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# A BOREAL SONGBIRD'S 20,000 KM MIGRATION ACROSS NORTH AMERICA AND THE ATLANTIC OCEAN

William V. DeLuca , Bradley K. Woodworth , Stuart A. Mackenzie, Amy E. M. Newman, Hilary A. Cooke, Laura M. Phillips, Nikole E. Freeman, Alex O. Sutton , Lila Tauzer, Carol McIntyre, Iain J. Stenhouse , Scott Weidensaul, Philip D. Taylor, and D. Ryan Norris 

## Study Description

The 12-g migratory blackpoll warbler has one of the most spectacular migrations in the world. We used miniaturized devices to track the movements of blackpolls breeding at four northern locations, including as far west as Nome, Alaska, USA. In fall, all birds crossed North America to stop over on the Atlantic coast and then made a 3-day, nonstop flight over the Atlantic Ocean to South America, eventually reaching the Amazon Basin. For some birds, this round trip was over 20,000 km. These critical connections provide important information for understanding the causes of decline in one of North America's fastest declining songbirds.

DeLuca, W. V., B. K. Woodworth, S. A. Mackenzie, A. E. M. Newman, H. A. Cooke, L. M. Phillips, N. E. Freeman, A. O. Sutton, L. Tauzer, C. McIntyre, I. J. Stenhouse, S. Weidensaul, P. D. Taylor, and D. R. Norris. 2019. A Boreal Songbird's 20,000 km Migration Across North America and the Atlantic Ocean. *Bull Ecol Soc Am* 100(3):e01551. <https://doi.org/10.1002/bes2.1551>



Photo 1. A breeding male blackpoll warbler (*Setophaga striata*) near Churchill, Manitoba, Canada. This individual was released after being fitted with a light-level geolocator and a unique color band combination. This bird left Churchill in the summer of 2016 to winter in the Amazon Basin and then returned to the same breeding location in 2017 where we recaptured him and removed the geolocator. Photo credit: Christian Artuso.



Photo 2. A male blackpoll outfitted with a light-level geolocator near Whitehorse, Yukon Territory, Canada. The light-sensing stalk is visible, rising gently from the bird's back. The device records and stores the time, date, and light exposure every few minutes for up to a year. From this information, researchers can estimate, within a few hundred kilometers, where the bird moved throughout its annual cycle for that year. Photo credit: Hilary A. Cooke.



Photo 3. Wildlife Conservation Society Canada's wildlife biologist Lila Tauzer extracts a male black-poll warbler from a mist net near Whitehorse, Yukon Territory, Canada. Once the color-banded individual was spotted, confirming it was a bird fitted with a geolocator the previous breeding season in 2016, male songs were played from a speaker near the net to attract the tagged bird to a perceived territorial intruder, resulting in this capture. Other breeding sites used in the study included Nome (Alaska), Denali (Alaska), and Churchill (Manitoba). Photo credit: William V. DeLuca.



Photo 4. Typical blackpoll breeding habitat in the boreal forest of the Yukon Territory. Blackpolls tend to establish breeding territories within or along the edges of boreal wetlands with a mix of *Salix* spp. shrubs and coniferous trees like white spruce (*Picea glauca*) and black spruce (*P. mariana*). Photo credit: William V. DeLuca.

These photographs illustrate the article “A boreal songbird’s 20,000 km migration across North America and the Atlantic Ocean” by William V. DeLuca, Bradley K. Woodworth, Stuart A. Mackenzie, Amy E. M. Newman, Hilary A. Cooke, Laura M. Phillips, Nikole E. Freeman, Alex O. Sutton, Lila Tauzer, Carol McIntyre, Iain J. Stenhouse, Scott Weidensaul, Philip D. Taylor, and D. Ryan Norris, published in *Ecology*. <https://doi.org/10.1002/ecy.2651>