

William V. DeLuca

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Education

Ph.D., Wildlife Conservation, 2013, University of Massachusetts, Amherst, MA,
Thesis: *Ecology and conservation of montane forest birds in northeastern North America*
Advisor: Dr. David I. King

M.S., Biology. 2003, George Mason University, Fairfax, VA
Thesis: *Influence of land use on the integrity of marsh bird communities of Chesapeake Bay, USA*
Advisor: Dr. Peter P. Marra

B.S., Interdisciplinary, 1998, Plymouth State University, Plymouth, NH
Advisor: Dr. Leonard Reitsma

Current Position

Adjunct Assistant Professor, 2015-present, Department of Environmental Conservation, University of Massachusetts, Amherst, MA

Postdoctoral Research Fellow, 2013-present, Northeast Climate Science Center, Department of Environmental Conservation, University of Massachusetts, Amherst, MA
Project: *Designing sustainable landscapes: using species landscape capability models to assess the effects of climate and land use change on biodiversity*
Advisor: Dr. Kevin McGarigal

Professional Experience

Research Assistant, University of Massachusetts, Department of Environmental Conservation and US Forest Service Northern Research Station, Amherst, MA, 2006-2013

Ecologist, Baystate Environmental Consultants, East Longmeadow, MA, 2006-2010

Career highlights

- 16 peer-reviewed papers, 3 additional papers under revision
- h-index: 7, over 350 citations
- Over \$1,100,000 in grants since 2013
- Research featured globally in public media including: Science, Nature, National Geographic & NPR
- Developed and taught 4 grad/undergrad courses at UMass

Ecologist, Smithsonian Institution, Environmental Research Center / Migratory Bird Center, Edgewater, MD and Washington, DC, 2002-2006

Teaching Assistant, George Mason University, Fairfax, VA and Smithsonian Institution, Environmental Research Center, Edgewater, MD, 2000-2002

Field Ecologist, Carnegie Museum of Natural History, Rector, PA, 2000

Field Ecologist, New England Institute for Landscape Ecology, Canaan, NH, 1998-2000

Publications

1. McGarigal, K., B.W. Compton, E.B. Plunkett, **W.V. DeLuca**, J. Grand, E. Ene, S.D. Jackson. *In press*. A landscape index of ecological integrity to inform landscape conservation. *Landscape Ecology*.
2. McGarigal, K., E.B. Plunkett, L.L. Wiley, B.W. Compton, **W.V. DeLuca**, J. Grand. 2018. Modelling urban growth in the northeastern United States: the SPRAWL model and the ecological impacts of urban growth. *Landscape and Urban Planning*. 177:178-190. DOI: 10.1016/j.landurbplan.2018.04.018
3. Loman, Z.G., **W.V. DeLuca**, D. Harrison, C.S. Loftin, P.B. Wood. 2018. Landscape capability models as a tool to predict fine-scale forest bird occupancy and abundance. *Landscape Ecology*. 33:77-91. DOI: /10.1007/s10980-017-0582-z
4. Loman, Z.G., E.J. Blomberg, **W.V. DeLuca**, D.J. Harrison, C.S. Loftin, P.B. Wood. 2017. Validating landscape capability as a predictor of upland game bird abundance and occurrence. *Journal of Wildlife Management*. 81:1110-1116. DOI: 10.1002/jwmg.21265
5. **DeLuca, W.V.** and D.I. King. 2017. Montane birds shift downslope despite recent warming in the northern Appalachian Mountains. *Journal of Ornithology*. 158:493-505. DOI: 10.1007/s10336-016-1414-7
6. Ralston, J., **W.V. DeLuca**, R. Feldman, D.I. King. 2017. Population trends influence a species ability to track climate change. *Global Change Biology*. 23:1390-1399. DOI: 10.1111/gcb.13478
7. Ralston, J., **W.V. DeLuca**, R. Feldman, D.I. King. 2016. Realized climate niche breadth varies with population trend and distribution in North American birds. *Global Ecology and Biogeography*. 25:1173-1180. DOI: 10.1111/geb.12490
8. **DeLuca, W.V.**, B.K. Woodworth, C. Rimmer, P.P. Marra, P.D. Taylor, K. McFarland, S.A. Mackenzie, D.R. Norris. 2015. Transoceanic migration of a 12 g songbird. *Biology Letters*. 11: 20141045. DOI: 10.1098/rsbl.2014.1045

9. Ralston, J., D.I. King, **W.V. DeLuca**, G.J. Niemi, M.J. Glennon, J.C. Scarl, J.D. Lambert. 2015. Analysis of combined data sets yields trend estimates for vulnerable spruce-fir birds in northern United States. *Biological Conservation*. 187:270-278. DOI: 10.1016/j.biocon.2015.04.029
10. **DeLuca, W.V.** and D. King. 2014. Influence of hiking trails on montane birds. *Journal of Wildlife Management*. 78:494-502. DOI: 10.1002/jwmg.675
11. **DeLuca, W.V.**, Holberton, R., P. Hunt and B.C. Eliason. 2013. Blackpoll Warbler (*Setophaga striata*), *The Birds of North America Online* (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology.
12. Studds, C.E., **W.V. DeLuca**, R.S. King, M.E. Baker, P.P. Marra. 2012. Land cover and rainfall interact to shape waterbird community composition. *PLoS ONE* 7(4): e35969.
13. **DeLuca, W.V.**, C.E. Studds, R.S. King, P.P. Marra. 2008. Coastal urbanization and waterbird community integrity: threshold responses and the importance of scale. *Biological Conservation* 141:2669-2678.
14. King, R.S., **W.V. DeLuca**, D.F. Whigham, P.P. Marra. 2007. Threshold effects of coastal urbanization on *Phragmites australis* (common reed) abundance and foliar Nitrogen in Chesapeake Bay. *Estuaries and Coasts* 30:469-481.
15. **DeLuca, W.V.**, C.E. Studds, L.L. Rockwood, P.P. Marra. 2004. Influence of land use on the integrity of marsh bird communities of Chesapeake Bay, USA. *Wetlands* 24:837-847.
16. Lopez-Ortiz, R., E.A. Ventosa-Febles, L.R. Reitsma, D. Hengstenberg, and **W.V. DeLuca**. 2002. Increasing nest success in the Yellow-shouldered Blackbird (*Agelaius xanthomus*) in southwest Puerto Rico. *Biological Conservation* 108:259-263.

Manuscripts Pending

McFarland, K.P., C.C. Rimmer, S. Frey, **W.V. DeLuca**. *Under revision*. Effects of a biennial pulsed resource on songbirds in fir forests of northeastern North America. *Oecologia*.

McGarigal, K., B.W. Compton, E.B. Plunkett, **W.V. DeLuca**, J. Grand, S. Schwenk, A. Miliken. *In review*. Alternative approaches to landscape conservation design in the northeastern United States. *Ecological Applications*.

Duclos, T., **W.V. DeLuca**, D.I. King. *Resubmitted*. Direct and indirect effects of climate on bird abundance along elevation gradients in the northern Appalachians. *Diversity and Distributions*.

Sample of Technical Documents

Morelli, T.L., **W.V. DeLuca**, C.B. Ellison, S.F. Jane, S.N. Matthews. 2015. Biological responses to climate impacts with a focus on Northeast and Midwest Regional Species of Greatest Conservation

W. V. DeLuca, Curriculum Vitae

Need (RSGCN). *In* Staudinger, D.M., T.L. Morelli, A.M. Bryan. [Integrating climate change into the Northeast and Midwest State Wildlife Action Plans](#).

McGarigal, K., W.V. DeLuca. 2015. [Designing sustainable landscapes: species distribution models](#). University of Massachusetts.

Frey, S.J., W.V. DeLuca, R.S. Butryn. 2007. [Integrated modeling of habitat suitability and occupancy](#). *In* Donovan, T.M. and J. Hines. Exercises in occupancy modeling and estimation.

Teaching Experience

Instructor, undergraduate/graduate course, ECO 691, *Current Research in Environmental Conservation: Enhancing oral and visual communication skills for scientists*, Department of Environmental Conservation, University of Massachusetts, Fall 2017, Spring 2018. Developed all course material including syllabus, projects, and lectures.

Instructor, graduate course, ECO 697, *Species Distribution Models: Opportunities and Application*, Department of Environmental Conservation, University of Massachusetts, Fall 2017. Developed all course material including syllabus, projects, and lectures.

Instructor, undergraduate course, NRC 497, *Ecology and Conservation of Migratory Species*, Department of Environmental Conservation, University of Massachusetts, Fall 2016. Developed all course material including syllabus, projects, and lectures.

Instructor, graduate course, WFCNSV 697, *Hierarchical models of animal occurrence, abundance and survival*, Department of Environmental Conservation, University of Massachusetts, Fall 2009. Developed all course material including syllabus, projects, and lectures.

Session facilitator, Workshops (3), North Atlantic Landscape Conservation Cooperative's Designing Sustainable Landscape Project, *Using representative species distribution models in landscape design*, Augusta, ME; Northampton, MA; Easton, MD, 2012.

Instructor, U.S. Forest Service, International Programs, Workshop on Migratory Birds Across the Rift Valley Flyway: Promoting Collaboration and Conservation, *Modeling Bird Population Abundance and Trends*, Azraq Wetland Reserve, Azraq, Jordan, March 2010. Developed all course material including syllabus, projects, and lectures.

Guest Lecturer, undergraduate Ecology and Conservation Biology Courses. Plymouth State University, four occasions, 2004-2010.

Graduate Teaching Assistant, Biology 103, Biology 104, Ecology 304, Department of Biology, George Mason University, 2000-2002.

Recent Media Coverage

Related to DeLuca and King 2016

New England Public Radio, [UMass study shows unexpected shifts in bird populations as climate warms](#), 9 December 2016

This research was also feature in: [Science Daily](#), [Science Newsline](#), [Environmental News Online](#), [UMass Amherst News & Media](#), and Northern Woodlands

Related to DeLuca et al. 2015

National Geographic, [Amazing: Tiny birds fly without landing for three days](#), 31 March 2015

Science, [Giant ocean no match for tiny bird](#), 31 March 2015

Nature, [Small bird takes big journey](#), 8 April 2015, 520, p. 134, doi:10.1038/520134d

Boston Globe (front page), [Tiny blackpoll warblers make mind-boggling migration](#), 1 April 2015

The New York Times, [For blackpoll warbler, a lot of flying for a lightweight](#), 6 April 2015

The Washington Post, [The amazing 1,600-mile, open-water migration of half-once songbirds](#), 1 April 2015

NPR, Radio Boston, [The incredible journey of New England's blackpoll warbler](#), 2 April 2015

NPR, Science Friday, [Catching a non-stop, transatlantic flight on a songbird's back](#), 3 April 2015

This research was also featured in: [Discovery News](#), [New Scientist](#), [Thompson's Reuters](#), [Live Science](#), [The Guardian](#), [Motherboard](#), [Newsweek](#), [PBS News](#), [Public Radio International](#), [Newsy](#), [The Japan Times](#), Scientific America, Birding Magazine, Northern Woodlands, Living Bird, [Huffington Post](#), [International Business Times](#), [Daily Mail](#), [The Star](#), [CBS News](#), [Evolution News and Views](#), [Nature World News](#), [Treehugger](#)

Related to Ralston et al. 2015

Audubon, [The first boreal bird count: A new study sheds light on the population status of 14 hard-to-reach species](#), June 2014

Advising and Mentoring

Tim Duclos, University of Massachusetts, 2014 – 2017, Co-advisor, Examining the role of climate and habitat for determining species distributions along an elevational gradient.

Maegen Basset, Plymouth State University, 2015 – present, Masters committee member, Effects of private forestry practices on forest songbird communities in the White Mountains, NH.

Joel Ralston, University of Massachusetts, 2014-2015, Postdoctoral co-advisor, The effects of population trends and climate niche on species' ability to respond to climate change.

Grants and Awards

Mechanisms for species responses to climate change: Are there biological thresholds? 2016. Northeast Climate Science Center, USGS, **\$469,411**

Using spatially explicit models of Bicknell's thrush (*Catharus bicknelli*) abundance to inform population size estimates and future distribution predictions. 2015. National Fish and Wildlife Foundation, **\$78,588**

Understanding the impacts of climate change on obligate spruce-fir birds. 2015. Northern States Research Cooperative, **\$44,900**

Evaluation of representative bird species' Landscape Capability models developed by the Designing Sustainable Landscapes project in the 13-state, northeastern region of the United States, 2015, USFWS / USGS Science Support Program, **\$263,524**

Examining the role of climate and habitat for determining species distributions along an elevational gradient in the White Mountains, NH. 2014. Northeast Climate Science Center, **\$81,828**

Modeling effects of climate change on spruce-fir forest ecosystems and associated priority bird populations. 2014. Northeast Climate Science Center, **\$148,828**

Effects of ecosystem elevational shifts on avian communities, Assessing historical data to document elevational range shifts and understanding the roles of habitat and interspecific competition on distributional shifts. 2013. USFS Northeast Research Station, **\$30,000**

Using an elevation gradient to provide insight into the effects of climate change on montane bird Demography. 2008-2009. USFS Northeast Research Station, **\$50,000**

AOU student travel award. 2007 and 2012, **\$350**

Assessment of trail-based point count methods. 2007. American Bird Conservancy, **\$5,000**

Smithsonian Graduate Fellowship. 2001-2002. **\$18,000**

Select Invited Presentations

University of Massachusetts, Department of Environmental Conservation, Department Seminar Series – Lightning Talks, 2017

Smithsonian Migratory Bird Center, Seminar Series, Washington DC, 2016.

University of Maryland, Baltimore County, Geography and Environmental Systems Department Seminar Series, MD, 2016.

International Association of Landscape Ecology, Symposium on climate change and biodiversity conservation, Ashville, NC, 2016.

Northeast Climate Science Center, Colloquium Webinar Series, Amherst, MA, 2016.

Plymouth State University, Center for the Environment, Colloquium Series, Plymouth, NH, 2015.

Moose, Boreal Forest and Climate Change – State of the Science Symposium, USGS, Northeast Climate Science Center, Westborough, MA, 2015.

Tidal Marsh Resiliency Workshop, Northeast Region U.S. Fish and Wildlife Service Headquarters, Hadley, MA, 2014.

Vermont Center for Ecostudies, Seminar Series, Norwich, VT, 2013.

Plymouth State University, Department of Biology Seminar Series, Plymouth, NH, 2013.

Northeast Natural History Conference, Symposium on species response to climate change, Springfield, MA, 2013.

2nd Northeast Bird Conservation Conference, Symposium on modeling wildlife populations for conservation, Plymouth, MA, 2012.

Migratory Bird Symposium, Hubbard Brook Foundation, Plymouth, NH, May 2008.

Northeast Coordinated Bird Monitoring-Mountain Bird Working Group Meeting, 2007.

The Wildlife Society-New England Chapter, Fall Workshop, 2006.

National Estuarine Research Reserve System, Workshop, Jug Bay Wetlands Sanctuary, 2006.

Smithsonian Environmental Research Center, Seminar Series, Edgewater, MD, 2005

Contributed Presentations (first author/presenter)

Population trends influence climate niche breadth and ability to track climate change for North American birds. North American Ornithological Conference VI, Washington, DC, 2016.

Designing sustainable landscapes with species landscape capability models. Northeast Association of Fish and Wildlife Agencies, Newport, RI, 2015.

A montane bird distribution model applied to climate change predictions inform landscape conservation design. Presenter and session organizer: Conservation ecology of montane birds. American Ornithologists' Union, Cooper Ornithological Society, and Society of Canadian Ornithologists. Estes Park, CO, 2014.

W. V. DeLuca, Curriculum Vitae

Blackpoll warbler (*Dendroica striata*) breeding ecology along an elevation gradient: insights into the response of high elevation birds to a changing climate. North American Ornithological Conference. Vancouver, BC, 2012.

Elevation range shifts of birds in montane forests of the White Mountains, NH. Bird Conservation Conference in the Northeast. Plymouth, MA, 2010.

Elevation range shifts of birds in montane forests of the White Mountains, NH. Northeast Fish and Wildlife Conference. Newton, MA, 2010.

Effects of recreational hiking trails on montane bird occupancy and detectability in the White Mountains, NH. North American Ornithological Conference. Portland, OR, 2008.

From the land to water: linking watershed land cover and estuarine ecological condition. Ecological Society of America & International Congress of Ecology Meeting. Montreal, Canada, 2005.

From the land to water: linking watershed land cover and estuarine condition. Smithsonian National Zoological Park Research Seminar Series, 2005.

Watershed land use patterns influence waterbird communities of the Chesapeake Bay. American Ornithologists Union Meeting. Quebec City, Canada, 2004.

Professional Activity

Elected Member: American Ornithological Society

Member: Ecological Society of America, The Wildlife Society

Seminar Series Selection Committee, Department of Environmental Conservation, University of Massachusetts

Study Design Committee, Mountain Bird Working Group, American Bird Conservancy

Study Design Committee, International Bicknell's Thrush Conservation Group

Certified Wildlife Biologist, The Wildlife Society

Reviewer for: Avian Conservation & Ecology, Biological Conservation, Biology Letters, Bird Study, The Condor, Ecosphere, Environmental Management, Hydrobiologia, Journal of Field Ornithology, Landscape Ecology, Movement Ecology, Northeast Naturalist, PLoS One, Waterbirds, Wetlands, Wilson Journal of Ornithology

Conservation Commission, Chair, Town of South Hadley, MA

Professional References

Dr. Kevin McGarigal
Professor
Department of Environmental Conservation
304 Holdsworth Hall
University of Massachusetts
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Dr. Scott Schwenk
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North Atlantic Landscape Conservation Cooperative
U.S. Fish and Wildlife Service
300 Westgate Center Drive
Hadley, MA 01035-9587
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Dr. Leonard Reitsma
Professor, Graduate Program Coordinator
Department of Biological Sciences
Plymouth State University
Boyd Science Center
Plymouth, NH 03264
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Dr. Peter P. Marra
Head
Migratory Bird Center
Smithsonian Conservation Biology
National Zoological Park
Washington, DC 20013
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Research Wildlife Biologist
U.S. Forest Service
Northern Research Station
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