served as the southern end of their migration – the place they went during the winter. For others, it was the northern end of their migration – the place they went to breed in the summer. For still others, it was a resting point along the way of a migration that took them from greater or lesser reaches of north to south.

Two of the migratory species included in this lesson – the passenger pigeon and the Eskimo curlew – have since gone extinct. The passenger pigeon, which had been incredibly abundant when Europeans arrived, was hunted into extinction (hunted both for food and for sport). David de Vries, a Dutch colonist who kept a diary of his observations of the new world between 1633 and 1643, wrote of passenger pigeons (also known as turtle doves): “Turtle-doves, at the time of year when they migrate, are so numerous, that the light can hardly be discerned when they fly... I have also seen, at different times, thirty to thirty-four pigeons killed at one shot...”

Though Mannahatta was an important place for migratory birds to breed, winter, or simply rest on their travels, modern-day Manhattan may be even more important in this regard. Though Manhattan has changed in many ways, it is still located in a protected location along the coast. And because so much of the land around it has been so developed, its green sanctuary of Central Park is something of an oasis for birds searching for a good place to stop today.

Though this lesson focuses on birds, it's important to note that many different animal species other than birds migrate. Monarch butterflies are a famous example of a migratory insect, traveling thousands of miles each year, from central Mexico to southern Canada. Many fish and sea mammals migrate as well. Around Mannahatta, sea turtles, harbor seals, and American shad all had annual migrations of various distances.

The following 188 species were all migratory birds that it was likely, probable, or possible to have found at some point during the year on Mannahatta (list continues on next page):

American Bittern
American Redstart
Bald Eagle
Baltimore Oriole
Barn Swallow
Bay-breasted Warbler
Black-and-white Warbler
Black-billed Cuckoo

Blackburnian Warbler
Blackpoll Warbler
Black-throated Blue Warbler
Black-throated Green Warbler
Broad-winged Hawk
Canada Warbler
Common Moorhen
Common Nighthawk

Common Tern
Common Yellowthroat
Eastern Kingbird
Eastern Phoebe
Eastern Wood Peewee
Eskimo Curlew
Great Crested Flycatcher
Green Heron

Hermit Thrush	White-throated Sparrow	Black Tern
House Wren	American Pipit	Bobolink
Hudsonian Godwit	Bicknells Thrush	Chimney Swift
Indigo Bunting	Buff-breasted Sandpiper	Cliff Swallow
Least Flycatcher	Bufflehead	Common Merganser
Least Sandpiper	Cape May Warbler	Connecticut Warbler
Lesser Yellowlegs	Caspian Tern	Cooper's Hawk
Long-billed Curlew	Chestnut-sided Warbler	Curlew Sandpiper
Magnolia Warbler	Common Goldeneye	Eastern Bluebird
Nashville Warbler	Common Loon	Least Bittern
Northern Parula	Common Snipe	Least Tern
Northern Saw-whet Owl	Dark-eyed Junco	Loggerhead Shrike
Northern Waterthrush	Dickcissel	Long-billed Dowitcher
Olive-sided Flycatcher	Dunlin	Marbled Godwit
Osprey	Forster's Tern	Merlin
Ovenbird	Gray-cheeked Thrush	Mourning Warbler
Passenger Pigeon	Greater Scaup	Philadelphia Vireo
Pectoral Sandpiper	Henslow's Sparrow	Piping Plover
Purple Finch	Hooded Merganser	Purple Martin
Red-eyed Vireo	Hooded Warbler	Red Knot
Red-shouldered Hawk	Labrador Duck	Red-necked Stint
Rose-breasted Grosbeak	Northern Pintail	Ruff
Ruby-throated Hummingbird	Northern Rough-winged	Sedge Wren
Scarlet Tanager	Swallow	Stilt Sandpiper
Semipalmated Plover	Orchard Oriole	Tennessee Warbler
Semipalmated Sandpiper	Palm Warbler	Western Sandpiper
Sharp-shinned Hawk	Pine Siskin	Willet
Solitary Sandpiper	Red Crossbill	Lark Sparrow
Sora	Red-headed Woodpecker	Nelson's Sharp-tailed Sparrow
Spotted Sandpiper	Ring-necked Duck	Purple Sandpiper
Swainson's Thrush	Royal Tern	Black-legged Kittiwake
Upland Sandpiper	Ruby-crowned Kinglet	Blue-headed Vireo
Veery	Short-billed Dowitcher	Bonaparte's Gull
Warbling Vireo	Snowy Egret	Glaucous Gull
Whimbrel	Surf Scoter	Great Cormorant
White-rumped Sandpiper	Vesper Sparrow	Greater White-fronted Goose
Wilson's Warbler	Western Kingbird	Harlequin Duck
Yellow Warbler	White-eyed Vireo	Horned Grebe
Yellow-bellied Flycatcher	Willow Flycatcher	King Eider
American Tree Sparrow	Wood Thrush	King Rail
Bank Swallow	Yellow Rail	Lapland Longspur
Barred Owl	Yellow-bellied Sapsucker	Little Gull
Barrow's Goldeneye	Yellow-billed Cuckoo	Northern Goshawk
Black-headed Gull	Yellow-rumped Warbler	Northern Shrike
Brown Creeper	Yellow-throated Vireo	Prothonotary Warbler
Clay-colored Sparrow	Acadian Flycatcher	Red-necked Grebe
Fox Sparrow	Black Scoter	Sabine's Gull
Iceland Gull	Brant	Short-eared Owl
Lincoln's Sparrow	Common Eider	Snow Bunting
Pileated Woodpecker	Long-eared Owl	Snowy Owl
Red-breasted Merganser	Long-tailed Duck (Oldsquaw)	Tundra Swan
Snow Goose	Rusty Blackbird	Varied Thrush
Tufted Duck	White-winged Scoter	Winter Wren
Whip-poor-will	Alder Flycatcher	Yellow-headed Blackbird
White-crowned Sparrow	American Golden Plover	Yellow-throated Warbler