

NATHAN B. PIEKIELEK

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EDUCATION

- 2012 **Ph.D. Ecology and Environmental Sciences**
 Montana State University, Bozeman, MT
- 2003 **M.S. Conservation Ecology and Sustainable Development**
 University of Georgia, Athens, GA
- 2000 **B.S. Geography, Geographic Information Science**
 The Pennsylvania State University, University Park, PA
 Spanish minor

SELECT PROFESSIONAL EXPERIENCE

- 2018 – KALIN LIBRARIAN FOR TECHNOLOGICAL INNOVATIONS AND ASSISTANT
Present PROFESSOR OF GEOGRAPHY
 Program Faculty, Human Dimensions of Natural Resources and the
 Environment
 Affiliate Faculty, Center for Landscape Dynamics
 Co-Editor, Journal of Map & Geography Libraries
 The Pennsylvania State University, University Park, PA.
- 2014 – GEOSPATIAL SERVICES LIBRARIAN
Present Affiliate Faculty, Online Masters of Geographic Information Systems
 The Pennsylvania State University, University Park, PA.
- 2012 – POSTDOCTORAL RESEARCH ASSOCIATE
2014 Department of Ecology, Montana State University, Bozeman, MT.
- 2007 – GRADUATE RESEARCH ASSISTANT
2011 Department of Ecology, Montana State University, Bozeman, MT.
- 2003 – GIS SPECIALIST/DATA MANAGER
2007 US DOI National Park Service Inventory and Monitoring Program,
 Eastern Rivers and Mountains Network, University Park, PA.
- 2001 – GRADUATE RESEARCH ASSISTANT
2003 University of Georgia Institute of Ecology, Athens, GA.

PEER-REVIEWED MANUSCRIPTS (* INDICATES WITH STUDENT LEAD AUTHOR)

- Huang, J., Bagher, M.M., Ross, H.D., **Piekielek, N.B.**, Wallgrum, J.O., Zhao, J., and A. Klippel. (2019). From Archive to Access to Experience – historical documents as a basis for immersive experiences. *Journal of Map & Geography Libraries* 14(1):40-63.
- LaLonde, T. and **N.B. Piekielek**. (2018). Planning for change: a maps and geospatial information services survey. *Issues in Science and Technology Librarianship*, 90, summer.
- *Mazurczyk, M., **Piekielek, N.B.**, et al. (2018). American archives and climate change: Risks and adaptation. *Climate Risk Management*, 20: 111-125.
- Piekielek, N.B.** (2017). Best practices for georeferencing large scale historical fire insurance maps of the USA. *e-Perimtron*, 12(2), 84-94.
- O’Sullivan, J. C., LaLonde, T., Miffitt, K., & **Piekielek, N. B** et al. (2017). A Tale of Two Internships: developing digital skills through engaged scholarship. *Digital Humanities Quarterly*, 11(3).
- *Fish, C., & **Piekielek, N.B.** (2016). Targeting disciplines for GIS outreach using bibliometrics. *Journal of Map & Geography Libraries*, 12(3): 228-280.
- Piekielek, N.B.**, AJ Hansen, T. Chang. (2015). Using custom scientific workflow software and GIS to inform protected area climate adaptation planning across the Greater Yellowstone. *Ecological Informatics* 30:40-48.
- Miller, BW, L. Frid, T. Chang, **N.B. Piekielek**, AJ Hansen, and JT Morisette. (2015). Combining state-and-transition simulations and species distribution models to anticipate the effects of climate change. *AIMS Environmental Science* 2(2):400-426.
- Hansen, AJ, **Piekielek N.B.**, Chang T and L Phillips. (2015). Changing climate suitability for forests in Yellowstone and the Rocky Mountains. *Yellowstone Science* 23(1):36-43.
- Chang, T., AJ Hansen, and **N.B. Piekielek**. (2014). Patterns and variability of projected bioclimatic habitat for *Pinus albicaulis* in the Greater Yellowstone Area. *PLOS ONE* 9(11):e111669.
- Hansen, AJ, **N.B. Piekielek** , C Davis, J Haas , ST Oliff, J Gross, B Monahan and D Theobald. (2014). Exposure of US National Parks to Land Use and Climate Change 1900-2100. *Ecological Applications* 24:484-502.
- Beever, EA, SZ Dobrowski, J Long, AR Mynsberge and **N.B. Piekielek**. (2013). Understanding relationships among abundance, extirpation, and climate at ecoregional scales. *Ecology* 94(7):1563-1571.

Piekielek, N.B. and AJ Hansen. (2012). Extent of fragmentation of coarse-scale habitats in and around US National Parks. *Biological Conservation* 155:13-22.

Hansen, AJ, C Davis, **N.B. Piekielek**, J Gross, D Theobald, S Goetz and R DeFries. (2011). Delineating the ecosystems containing protected areas for monitoring and management. *Bioscience* 61(5):363-373.

OTHER ARTICLES AND BOOK CHAPTERS

M Bidney and **Piekielek, N.B.** (*in press*). Towards a new paradigm in map and spatial information librarianship. *Journal of Map & Geography Libraries*.

M Bidney and **Piekielek, N.B.** (2019). In Defense of the Map Library. *Journal of Map & Geography Libraries*, 14(1):1-8.

Piekielek, N.B., Hansen, AJ and T Chang. (2016). Past, present, and future climate shapes the vegetation communities of the Greater Yellowstone Ecosystem across elevation gradients, in, *Climate change in wildlands: Pioneering approaches to science and management in the Rocky Mountains and Appalachians*. Hansen, AJ, Monahan, W, Theobald, D and S Oliff eds. Island Press.

Hansen, AJ, C. Davis, J. Haas, **N.B. Piekielek**. (2016). Towards assessing the vulnerability of US National Parks to land use and climate change. In *Protected Areas: Are they safeguarding biodiversity?* L. Joppa, J. Baillie, J. Robinson, editors. Wiley-Blackwell Cambridge, United Kingdom.

Gross, JE, Hansen, AJ, Goetz, SJ, Theobald, DM, Melton, FM, **N.B. Piekielek** and Rama Nemani. (2011). Remote Sensing for Inventory and Monitoring of the U.S. National Parks in "Remote Sensing of Protected Lands", ed. Y.Q. Wang. Taylor and Francis.

SELECT PRESENTATIONS (ALL ARE ORAL; * DENOTES INVITED)

Piekielek, N. B. 2019."A semi-automated workflow for processing historic aerial photography. International Cartographic Conference, Tokyo, Japan.

***Piekielek, N.B.** 2019. The Big Ten Academic Alliance Geoportal Project. Spatial Discovery III Specialists Meeting. Center for Spatial Studies, Department of Geography, University of California Santa Barbara, USA.

***Piekielek, N.B.** 2019. Processing historic aerial photographs for geographic change detection. Department of Geography Research Seminar, Kalamazoo, MI, USA.

***Piekielek, N.B.** 2019. Reproducibility and replicability in the biological sciences compared to the geographic information sciences, Arizona State University Spatial Analysis Research Center, Tempe, AZ, USA.

- Piekielek, N.B.** 2018. Big Historical Geodata: the next frontier. North American Cartographic Information Society Annual Meeting, North American Cartographic Information Society, Norfolk, VA, USA.
- Piekielek, N.B.** 2018. Library geographic collections as data. Penn State University Libraries Data Days.
- Piekielek, N.B.** 2018. Developing historic orthophotography GIS data for Pennsylvania. PAGIS Conference, County Commissioners Association of Pennsylvania, The Penn Stater Conference Center and Hotel, University Park, PA.
- *Piekielek, N.B.** 2018. Do-It-Yourself (DIY) Engagement: Entry Points for GIS in Public Pedagogy. American Association of Geographers Annual Meeting, New Orleans, LA.
- Piekielek, N.B.** 2017. Accuracy assessment and georeferencing Sanborn fire insurance maps. The 28th International Cartographic Conference, International Cartographic Association, Washington D.C.
- Tansey, E., Goldman, B. and **N.B. Piekielek**. 2017. Climate Control: Vulnerabilities of American Archives to Rising Seas. Hotter Days and More Powerful Storms. Libraries and Archives in the Anthropocene Colloquium, New York, NY.
- Thoma, D., Munson, S., and **N.B. Piekielek**. 2016. Yellowstone's Climate Pivot Points. 13th Biennial Scientific Conference of the Greater Yellowstone Ecosystem: building on the past, leading into the future: sustaining the GYE in the coming century. Mammoth Hot Springs, WY.
- Piekielek, N.B.** 2016. The New Big Ten Academic Alliance Geoportal. Penn State GIS Day 2016, Penn State University Libraries and Department of Geography.
- Piekielek, N.B.**, et al. 2016. Implementing a new geospatial data discovery interface across a multi-institution consortium. North American Cartographic Information Society Annual Meeting, North American Cartographic Information Society, Colorado Springs, CO, USA.
- Piekielek, N.B.** 2016. An overview of GIS in university libraries. PAGIS Conference, County Commissioners Association of Pennsylvania, The Penn Stater Conference Center and Hotel.
- Piekielek, N.B.** et al. 2016. Best practices for georeferencing large scale historical fire insurance maps of the USA. International Cartographic Association Commission on Cartographic Heritage into the Digital, Riga, Latvia.
- Piekielek, N.B.**, AJ Hansen and T Chang. 2014. Tree and shrub species habitat suitability across the Greater Yellowstone under climate change. Society for Conservation Biology North America Congress for Conservation Biology. Missoula, MT.

- Piekielek, N.B.**, and AJ Hansen. 2013. Climate and land use change modify the patch dynamics of green forage in the Upper Yellowstone River Basin. Montana NSF EPSCoR Summit. Helena, MT.
- Piekielek, N.B.** and AJ Hansen. 2012. Biophysical controls on grassland phenology in the Upper Yellowstone River Basin and implications for conservation under climate change. Montana Chapter of Society for Conservation Biology Annual Meeting. Bozeman, MT.
- ***Piekielek, N.B.** 2012. Remote sensing grassland phenology in the Greater Yellowstone Ecosystem: biophysical correlates, land use effects and patch dynamics. The 11th Biennial Scientific Conference on the Greater Yellowstone Ecosystem. Mammoth, WY.
- ***Piekielek, N.B.** and AJ Hansen. 2010. Land use and climate change modifies the spatio-temporal pattern of forage availability in the Greater Yellowstone Ecosystem. Ecological Society of America Annual Meeting. Pittsburgh, PA.
- Piekielek, N.B.** 2009. A mixed-method, multi-scale approach to quantifying the effects of land-use on phenology in the Northern Greater Yellowstone Ecosystem. US-International Association of Landscape Ecology Meeting, Snowbird, UT.
- Piekielek, N.B.** 2007. Socioeconomic indicator monitoring and mapping. NPS Inventory and Monitoring Program National Meetings. Las Cruces, NM.
- ***Piekielek, N.B.** 2006. Landscape dynamics. NPS Inventory and Monitoring Program National Meetings, Fort Collins, CO.
- Piekielek, N.B.** 2002. Urban form, environmental values and ecological impacts in Greater Atlanta, GA. Ecological Society of America Annual Meetings. Tucson, AZ.

SELECT TECHNICAL REPORTS

- Piekielek, N.B.**, C Davis and AJ Hansen 2011. GIS Mapping Standard Operating Procedure – Ecosystem type change and fragmentation: from pre Euro-American settlement to the present day. Natural Resource Program Center, National Park Service, Fort Collins, CO. Standard Operating Procedure – 2173633.
- Piekielek, N.B.**, C Davis and AJ Hansen. 2010. GIS Mapping Standard Operating Procedure – Estimating protected-area centered ecosystems. Natural Resource Program Center, National Park Service, Fort Collins, CO. Standard Operating Procedure – 2173638.
- Piekielek, N.B.**, C Davis and AJ Hansen 2010. GIS Mapping Standard Operating Procedure – Analyzing protected-area centered ecosystems. Natural Resource Program Center, National Park Service, Fort Collins, CO. Standard Operating Procedure – 2173635.

- Piekielek, N.B.** 2009. Eastern Rivers and Mountains Network Data Management Plan. Natural Resource Report NPS/NER/NRR—2009/20. U.S. Department of the Interior, National Park Service, Northeast Region. Philadelphia, PA. Published report – 663560.
- Greb, E, A Matus, **N.B. Piekielek**, M Marshall and C Brewer. 2009. Socioeconomic indicator mapping: data collection and definitions for socioeconomic indicator mapping. Natural Resource Report NPS/ERMN/NRR—2009/073. U.S. Department of the Interior, National Park Service, Northeast Region. Philadelphia, PA. Published report – 661670.
- Marshall, M. and **Piekielek, N.B.** 2007. Eastern Rivers and Mountains Network Ecological Monitoring Plan. Natural Resource Report NPS/NER/NRR—2007/17. U.S. Department of the Interior, National Park Service, Northeast Region. Philadelphia, PA. Published report.
- Miller, D.A., S.W. Waltman, R.A. White, **N.B. Piekielek**, D. James, C. Tarnocai, and B. Lacelle. 2001. Building a North American 1-km Multi-Layer Soil Characteristics Dataset. 2001 Annual Meeting Abstracts, Soil Science Society of America. Oct. 21-25, 2001. Charlotte, NC.

GRANTS AND CONTRACTS

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|------|---|-----------------------|
| 2019 | A Research Network for Reproducibility and Replicability in Geography and Spatial Sciences
Kedron, P., Karr, B., Piekielek, N.B. and J. Tullis.
National Science Foundation. | <i>in review</i> |
| 2018 | Sally W. Kalin Early Career Librarianship for Technological Innovations
Piekielek, N.B.
Penn State University Libraries. | \$65,000 |
| 2018 | Exploring the latest deep-learning techniques for geospatial data extraction from print maps
Piekielek, N.B.
Penn State University Libraries. | \$28,750 +
tuition |
| 2017 | Evaluating open-source tools to increase the discoverability and usefulness of historic aerial photographs
Piekielek, N.B.
Penn State University Libraries. | \$21,966 +
tuition |
| 2016 | Geospatial resource round-up: improving access to library resources in support of university research and teaching
Piekielek, N.B.
Penn State University Libraries. | \$21,288 +
tuition |

- 2015 Developing educational materials to integrate geospatial concepts and techniques into graduate and undergraduate curriculum \$20,352 + tuition
Piekielek, N.B.
Penn State University Libraries.
- 2014 Streamlined MODIS image processing for information delivery and analysis \$17,550
Piekielek, N.B. with D. Thoma and J. Norris
NPS I&M Program, NCPN, SCPN and GRYN Networks.
- 2014 Investigating climate drivers and potential mechanisms of American Pika (*Ochotona princeps*) extinction in mountain ecosystems (\$236,000) (*declined*)
Piekielek, N.B., E. Beever, G. Peterson, T. Millette and S. Dobrowski, USGS Mendenhall Research Fellowship
- 2014 A multi-scale analysis of long-term trends in vegetation indices for montane meadows in the Greater Yellowstone Ecosystem \$11,000
Piekielek, N.B.
Iowa State University.
- 2013 Informing implementation of the Greater Yellowstone Coordinating Committee's Whitebark Pine Management Strategy based on climate sciences, ecological forecasting and valuation of WBP-related ecosystem services \$450,000
Hansen, A...**Piekielek, N.B.** et al.
USGS North Central Climate Science Center.
- 2013 Ecological Impacts Science Team Lead Award \$140,000
Hansen, A and **N.B. Piekielek.**
USGS North Central Climate Science Center.

RECENT PROFESSIONAL ASSOCIATIONS

Association of American Geographers, North American Cartographic Information Society, International Cartographic Association, International Cartographic Association Commission on Cartographic Heritage into the Digital

SELECT SERVICE

To the Profession

- 2018- *Co-Chair*, Big Ten Academic Alliance Geoportal Project Scanned Map Pres. Working Group
- 2017 *Invited Member*, International Scientific Committee, International Cartographic Society Annual Professional Meeting (ICC2017), Washington D.C.

- 2017 *Co-Chair*, ICC2017 Preconference workshop, “Mapping tools for non-mapping experts: incorporating geospatial visualization tools in libraries”, Commission on Cartographic Heritage into the Digital
- 2016 *Chair*, Session, GIS Activities in Academic Libraries of Pennsylvania, PAGIS Conference, The Penn Stater Hotel and Conference Center.
- 2013 *Invited Expert*, US Department of Interior Climate Science Center Data, Information, and Tools working group
- 2010 *Invited Expert*, Monitoring ecological response to climate change in high elevation park units of the Great Northern Landscape Conservation Collaborative.

To the University

- 2016 *Chair*, Tenure-track Faculty Search Committee, Penn State University Libraries.
- 2015 *Reviewer*, Research Innovation Grant, Penn State Center for Online Learning.
- 2015 *Elected Member*, Library Faculty Council, Penn State University Libraries.

AD-HOC MANUSCRIPT REVIEWS

Ecological Informatics (2); Environmental Engineering and Management (1); Ecology and Society (1); Harvard Institute for Quantitative Social Science Alexander and Diviya Magaro Peer Pre-Review (1); Journal of Map & Geography Libraries (1); Journal of Selected Topics in Applied Earth Observations and Remote Sensing (1); Journal of Web-Librarianship (1); Ocean and Coastal Management (1); PLoS One (1); Remote Sensing (1); Remote Sensing of Environment (1).

SELECT CREDIT TEACHING EXPERIENCE

The Pennsylvania State University

- 2016 - *Capstone Research Advisor*, Geography – Online Masters of GIS Pres Prospectus and Online Presentation. 4 students (24cr total).
- 2019 *Professor*, Geography 314 – Biogeography and Global Ecology. 30 students (3cr).
- 2019 *Professor*, Geography 596 – Independent Study Instructor. 1 student (4cr total).
- 2017 *Instructor*, Geography 495G – GIS Internship. 4 students (12cr total).

Courses under development

- 2019 *Professor*, Geography 587 – Conservation GIS (3cr).