

Improving the language of migratory bird science in North America

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ABSTRACT

Several long-accepted terms are widely misused in ornithology and have led to a misperception of important concepts in the ecology of Nearctic–Neotropical migratory birds. The term “North America” (and its ancillary terms “North American species,” “North American habitats,” etc.) is widely used to refer to the United States and Canada, when in fact it should include all of the continent from the Arctic through Panama. In a similar vein, the terms “wintering” and “over-wintering” (whether used to describe the status of individual birds or species, or as a modifier for terms like habitats, ecology, or behavior), “spring migration” and “fall migration” are inappropriate for Nearctic–Neotropical migrants because they explicitly reference conditions in the temperate zone of the continent, even as most such species spend the majority of their annual cycle elsewhere, where these terms are inaccurate and unhelpful. We discuss the pitfalls of using these terms and suggest several alternatives and replacements. In particular, we urge more precision in the use of the term “North America”; for Nearctic–Neotropical migratory species (especially long-distance migrants), we suggest retiring the terms “wintering” and “over-wintering” in favor of “nonbreeding”; and for the same group of species we suggest retiring the terms “spring migration” and “fall migration” in favor of “pre-breeding,” “post-breeding,” or “post-natal” migration.

Keywords: North America, Neotropics, Nearctic–Neotropical migrant, migration, wintering, over-wintering

How to Cite

Albert, S. K., and R. B. Siegel (2023). Improving the language of migratory bird science in North America. *Ornithological Applications* 126:duad059.

LAY SUMMARY

- Several long-accepted terms are widely misused in ornithology and have led to a misperception of important concepts in the ecology of Nearctic–Neotropical migratory birds.
- The term “North America” is widely used to refer to the United States and Canada, when it should include the continent from the Arctic through Panama.
- The terms “wintering,” “over-wintering,” “spring migration,” and “fall migration” refer to annual cycle events with terminology based on the temperate zone of North America. In the Neotropics, where hundreds of species spend the majority of their life, these terms are imprecise or incorrect.
- We urge more precision in the use of the term “North America.” For long-distance migratory species, we suggest retiring the terms “wintering” and “over-wintering” in favor of “nonbreeding”; and suggest retiring the terms “spring migration” and “fall migration” in favor of “pre-breeding,” “post-breeding,” or “post-natal” migration.

Mejorando el lenguaje de la ciencia de las aves migratorias en América del Norte

RESUMEN

Varios términos ampliamente aceptados se utilizan incorrectamente en ornitología y han llevado a una percepción errónea de conceptos importantes en la ecología de las aves migratorias neárticas–neotropicales. El término “América del Norte” (y sus términos auxiliares “especies norteamericanas,” “hábitats norteamericanos,” etc.) se utiliza ampliamente para referirse a Estados Unidos y Canadá, cuando en realidad debería incluir todo el continente desde el Ártico hasta Panamá. En una línea similar, los términos “invernada” y “pasar el invierno” (ya sea utilizados para describir el estatus de aves individuales o especies, o como modificador de términos como hábitats, ecología o comportamiento), “migración de primavera” y “migración de otoño” no son apropiados para las aves migratorias neárticas–neotropicales, ya que hacen referencia explícita a condiciones en la zona templada del continente, incluso cuando la mayoría de estas especies pasan la mayor parte de su ciclo anual en otro lugar, donde estos términos son inexactos e inútiles. Discutimos las trampas de utilizar estos términos y sugerimos varias alternativas y reemplazos. En particular, instamos a una mayor precisión en el uso del término “América del Norte”; para las especies migratorias neárticas–neotropicales (especialmente las de larga distancia), sugerimos retirar los términos “invernada” y “pasar el invierno” a favor de “no reproductivas”; y para el mismo grupo de especies sugerimos retirar los términos “migración de primavera” y “migración de otoño” en favor de “migración pre-reproductiva,” “migración post-reproductiva” o “migración postnatal”.

Palabras clave: América del Norte, invernada, migración, migrante neártico-neotropical, Neotrópico, pasar el invierno

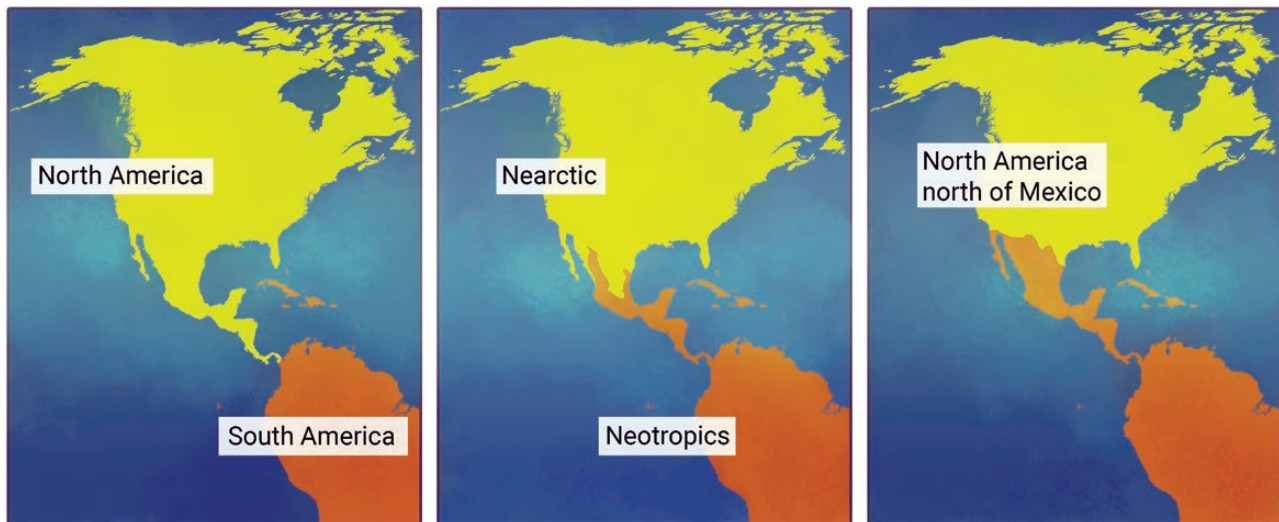


FIGURE 1. Geographic reference for terminology described in this paper, including North America and South America (left), the Nearctic and Neotropics (center), and North America north of Mexico (the United States and Canada only; right). Figure courtesy of Lauren Helton.

INTRODUCTION

The language we use to describe the world influences how we think about it. Complex, multi-faceted ideas as well as seemingly straight-forward technical concepts are shaped by the vocabulary we affix to them. We believe that in ornithology, long-accepted terminology has contributed to a misunderstanding of certain facts. Here, we point out two areas where commonly used word choice is inaccurate and unhelpful, and we suggest alternative, more precise terms. This scrutiny of commonly used language evolved partly out of a desire across the profession to embrace a more inclusive framework (Soares et al. 2023), but is not intended as a scolding from the language police nor a call to contort language to fit a social or political agenda. Instead, we wish to point out how long-accepted imprecision or outright mistakes have impeded understanding of important concepts in migratory bird science and likely contributed to alienation of researchers and conservation practitioners based south of the U.S. border, and to suggest some solutions.

In avian conservation and ecology, birds that nest in the United States or Canada and migrate to spend the nonbreeding months south of the U.S.–Mexico border are widely described as “North American species” that “winter” or “over-winter” in more southerly latitudes. Thousands of authoritative sources such as books and technical papers—including some we have written—have used these terms. In his classic textbook *Ornithology*, Gill (1995) often (though not always) describes North America in a way that encompasses only the U.S. and Canada (see for example, pages xxiv, 18, 37, and 560). Nearly all of the most authoritative and widely used field guides, including those by The National Geographic Society (Dunn and Alderfer 2017), Peterson (2020), Sibley (2016 and 2020), The National Audubon Society (2021), Kaufman (2005), Stokes (2010), and numerous others are described on their covers as guides to the birds of North America, yet they encompass only the birds of the region’s northernmost two countries. It is difficult to determine when this confusing verbal shorthand arose, but it persists today. Examples from the ornithological literature are far too numerous to catalog, but

even the title of one of the more influential ornithology papers in recent years, “Decline of the North American avifauna” (Rosenberg et al. 2019), perpetuates the conflation of North America with the U.S. and Canada.

So, what does the term “North America” mean? To better define the continent, it helps to visualize a map of the hemisphere without any geopolitical boundaries or preconceptions (Figure 1). From this perspective everything from the northernmost tip of Alaska through the entire Central American isthmus should qualify as North America; and this is the way many authoritative ornithological sources, including the American Ornithological Society (Chesser et al. 2022) and the American Birding Association (2023), define it. This also conforms to the geological understanding of the deep history of these land masses: for example, the Panama Plate is a small tectonic plate more closely connected to the more northerly Caribbean, Cocos, and North American Plates than the more southerly South American Plate (Joseph 2017). More importantly, though attitudes differ widely, many Central Americans and especially Mexicans think of their countries as part of North America (Santa Cruz and López Jiménez 2012). Yet, many ecologists continue to refer to North America as if it included only the United States and Canada.

Similarly, a migratory bird’s annual cycle is usually divided into “breeding” and “wintering” (and for some species, spring and fall migratory) zones, habitats, and timeframes, referring to the seasons as they are experienced across northern North America. But south of the continent’s temperate zone, the definition of “winter” becomes murky. In most of tropical Latin America, “winter” is the rainy time of year, which in much of southern Mexico is June through October; in Costa Rica and Panama, it is May through December—about as far from the northern temperate definition of winter as possible. And of course, once one crosses the equator, as hundreds of long-distance migratory bird species do, using the term “wintering” to define status between October and March is just plain wrong: this period is actually the austral spring and summer. Continuing to reference the seasons based on temperate North America is misleading and inaccurate,

especially because many temperate North American breeding birds spend two-thirds or more of their lives outside the U.S. and Canada.

Why is all this important—isn't it just semantics? The answer is no. The terminology we use reflects the way we think about things. In the sciences, we strive for accuracy, including accuracy in language. Precision in language is critical in order to have definitions that are consistent for communication and increase our ability to evaluate information consistently when we use and share data (Lepczyk et al. 2008). Thinking about a hemisphere-wide shared resource such as migratory birds with terms that are referential to the place where they spend the least amount of time, and inaccurately describing that time and place, can lead us to ignore or misunderstand other parts of their ecology.

To facilitate speaking and thinking about these concepts in a more accurate manner, we offer the following suggestions:

We urge more geographical precision in the use of the term “North America.” When referencing the area north of Mexico, we recommend referring explicitly to the continental United States and/or Canada or, for example, “North America north of Mexico” (Figure 1). Conversely, we recommend the term “North America” be reserved for referencing the entire continent from Alaska to Panama.

In an ecological (rather than geopolitical) framework, we recommend use of the terms Nearctic and Neotropical, which are already in wide use. While the boundaries of these regions are less clearly defined than geopolitical boundaries—and by the nature of ecological zones and their transitional boundaries, a bit fuzzy around the edges—one convenient and accepted definition is that the Nearctic encompasses everything from the northernmost reaches of the continent south through the Mexican Plateau, an area of volcanic mountain ranges south-central Sierra Madre (Figure 1; Helfman 2013).

To describe the various elements of the annual cycle of Nearctic–Neotropical migratory birds, we suggest the following terminology: (1) retire the terms “wintering” and “overwintering” in favor of “nonbreeding,” which also includes pre- and post-breeding seasons; (2) retire the term “spring” migration in favor of “pre-breeding” migration; and (3) retire the term “fall migration” in favor of “post-natal” or “post-breeding migration.”

We concede that the terms “spring migration” and “fall migration” may be difficult to dislodge from the ornithological literature, where they are deeply rooted and, when referencing species that confine their seasonal movements to the temperate zone of North America, they remain appropriate. But for Nearctic–Neotropical migration, the terms are biased and inaccurate and should no longer be used.

Scientists speaking and writing with the most accurate and precise terminology available will strengthen both migratory bird science and communication efforts aimed at disseminating and applying that science. Using more precise language may also alleviate frustration of researchers in Latin America and the Caribbean about geographic bias. Ornithologists from these regions who work often with scientists from the U.S. and Canada may understand the existing, biased terminology, but we believe its continued usage demonstrates a lack of respect and impedes progress toward creating a more inclusive discipline. Finally, while conservation professionals understand the importance of full annual cycle conservation, much of the general public, administrators, and politicians from across the

hemisphere may not. A good start toward raising awareness is clear and accurate communication about the importance of the Neotropics to U.S.- and Canadian-breeding birds, and conserving birds wherever they are in their annual journeys.

ACKNOWLEDGEMENTS

We thank the numerous colleagues with whom fruitful discussions have shaped these ideas. We thank Ernesto Ruelas Inzunza, Camila Gómez, Fabiola Rodríguez Vasquez, Ana Gonzáles Prieto, Peter Pyle, and James Saracco for providing helpful comments. We thank Lauren Helton for the creation of Figure 1, and two anonymous reviewers who provided extremely helpful comments. This is Contribution 759 of The Institute for Bird Populations.

Funding statement

This work was supported by The Institute for Bird Populations.

Conflict of interest statement

There are no conflicts for the authors or the Institute for Bird Populations inherent in this manuscript.

Author contributions

Steven Albert conceived the idea for this paper and wrote the first draft. Rodney Siegel contributed equally to the full development of the ideas in the paper and the writing and was the primary editor.

LITERATURE CITED

- American Birding Association. (2023). North American Birds. <https://www.aba.org/north-american-birds/>
- Chesser, R. T., S. M. Billerman, K. J. Burns, C. Cicero, J. L. Dunn, B. E. Hernández-Baños, R. A. Jiménez, A. W. Kratter, N. A. Mason, P. C. Rasmussen, et al. (2022). *Check-list of North American Birds*. American Ornithological Society, Chicago, IL, USA. <https://check-list.americanornithology.org/taxa/>
- Dunn, J. L., and J. Alderfer (2017). *National Geographic Field Guide to the Birds of North America*. National Geographic Society, Washington, D.C., USA.
- Gill, F. (1995). *Ornithology*, second edition. W. H. Freeman and Company, New York, NY, USA.
- Helfman, G. S. (2013). *Encyclopedia of Biodiversity*, second edition. Elsevier Inc., Cambridge, MA, USA.
- Joseph, A. (2017). *Investigating Seafloors and Oceans: From Mud Volcanoes to Giant Squid*. Elsevier, Amsterdam, The Netherlands.
- Kaufman, K. (2005). *Kaufman Field Guide to Birds of North America*. Mariner Books, HarperCollins, Boston, MA, USA.
- Lepczyk, C. A., C. J. Lortie, and L. J. Anderson (2008). An ontology for landscapes. *Ecological Complexity* 5:272–279.
- Peterson, R. T. (2020). *Peterson Field Guide to Birds of Eastern & Central North America*, seventh edition. Mariner Books, HarperCollins, Boston, MA, USA.
- Rosenberg, K. V., A. M. Dokter, P. J. Blather, J. R. Sauer, A. C. Smith, P. A. Smith, J. C. Stanton, A. Panjabi, L. Helft, M. Parr, et al. (2019). Decline of the North American avifauna. *Science* 366:120–124.
- Santa Cruz, A., and J. J. López Jiménez (2012). México y la cuenca del pacífico. *SCIelo* 1:0–00.
- Sibley, D. A. (2016). *Sibley Birds West: Field Guide to Birds of Western North America*. Knopf, New York, NY, USA.

- Sibley, D. A. (2020). *The Sibley Field Guide to Birds of Eastern North America*, second edition. Knopf, New York, NY, USA.
- Soares, L., K. L. Cockle, E. R. Inzunza, J. T. Ibarra, C. I. Miño, S. Zuluaga, E. Bonaccorso, J. C. Ríos-Orjuela, F. A. Montaña-Centellas, J. F. Freile, et al. (2023). Neotropical Ornithology: Reckoning with historical assumptions, removing systemic barriers, and reimagining the future. *Ornithological Applications* 125:duac046.
- National Audubon Society (2021). *The National Audubon Society Field Guide to the Birds of North America*. Knopf, New York, NY, USA.
- Stokes, D., and L. Q. Stokes (2010). *The Stokes Field Guide to the Birds of North America*. Little, Brown, and Company. Boston, MA, USA.