

# Sabine Nix

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## EDUCATION

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**University College London, Department of Geography** | London, UK *Sep. 2023*  
Candidate for MSc in Remote Sensing and Environmental Mapping

**University of Pennsylvania, School of Arts and Sciences** | Philadelphia, PA *Dec. 2020*  
B.A in Earth Science, Concentration in Environmental Science

- *Cumulative GPA: 3.94/4.0*
- *Honors & Awards: Summa Cum Laude; Phi Beta Kappa; Dean's List 2016-2020; University Scholar; Princeton in Latin America Finalist (deferred due to COVID-19); Thouron Award*
- *Extracurricular: Isla Urbana at Penn; Epsilon Eta Environmental Fraternity; The Daily Pennsylvanian*

**University of Edinburgh, School of Geosciences** | Edinburgh, Scotland *Sep. – Dec. 2018*

- *Courses: Principles & Practices of Remote Sensing; Conservation Science; Development & Decolonization in Latin America*

## PROFESSIONAL EXPERIENCE

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**Climate Solutions Analyst, Spark Climate Solutions** | Remote *Jan. – Aug. 2022*

- Conducted research on and analyzed potential of emerging and underutilized climate solutions, including methane interventions and carbon dioxide removal

**Consultant, Okefenokee Swamp Park** | Waycross, GA (Remote) *Dec. 2021 – May 2022*

- Served as a technical writing and mapping consultant for a project aiming to secure UNESCO World Heritage site designation for the Okefenokee National Wildlife Refuge
- Assisted with the organization, writing, and research of a UNESCO nomination dossier, and producing maps of the site to accompany the document

**Adirondack Conservation Associate, The Nature Conservancy** | Keene Valley, NY *Jun. – Oct. 2021*

- Supported the Nature Conservancy's Adirondack conservation goals through two lead projects aimed at enhancing habitat connectivity and climate resilience in the Northeastern United States
- Developed a methodology utilizing spatial datasets in ArcGIS and an electric conductivity modeling tool called Circuitscape to identify high priority land parcels that could be protected or restored to increase habitat connectivity for wildlife movement across the Nature Conservancy's focal landscapes
- Managed outreach to 40+ land trusts to develop the New York Land Trust Atlas, a public web mapping tool to enhance land trust visibility and land protection goals throughout New York state
- Conducted field work including trail maintenance, fishing surveys, protected area boundary marking, and culvert assessments for wildlife connectivity

**Analytics Fellow, Regeneration** | Remote *Jan. – Jun. 2021*

- Conducted geospatial analyses for “[Regeneration](#),” a non-profit and New York Times Bestselling book by Paul Hawken (author of “[Drawdown](#)”) based on regenerative climate solutions
- Quantified organic carbon stocks in soils and biomass across ecosystems utilizing a broad range of global spatial datasets to provide numerical context for climate solutions such as re-wetting peatlands and protecting seagrasses
- Reviewed book drafts and provided feedback to improve data accuracy and science accessibility

**Geospatial Analyst, NASA DEVELOP, NASA Marshall Space Flight Center** | Huntsville, AL

***Project Lead***

*Jan. – Apr. 2021*

- Served as team lead for a project assessing flood risk and vulnerability along the Cheat River in West Virginia in partnership with a local organization, Friends of the Cheat
- Conducted supervised classifications in Google Earth Engine and assessed flood risk and vulnerability in ArcGIS Pro
- Produced series of communication materials, including a video and technical report on flood mitigation strategies
- Managed communication with project partners and led bi-weekly meetings with end users

***Assistant Center Lead***

*Jun. – Aug. 2020*

- Analyzed urban expansion and the urban heat island effect in Huntsville, Alabama in partnership with the City of Huntsville
- Wrote Javascript code in Google Earth Engine to analyze Landsat & MODIS satellite data and assess long-term trends in urban green space (normalized difference vegetation index), impervious surfaces (normalized difference built-up index), land surface temperature, and land cover
- Assessed potential for urban heat island mitigation through increased green space and tree planting
- Provided technical assistance in Google Earth Engine to a team studying climate trends in Bhutan

***Geospatial Analyst***

*Jan. – April 2020*

- Collaborated with NASA SERVIR to produce an improved drought detection tool for Kenya’s National Drought Management Authority to enhance emergency resource distribution efforts
- Wrote Python scripts to perform a principal component analysis on drought factors (including the standardized precipitation index, evaporative stress index, soil moisture anomalies and vegetative condition index) derived from a hydrologic model and satellite data to produce a combined drought indicator

**Consultant, Conservation International** | Seattle, WA (Remote)

*Sep.– Dec. 2020*

- Created 100+ maps of [irrecoverable carbon](#) to support the implementation of the Climate Irreplaceable Ecosystems Program (focused on sustainable management and protection of areas with high irrecoverable carbon stocks) through in-country partners

- Adapted R scripts to rank areas by irrecoverable carbon to facilitate climate-conscious land management

## ADDITIONAL WORK EXPERIENCE

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**Urban Forestry Researcher, Pennsylvania Horticultural Society** | Philadelphia, PA *Apr. – May 2020;*

- Designed virtual street tree monitoring protocol using Google Street View to remotely collect mortality data on more than 2,000 trees and identify relationships between mortality and variables such as surrounding land use type and socioeconomic factors *Jan. 2021 – Present*
- Performed quality control measures on the completed mortality dataset and prepared data for analysis
- Compiled a dataset on street tree species characteristics to determine how tree species are selected

**Intern, U.S. Geological Survey, Canyonlands Biological Station** | Moab, UT *May – Jul. 2018;*

- Worked as a field technician on projects including: vegetation response to extreme drought; biological soil crust restoration; restoration on degraded rangelands; oil and gas wellpad reclamation *May – Aug. 2019*

## INDEPENDENT RESEARCH

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**Linking Historical Management Practices to Tree Cover Change in Urban Parks** *Aug. 2019 – Oct. 2021*

- Identified connections between long-term (1959-2018) changes in tree cover in Philadelphia parkland and environmental management strategies employed during this time period
- Employed mixed-methods research techniques to quantify tree cover change through manual delineation of canopy patches on historical aerial photos and assess historical management practices using archival records, newspapers, and interviews with park professionals

**Land Use and Land Cover Change Surrounding the Interoceanic Highway in Tambopata, Peru** *Jul. 2018 – Sep. 2020*

- Executed a remote sensing analysis of land use and land cover change after the construction of the Interoceanic Highway in Peru using satellite data in Google Earth Engine
- Collected ground truth data to validate remote sensing classifications while serving as a visiting researcher at the Alliance for a Sustainable Amazon's field station in Madre de Dios, Peru

## PUBLICATIONS

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**Nix, S., Roman, L.A., Healy, M., Rogan, J., Pearsall, H.** Linking tree cover change to historical management practices in urban parks. Accepted at *Landscape Ecology*.

Healy, M., Rogan, J., Roman, L.A., **Nix, S.**, Martin, D.G., Geron, N. (2022) Historical urban tree canopy cover change in two post-industrial cities. *Environmental Management* 70, 16-34. <https://doi.org/10.1007/s00267-022-01614-x>

## CONFERENCES & PRESENTATIONS

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Roman, L., **Nix, S.**, Healy, M., Rogan, J., Pearsall, H. (2022, February). *Linking tree cover change to historical management practices in urban parks*. American Association of Geographers Annual Meeting, New York, NY.

**Nix, S.** (2020, September). *Land Cover Change Surrounding the Interoceanic Highway in Tambopata, Peru*. Poster presented at the University of Pennsylvania's Fall 2020 Research Expo, Philadelphia, PA.

**Nix, S.** (2020, September). *Utilizing NASA Earth Observations to Evaluate Urban Tree Canopy and Land Surface Temperature for Green Infrastructure Development and Urban Heat Mitigation in Huntsville, AL*. Poster presented at the University of Pennsylvania's Fall 2020 Research Expo, Philadelphia, PA.

McCartney, S.; Mehta, A.; Shandas, V.; Gallo, K.; Paris, G.; **Nix, S.**; Quintero, T.; Tomlinson, A.; Xian, G. (2020). *Satellite Remote Sensing for Urban Heat Islands*. NASA Applied Remote Sensing Training Program (ARSET). <https://appliedsciences.nasa.gov/join-mission/training/english/arset-satellite-remote-sensing-urban-heat-islands>

**Nix, S.** (2019, November). *Remote Sensing to Track Land Cover Change*. Research presented at a University Scholars Meeting of the University of Pennsylvania, Philadelphia, PA.

## SKILLS & INTERESTS

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**Technical:** ESRI ArcGIS Desktop & Pro, Google Earth Engine, Javascript, Python, HTML/CSS, R, Adobe Suite, Microsoft Office

**Languages:** English (native fluency), Spanish (advanced – CEFR C1), Quechua (basic)

**Interests:** Science communication, graphic design, hiking, distance running, ceramics