

Appendix 1. Additional relevant definitions related to characteristics of North American bird migration (sensu Newton 2024b).

<i>Term</i>	<i>Definition</i>
<i>Descriptors of space</i>	
Barrier	Physical or behavioral factors that act to limit movements of individuals from one side to the other of a physical feature during migration.
Bottleneck	Area wherein individuals are concentrated during migration due to geographic, meteorological, or other factors.
Flyway	Broadly, north-south oriented regions within which migratory movements of multiple populations and species are generally constrained. In some usages, also the total area used by a population of interest during the migratory period of the annual cycle.
Pathway	The route that an individual bird uses during migration.
Stopover site	An area used by migratory birds to rest and/or refuel during seasonal migration, generally for a short duration (e.g., days rather than weeks).
Staging site	An area used to accumulate stored energy reserves prior to or following the initiation of migration and generally used simultaneously by a large number of birds.
<i>Descriptors of ecological characteristics</i>	
Annual cycle	The ecology across a year, typically divided into four phases in migratory birds: breeding, migration away from breeding grounds, overwintering period, and migration back to breeding grounds.
Carryover effects	Conditions occurring in one portion of the annual cycle that affect the performance or fitness of an individual in a subsequent portion of the annual cycle.

Migratory connectivity	A measure of the strength linkages among migratory individuals or populations at different portions of the annual cycle. Can refer to temporal characteristics (e.g., similarity in the timing of departure, arrival, or stopover; temporal migratory connectivity) or spatial characteristics (e.g., spatial arrangement of individuals/populations; spatial migratory connectivity) during migration.
Phenological mismatch	The circumstance wherein timing of migratory birds' life history events does not match with timing of important ecological factors (e.g., peak food availability).