

KIMBERLY R. HALL, PhD.

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CURRENT POSITION

Climate Change Ecologist & Terrestrial Resilience Project Manager, The Nature Conservancy, North America Program. I manage and provide scientific expertise on a project focused on identifying sites in the Great Lakes and Great Plains regions of the US that are most likely to help sustain biodiversity and ecosystem services as the climate changes. This work is based on the “Conserving Nature’s Stage” approach, and involves overseeing two large steering committees (one for each region), and coordinating a team of TNC scientists from across the US to implement spatial analyses. With partners at USGS and the Wildlife Conservation Society, I will also be co-leading a working group focused on synthesizing information on the ecological impacts of drought across the US, and identifying opportunities to better incorporate consideration of natural systems in community and regional scale drought planning efforts. Within the Conservancy, I am part of North American Region’s LANDFIRE team, and am also an adjunct faculty member in the Departments of Forestry, and Fisheries and Wildlife at Michigan State University. 2014 to present.

PAST POSITIONS

Great Lakes Climate Change Ecologist, The Nature Conservancy, Michigan Field Office. My work focused on research and outreach on incorporating climate change impacts and adaptation into site and regional-scale conservation activities pursued by The Nature Conservancy and partners in the Great Lakes region. Projects included developing guidance for “climate smart” management of natural areas in the Chicago region, working with partners to update forest management in the upper Midwest, evaluating the vulnerability of conservation strategies/field-scale conservation practices in agricultural landscapes, and collaborating with a multi-disciplinary team at the University of Notre Dame to develop a web-based “Collaboratory” for Climate Change Adaptation (adapt.nd.edu). In this position I was part of a team led by NatureServe that created the Climate Change Vulnerability Index (CCVI), and part of team led by the National Wildlife Federation that developed climate change adaptation guidance for practitioners. I also represented The Conservancy as a member of the Federal Advisory Committee for the USGS Climate Science Centers and the National Climate Change & Wildlife Science Center. 2008 - 2014.

Assistant Professor, Research, Departments of Fisheries and Wildlife, and Department of Forestry, Michigan State University. 2006 to 2008.

Research Fellow, Center for Applied Biodiversity Science, Conservation International (based at Michigan State University). Modeling impacts of climate change on ranges of California’s wild species. 2004 to 2008.

The Nature Conservancy - David T. Smith Conservation Post-doctoral Fellow, Department of Fisheries and Wildlife, Michigan State University. Research on integrating ecological and economic components of forest management into a spatially-explicit tool for forest management decision-making. 2002-2004.

Research Associate/Technical Writer, Biomedware Inc., Ann Arbor, MI. Research and development of educational materials on applications of spatial statistics. 1997 to 2001, and 2005 to 2008.

Research Assistant, Climate Change/Wildlife Project, University of Michigan, Ann Arbor, MI. Synthesized information from literature on impacts of climate change on wildlife for incorporation into the IPCC Third Assessment Report. 1999-2000.

Research Assistant/Analyst, Ecological risk assessment, ICF Kaiser Inc., Vienna, VA. Research in support of EPA's *Wildlife Exposure Factors Handbook*. 1991-1993.

EDUCATION

Doctor of Philosophy - Terrestrial Ecology, August 2002. University of Michigan, School of Natural Resources and Environment, Ann Arbor, MI. Advisor: Dr. Terry Root. Dissertation title: *An assessment of habitat quality of heavily- and*

less-browsed Michigan forests for a shrub-nesting songbird.

Master of Science - Conservation Biology, December 1996. University of Michigan, School of Natural Resources and Environment, Ann Arbor, MI. Advisor: Dr. Bobbi Low. Thesis title: *Point counts of Michigan birds: Improving sampling efficiency for species of concern.*

Bachelor of Arts in Biology and Environmental Studies, 1989. Dartmouth College, Hanover, NH.

APPOINTMENTS AND SERVICE

Federal Advisory Committee on Climate Change and Natural Resource Science for the Department of Interior. One of 25 members, as part of this group I provided guidance to the USGS National Climate Change and Wildlife Science Center, and Climate Science Centers. Served as co-lead of a sub-group focused on improving coordination and cooperation among the many different entities engaged in providing support for stakeholders engaged in evaluating and adapting to climate change risks. Two year appointment, May 2013-2015. Beginning in 2016, I will serve again as an alternate. First report, May 2015: https://nccwsc.usgs.gov/sites/default/files/files/ACCCNRS_Report_2015.pdf

Steering Committee and Program Committee, National Adaptation Forum. For the 2017 meeting, I will serve on the Steering Committee and Program Committee. For the 2015 meeting, I worked with EcoAdapt's team as co-Chair of the Program Committee, which involved helping coordinate many partner volunteers through a process of soliciting, reviewing, and organizing submissions for the 2015 National Adaptation Forum, which took place in May of 2015 and attracted over 900 participants. In 2013, I represented The Nature Conservancy on the program committee for the first National Adaptation Forum, a conference that was held in April 2013 and that attracted over 500 participants.

Executive Board, National Climate Predictions and Projections Platform. The intent of this platform was to increase access to and use of climate data by resource and management sectors. 2012 to 2014.

Climate-smart Guidance Team – Part of a multi-agency and NGO team organized by the National Wildlife Federation to develop guidance on climate change adaptation for natural resource managers and conservation practitioners; guidance expected in Spring 2014. My contributions focused on vulnerability assessment methods, and approaches for choosing among adaptation alternatives. I also help to lead training sessions based on this guidance through collaboration with the National Conservation Training Center. 2011 to present.

Co-coordinator of the “Field Climate Forum”. The Field Climate Forum is intended to help connect Conservancy staff that are involved in climate-related work, primarily within state chapters. We maintain an email list, hold webinars to share project information, and help engage field staff in providing feedback to larger scale programs and policies within and beyond The Conservancy.

Michigan Climate Coalition. Represent The Nature Conservancy on this coalition, which primarily serves to help promote communication and coordination among stakeholders engaged in climate change work within Michigan. 2010 to present.

TRAINING & TEACHING EXPERIENCE

Apprentice Instructor – Climate Change Vulnerability Assessment, National Conservation Training Center, U.S. Fish and Wildlife Service. Acted as an “apprentice” instructor to gain experience with the approach used by NCTC to walk practitioners through the steps of evaluating the vulnerability of natural resources to climate change. I am now qualified to serve as regular instructor for the course. September 30-October 2, 2014.

Apprentice Instructor – Structured decision-making & climate change course (on-line), National Conservation Training Center, U.S. Fish and Wildlife Service. Acted as an “apprentice” instructor to increase my skills in structured decision-making methods. Our group evaluated the decision of how the National Parks Service should address the apparent climate-related extirpation of the Karner blue butterfly, an endangered species, at Indiana Dunes National Lakeshore. January – March 2014.

Advanced Media Training and Messaging. Workshop on communicating with interviewers from radio and television media. Presented by CommCore Consulting Group, June 30, 2009, Washington DC.

GIS Design for Regional Conservation Planning. A 1-week intensive course (November 18-22, 2002) at the National Conservation Training Center, U.S. Fish and Wildlife Service, Shepherdstown, West Virginia.

Media Training. Workshop on communicating with interviewers from print, radio, and television media. Organized by The Nature Conservancy's Smith Fellowship Program. February 9-11, 2002.

Co-Instructor, Michigan State University. Spring, 2003. "Emerging Issues in Landscape Ecology."

Graduate Student Instructor, University of Michigan. 1994-1998. Courses: Ornithology (Fall 1998), Wildlife Behavior and Ecology (Fall 1995-1997, Summer Field Course 1996), Intro. Biology (Winter 1994-1997), and Global Change (Fall 1994).

WEB-BASED PROJECTS

"Collaboratory for Adaptation to Climate Change" – partnership between the University of Notre Dame and The Nature Conservancy's Great Lakes Project to increase collaboration, and promote innovation in climate change adaptation. In my position at TNC, I provided outreach to practitioners, and co-developed several workspaces, "workflows", and guidance documents focused on accelerating the pace of climate change adaptation in the Great Lakes region. <https://adapt.nd.edu>

"Great Lakes Migratory Stopover Web Portal" – funded by the Upper Midwest & Great Lakes Landscape Conservation Cooperative, this site features an interactive map depicting stopover habitat for three bird groups within 20 km of the shoreline of all of the Great Lakes. The site also includes background on the models used to develop the maps, case studies of stopover habitat conservation, and references. <http://www.glmigratorybirds.org/>

PEER-REVIEWED PUBLICATIONS

Hall, K.R., M.E. Herbert, S.P. Sowa, S. Mysorekar, S.A. Woznicki, A.P. Nejadhashemi, and L. Wang. In review. Forecasting "how much conservation is enough" with ecologically-informed climate scenarios. Submitted to Journal of Great Lakes Research.

Hall, K.R. 2015. A new era for ecologists: Incorporating climate change into natural resource management. Chapter 1 in: Root, T.L., **K.R. Hall**, M. Herzog, and C. Howell, editors. Biodiversity in a Changing Climate: Linking Science and Management in Conservation. University of California Press, Oakland CA. 244 pp.

Root, T.L., **K.R. Hall**, M. Herzog, and C. Howell, editors. 2015. Biodiversity in a Changing Climate: Linking Science and Management in Conservation. University of California Press, Oakland CA. 244 pp.

Derby Lewis, A., R.K. Moseley, **K.R. Hall**, and J.J. Hellmann. 2014. Conservation of urban biodiversity under climate change: climate-smart management for Chicago green spaces. Chapter X in: W. F. Leal (ed.) Handbook of Climate Change Adaptation. Springer Reference, Berlin.

Ewert, D.N., **K.R. Hall**, R.J. Smith, and P.J. Rodewald. 2014. Landbird stopover in the Great Lakes region: Integrating habitat use and climate in conservation. Pages 15-41 in E.M. Wood and J.L. Kellerman (eds.). Phenological synchrony and bird migration: changing climate and seasonal resources in North America. Studies in Avian Biology (no. 47). CRC Press, Boca Raton, FL.

Gross, J. K. Johnson, P. Glick, and **K. Hall**. 2014. Understanding climate change impacts and vulnerability. Chapter 6 in: Stein, B.A., P. Glick, N. Edelson, A. Staudt (eds.), Climate-Smart Conservation: Putting Adaptation Principles into Practice. National Wildlife Federation, Washington, DC. http://www.nwf.org/pdf/Climate-Smart-Conservation/NWF-Climate-Smart-Conservation_5-08-14.pdf

Hoffman, J. B. Stein, and **K. Hall**. 2014. Choosing your path: Evaluating and selecting adaptation options. Chapter 9 in: Stein, B.A., P. Glick, N. Edelson, A. Staudt (eds.), Climate-Smart Conservation: Putting Adaptation Principles into Practice. National Wildlife Federation, Washington, DC. http://www.nwf.org/pdf/Climate-Smart-Conservation/NWF-Climate-Smart-Conservation_5-08-14.pdf

Winkler, J. A., J.A. Andresen, R.W. Arritt, J.A. Beecher, A.D. Gronewold, **K.R. Hall**, J.L. Hatfield, S.D. Handler, B. Lofgren, S.D. Mackey, S. Nicholls, J. Patz, J. Posey, S.C. Pryor, C.W. Swanston. 2014. An introduction to the synthesis report. Pages 1-7 in J. A. Winkler, J.A. Andresen, J.L. Hatfield, D. Bidwell, D. Brown, editor. Climate Change in the Midwest: A Synthesis Report for the National Climate Assessment. Island Press, Washington, DC. http://www.cakex.org/sites/default/files/documents/NCA_Midwest_Report_0.pdf

- Petersen, B.C., **K.R. Hall**, K.J. Kahl, and P.J. Doran. 2013. In their own words: Perceptions of climate change adaptation from the Great Lakes region's resource management community. *Environmental Practice* 15: 377-392.
<http://nature.ly/GLclimateperceptions>
- Legge, J., P.J. Doran, M. Herbert, J. Asher, G. O'Neil, S. Mysorekar, S. Sowa and **K.R. Hall**. 2013. From model outputs to conservation action: Prioritizing locations for implementing agricultural best management practices in a Midwestern Watershed. *Journal of Soil and Water Conservation* 68:22-33.
- Young, B.E, **K.R. Hall**, E. Byers, K. Gravuer, G. Hammerson, A. Redder, and K. Szabo. 2013. Rapid assessment of plant and animal vulnerability to climate change. Chapter 7 in: *Wildlife Conservation in a Changing Climate*, J. Brodie, E. Post, and D. Doak, editors. University of Chicago Press, Chicago, IL.
- Hall, K.R.**, 2012: Climate Change in the Midwest: Impacts on Biodiversity and Ecosystems. In: *U.S. National Climate Assessment Midwest Technical Input Report*. J. Winkler, J. Andresen, J. Hatfield, D. Bidwell, and D. Brown, coordinators. Available from the Great Lakes Integrated Sciences and Assessment (GLISA) Center, http://glisa.umich.edu/docs/NCA/MTIT_Biodiversity.pdf
This work was also released in 2014 as part of an electronic book from Island Press, available here http://www.cakex.org/sites/default/files/documents/NCA_Midwest_Report_0.pdf
- Groves, C.R., E.T. Game, M.G. Anderson, M. Cross, C. Enquist, Z. Ferdana, E. Girvetz, A. Gondor, **K.R. Hall**, J. Higgins, Rob Marshall, K. Popper, S. Schill, and S.L. Shafer. 2012. Incorporating climate change into systematic conservation planning. *Biodiversity and Conservation* 21:1651-1671.
- Hall, K.R.** and T.L. Root. 2012. Climate change and biodiversity in the Great Lakes Region: From “fingerprints” of change to helping safeguard species. Chapter 4 in *Climate Change in the Great Lakes Region, Navigating an Uncertain Future*, T. Dietz and D. Bidwell, editors. Michigan State University Press, East Lansing, MI.
- Ewert, D.N., **K.R. Hall**, J.M. Wunderle, Jr., D. Currie, S.M. Rockwell, S. Johnson, and J.D. White. 2012. Spring migration of Kirtland's Warblers: How long and at what rate? *The Wilson Journal of Ornithology* 124: 9-14.
- Millington, J.D.A, M.B. Walters, M.S. Matonis, E.J. Laurent, **K.R. Hall**, and J. Liu. 2011. Combined long-term effects of variable tree regeneration and timber management on forest songbirds and timber production *Forest Ecology and Management* 262: 718-729.
- Hall, K.R.** 2011. Birds. Pages 144-47 in *Encyclopedia of Climate and Weather*, 2nd Edition, Volume 1. S.H. Schneider, T.L. Root, and M.D. Mastrandrea, editors. Oxford University Press, Oxford & New York.
- Holmes, S.A., L.M. Curran, and **K.R. Hall**. 2008. White-tailed deer (*Odocoileus virginianus*) alter herbaceous species diversity and understory forest structure in the Hiawatha National Forest, Michigan, USA. *American Midland Naturalist* 159: 83-97.
- Hall, K.R.** 2008. Comparing geographic boundaries in songbird demography data with vegetation boundaries: A new approach to delineating habitat quality. *Environmental and Ecological Statistics* 15:491-521.
- Kearns, L., E. Silverman, and **K.R. Hall**. 2006. Black-throated blue warbler and Veery abundance in relation to understory composition in northern Michigan forests. *The Wilson Journal of Ornithology* 118: 461-470.
- Shi, H., E.J. Laurent, J. LeBouton, L. Racevskis, **K.R. Hall**, M. Donovan, R.V. Doepker, M.B. Walters, F. Lupi, and J. Liu. 2006. Local spatial modeling of white-tailed deer distribution. *Ecological Modelling* 190: 171-189.
- Craves, J.A., and **K.R. Hall**. 2003. Notable bird sightings from Cuba, winters 2002 and 2003. *Journal of Caribbean Ornithology* 16: 31-34.
- Root, T.L., J.T. Price, **K.R. Hall**, S.H. Schneider, C. Rosenzweig, and J.A. Pounds. 2003. “Fingerprints” of global warming on animals and plants around the globe. *Nature* 421: 57-60.
- Hall, K.R.**, and S.L. Maruca. 2001. Mapping a forest mosaic: A comparison of vegetation and bird distributions using geographic boundary analysis. *Plant Ecology* 156: 105-120.

TECHNICAL REPORTS AND CASE STUDIES

- Swanston, C.W., M.K., Janowiak, L.A. Brandt, P.R. Butler, S.D. Handler, P.D. Shannon, A. Derby Lewis, **K.R. Hall**, R.T. Fahey, L. Scott, A. Kerber, J.W. Miesbauer, L. Darling. *In press*. Forest Adaptation Resources: Climate Change Tools and Approaches for Land Managers, 2nd Edition. General Technical Report NRS-XXX. U.S. Department of Agriculture, Forest Service, Northern Research Station. Newtown Square, PA. 181p.
- Handler, S., M.J. Duveneck, L. Iverson, E. Peters, R.M. Scheller, K.R. Wythers, L. Brandt, P. Butler, M. Janowiak, P.D. Shannon, C. Swanston, A.C. Eagle, J.G. Cohen, R. Corner, P.B. Reich, T. Baker, S. Chhin, E. Clark, D. Fehring, J. Fosgitt, J. Gries, C. Hall; **K.R. Hall**, R. Heyd, C.L. Hoving, I. Ibáñez, D. Kuhr, S. Matthews, J. Muladore, K. Nadelhoffer; D. Neumann, M. Peters, A. Prasad, M. Sands, R. Swaty, L. Wonch, J. Daley, M. Davenport, M.R. Emery, G. Johnson, L. Johnson, D. Neitzel, A. Rissman, C. Rittenhouse, R. Ziel. 2014. *Michigan Forest Ecosystem Vulnerability Assessment and Synthesis: A Report from the Northwoods Climate Change Response Framework Project*. Gen. Tech. Rep. NRS-129. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 229 p.
- Derby Lewis, A. **K.R. Hall**, and J.J. Hellmann. 2012. *Advancing Adaptation in the City of Chicago: Climate Considerations for the Management of Natural Areas*. The Field Museum, Chicago. Available on the Collaboratory for Adaptation to Climate Change: <https://adapt.nd.edu/resources/1019>
- Kahl, K.J., **K.R.Hall**, P.J. Doran, M.Cornett, and K. France. 2012. *Jump-Starting Climate Adaptation: Catalyzing conservation strategy updates through climate clinics in New York, Minnesota and the Dakotas*. Climate Change Adaptation Case Study Series, The Nature Conservancy, Lansing MI. <http://www.nature.org/ourinitiatives/regions/northamerica/areas/greatlakes/explore/climatecasestudy-nymn-climateclinics-final.pdf>
- Pearsall, D., P. Carton de Grammont, C. Cavalieri, C. Chu, P. Doran, L. Elbing, D. Ewert, **K. Hall**, M. Herbert, M. Khoury, D. Kraus, S. Mysorekar, J. Paskus and A. Sasson. 2012. *Returning to a Healthy Lake: Lake Erie Biodiversity Conservation Strategy*. Technical Report. The Nature Conservancy, Nature Conservancy of Canada, and Michigan Natural Features Inventory. Lansing, Michigan. 340 pp. with Appendices.
- Pearsall, D., P. Carton de Grammont, C. Cavalieri, P. Doran., L. Elbing, D. Ewert, **K. Hall**, M. Herbert, M. Khoury., S. Mysorekar., S. Neville., J. Paskus., and A. Sasson. 2012. *Michigami: Great Water. Lake Michigan Biodiversity Conservation Strategy*. Technical Report. The Nature Conservancy and Michigan Natural Features Inventory. Lansing, Michigan. 313 pp. with Appendices.
- Kahl, K.J., **K.R. Hall**, P.J. Doran, J.Walk, S.L. Hagan, A. Lange. 2011. *Updating the Illinois Wildlife Action Plan: Using a vulnerability assessment to inform conservation priorities*. Climate Change Adaptation Case Study Series, The Nature Conservancy. Lansing MI. <http://www.nature.org/ourinitiatives/regions/northamerica/areas/greatlakes/explore/climate-change-il-case-study.pdf>.
- Kahl, K.J., **K.R. Hall**, P.J. Doran, M. White, M. Cornett. 2011. *Planning for the Forests of the Future: Updating Northeast Minnesota's Forest Management Strategies*. Climate Change Adaptation Case Study Series, The Nature Conservancy. Lansing MI. <http://www.nature.org/ourinitiatives/regions/northamerica/areas/greatlakes/explore/climate-change-mn-case-study.pdf>
- Young BE, Byers E, Gravuer K, Hall K, Hammerson G, Redder A, Cordeiro J, and Szabo K. 2011. Guidelines for Using the NatureServe Climate Change Vulnerability Index, version 2.1. Arlington, Va.: NatureServe. <http://www.natureserve.org/biodiversity-science/publications/guidelines-using-natureserve-climate-change-vulnerability-index>
- Franks-Taylor, R., A.L. Derosier, K. Dinse, P.J. Doran, D.N. Ewert, **K.R. Hall**, M.E. Herbert, M.L. Khoury, D.T. Kraus, A. Lapenna, G. Mayne, D.R. Pearsall, J. Read, and B. Schroeder. 2010. *The Sweetwater Sea: An International Biodiversity Conservation Strategy for Lake Huron - Technical Report*. A joint publication of The Nature Conservancy, Environment Canada, Ontario Ministry of Natural Resources Michigan Department of Natural Resources and Environment, Michigan Natural Features Inventory Michigan Sea Grant, and The Nature Conservancy of Canada. 217 pp.
- Hall, K.R.**, and T.L. Root. 2008. *Climate change and California's biodiversity: Projected changes in habitat suitability for animals of conservation concern*. Final report to California Energy Commission – Public Interested Energy Research Program.
- Greiling, D., H. Durbeck, and **K.R. Hall**. *STIS Documentation and User Guide: Software for Space-Time Analysis. Electronic interactive documentation of statistical methods included with STIS software*. TerraSeer Inc., Ann Arbor MI. Can be viewed with a free STIS download at the Terraseer.com website.

Price, J.T., T.L. Root, **K.R. Hall**, G. Masters, L. Curran, W. Fraser, M. Hutchins and N. Myers. 2000. Climate change, wildlife and ecosystems—Supplemental information prepared for IPCC Working Group II. Available at <http://www.usgcrp.gov/ipcc/html/ecosystem.pdf>.

McVey, M., **K.R. Hall**, P. Trenham, A. Soast, L. Frymier, and A. Hirst. 1993. *Wildlife Exposure Factors Handbook* (Volumes I and II). Office of Research and Development, U.S. Environmental Protection Agency. EPA/600/R-93/187a and EPA/600/R93/187b. Also available at <http://www.epa.gov/ncea/wefh.htm>.