

Nathan Jay Lyons  
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## Education

### Department of Marine, Earth & Atmospheric Sciences, North Carolina State University

- **Ph.D.**, Dissertation: Stream-Hillslope Coupling in Active and Inactive Tectonic Regions 2014
- **M.S.**, Thesis: Landslides Inventories and Grain Size Trends in Debris Flow Channels 2011

### Geology Department, Guilford College

- **B.A.**, Thesis: Groundwater Hydrology & Nitrogen Removal in an Enhanced Wetland 2009

## Employment

Postdoctoral Fellow, Tulane University	beginning August 2016
Research Geomorphologist, North Carolina State University	2016–present
Research Assistant, Utah State University	2015
Postdoctoral Researcher, National Autonomous University of Mexico	2014–2015
Research Curator, North Carolina Museum of Natural Sciences	2012–2014
Graduate Research Asst./Teaching Asst. Lab Coordinator, NC State University	2009–2014
Geologist, National Park Service	2009

## Published Peer-Reviewed Papers

- Lyons NJ, Wegmann KW. Transient erosion in the wake of Pleistocene climate change. In preparation for submission to Earth and Planetary Science Letters.
- Lyons NJ, Starek M, Wegmann KW, Mitasova H, 2015. Bank erosion of legacy sediment at the transition from vertical to lateral stream incision. Earth Surface Processes and Landforms 40(13), p 1764–1778, [DOI: 10.1002/esp.3753](https://doi.org/10.1002/esp.3753).
- Lyons NJ, Mitasova H, Wegmann KW, 2014. Improving mass wasting inventories by incorporating debris flow topographic signatures, Landslides 11(3), p 385–397, [DOI: 10.1007/s10346-013-0398-0](https://doi.org/10.1007/s10346-013-0398-0).
- Starek M, Mitasova H, Wegmann KW, Lyons NJ, 2013. Space-time cube representation of stream bank evolution mapped by terrestrial laser scanning. Geoscience and Remote Sensing Letters 10(6), p 1369–1373, [DOI: 10.1109/LGRS.2013.2241730](https://doi.org/10.1109/LGRS.2013.2241730).
- Mitasova H, Harmon RS, Weaver K, Lyons N, Overton M, 2012. Scientific visualization of landscapes and landforms. Geomorphology 137(1), p 122–137, [DOI: 10.1016/j.geomorph.2010.09.033](https://doi.org/10.1016/j.geomorph.2010.09.033).
- Gallen SF, Wegmann KW, Frankel KL, Hughes S, Lewis RQ, Lyons N, Paris P, Ross K, Bauer JB, Witt AC, 2011. Hillslope response to knickpoint migration in the Southern Appalachians: implications for the evolution of post-orogenic landscapes. Earth Surface Processes and Landforms 36(9), p 1254–1267, [DOI: 10.1002/esp.2150](https://doi.org/10.1002/esp.2150).

## Conference Presentations

- Lyons NJ, Wegmann KW, Raley M, 2013. Topographic and Genetic Markers of Landscape Change: Landslides and Isolated Fish Populations Demarcating Basin-wide Erosional Waves Above the Cascadia Subduction Zone. American Geophysical Union Meeting, December 9–13, 2013, San Francisco, CA.
- Lyons NJ, Wegmann KW, 2013. Quantifying coupling between landslides and stream incision above the Cascadia Subduction Zone, Clearwater River Basin, WA. GSA National Meeting, October 27–30, 2013, Denver, CO.
- Lyons NJ, Wegmann KW, Gosse JC, Bayasgalan G, 2013. Generation of Summit Plateaus by Periglacial Processes: Implications for Tectonic Interpretations. GSA National Meeting, October 27–30, 2013, Denver, CO.
- Lyons NJ, Gurley JW, Mitasova H, 2013. Landscape Evolution Models as a Public Education Tool. Community Surface Dynamics Modeling System Meeting, March 23–25, 2013, Boulder, Co.
- Lyons NJ, Wegmann KW, Mitasova H, Starek MJ, 2013. The Contribution of Stream Turbidity Characterized with a Terrestrial Laser Scanner along Richland Creek, North Carolina. Water Resources Research Institute of North Carolina Annual Conference, March 20–21, 2013, Raleigh, NC.
- Lyons NJ, Mitasova H, Starek MJ, Wegmann KW, 2012. Terrestrial laser scanning of a stream bank during naturally and experimentally induced erosion by groundwater seepage. American Geophysical Union Meeting, December 3–7, 2012, San Francisco, CA.
- Starek MJ, Mitasova H, Wegmann K, Lyons NJ, Cepero K, 2012. Spatiotemporal representation of stream bank evolution mapped by terrestrial laser scanning. American Geophysical Union Meeting, December 3–7, 2012, San Francisco, CA.
- Lyons NJ, Mitasova H, Wegmann KW, 2012. A geomorphic process-based approach to delineate debris flow activity. GSA National Meeting, November 4–7, 2012, Charlotte, NC.
- Lyons NJ, Ryker K, McConnell D, 2012. Real-time assessment of student progress in the lab: The isostasy model example. GSA National Meeting, November 4–7, 2012, Charlotte, NC.
- Lyons NJ, Mitasova H, Wegmann KW, 2012. The critical drainage area of debris flow activity and its application to landslide inventories in the southern Appalachians. GSA Abstracts with Programs, Vol. 44, No. 4.
- Lyons NJ, 2012. The critical drainage area of debris flow activity in the Great Smoky Mountains. All Taxa Biological Inventory Conference, Science Colloquium. Gatlinburg, TN, March 3, 2012.
- Lyons NJ, Mitasova H, Wegmann KW, 2011. Improving landslide inventories by limiting land classification to drainage areas of debris flow-dominated channels. American Geophysical Union Meeting, December 2–5, 2011, San Francisco, CA.
- Gallen SF, Wegmann KW, Frankel KL, Hughes S, Lewis RQ, Lyons N, Paris P, Ross K, Bauer JB, Witt AC, 2011. Hillslope response to knickpoint migration in the southern Appalachians: Implications for the evolution of post-orogenic landscapes. GSA Abstracts with Programs, Vol. 43, No. 2.
- Lyons NJ, Mitasova H, Wegmann KW, 2011. The control of streambed grain size upon salmonid habitat in the southern Appalachians. GSA Abstracts with Programs, Vol. 43, No. 2.

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- Lyons NJ, Mitasova H, Peszlen I, Wegmann KW, 2010. Geospatial determination of potential hillslope response to an invasive species in the southern Appalachians. Binghampton Geomorphology Symposium.
- Almquist K, Gallen S, Hughes S, Lyda A, Lyons N, McConnell D, Ross K, Whitley J, 2010. The impact of lab style, course times, and teacher gender on course evaluations. GSA Abstracts with Programs, Vol. 42, p. 532.
- Gallen S, Hughes S, Lewis RQ, Lyons NJ, Maas J, Munoz M, Paris P, Ross K, Wegmann K, 2010. Hillslope response to knickpoint migration: An investigation of slope stability in the Cullasaja River Basin. GSA Abstracts with Programs, Vol. 41, p. 189.
- Lyons NJ, Moore AM, 2009. Groundwater hydrology and nitrogen removal in a dynamically enhanced stormwater treatment wetland. GSA Abstracts with Programs, Vol. 41, p. 43.

### **Grants, Scholarships, and Awards**

- Outstanding Student Paper Award, 2013, American Geophysical Union, Topographic and Genetic Markers of Landscape Change: Landslides and Isolated Fish Populations Demarcating Basin-wide Erosional Waves Above the Cascadia Subduction Zone.
- Graduate Student Research Grant, 2013, Geological Society of America, Investigating coupling between landslides and stream incision above the Cascadia subduction zone, Clearwater River basin, Washington.
- Graduate Student Scholarship, 2013, Community Surface Dynamics Modeling System, Landscape Evolution Models as a Public Education Tool.
- Grants-in-Aid of Research, 2013, Sigma Xi, Genetic markers of landscape change: Cutthroat trout (*Oncorhynchus clarkii*) populations above migrating waterfalls.
- Department Nominee for Outstanding Teaching Assistant, 2011, NC State University.
- Undergraduate Student Research Grant, Geologic Society of America, Groundwater Hydrology and Nitrogen Removal in a Dynamic Enhanced Stormwater Treatment Wetland.
- Cyril Harvey Geology Department Scholarship, 2008, Guilford College.
- Branson Field Camp Laboratory Scholarship, 2008, Missouri University.

### **Students Mentored**

- Chanelle McArthur, 2016. Modeling stream temperature profiles along an Atlantic Coastal Plain river.
- Matthew Aupperle, 2016. Programming streambed sediment distribution models using the Python programming language.
- Robert Lane, 2013–2014. Identifying a transient landscape by digitizing river terrace maps of the Clearwater River.
- Jeffrey Torkewitz, 2013–2014. Landslide identification and delineation using aerial photographs and DEMs to derive erosion rates in the Clearwater River Basin.
- Kaili Stevens, 2013–2014. Geospatial analysis of cryoplanation terraces in the Hangay Mountains, Mongolia. North Carolina State University Honors Program.
- Melanie Rodems, 2013. Streambed grain size analysis in the Atlantic Piedmont, North Carolina. National Science Foundation Funded Project – Undergraduate research experience: Collaboration between North Carolina State University and Wake Technical Community College.

**Technical Proficiencies**

- **Computer:** Adobe Illustrator, ArcGIS, GRASS GIS, HTML, LASTools, MATLAB, MS Office, Python, TerraScan
- **Field:** cosmogenic nuclide sampling, Trimble GPS, Leica terrestrial LiDAR scanners and laser rangefinders

**Field Research Experience**

American Midwest, Appalachian Mountains, Atlantic Piedmont and Coastal Plain, Mongolia, Puerto Rico, Olympic Mountains

**Reviewer**

Earth Surface Processes and Landforms, Natural Hazards and Earth System Science, Remote Sensing, Geomorphology, IEEE Geoscience and Remote Sensing Letters, Water, Open Geosciences