Grace Stonecipher

Conservation Biology Institute
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Grace Stonecipher is a Geospatial Analyst with 5+ years of professional experience in conservation, where she uses geospatial technologies to translate data into real-world solutions. Her areas of interest include geographic information systems, remote sensing, data visualization, and interactive web maps.

Prior to joining CBI, Grace worked with the Center for Large Landscape Conservation to analyze the potential impacts of linear infrastructure development on wildlife across Asia and coordinated an international project team to gather data, conduct surveys, and produce training materials. She has also worked with Conservation International to develop a land-use planning tool and with the National Park Service to identify disturbances in National Parks using satellite imagery. Grace holds an M.S. in Environmental Observation and Informatics from the University of Wisconsin-Madison, a Professional Certificate in Geospatial Programming and Web Map Development from Penn State University, and a B.S. in Environmental Studies from Yale University.

Grace is passionate about the process of linking knowledge to action, and through her work hopes to use geospatial data to inform land-use decisions that balance the needs of people and biodiversity. She is a member of Women+ in Geospatial and the Society for Conservation GIS, where she has served on the Conference Committee.

EDUCATION

Graduate Certificate, Geospatial Programming and Web Map Development, Remote, 2022

M.S., Environmental Conservation - Environmental Observation and Informatics, University of Wisconsin - Madison, WI, 2020

B.A., Environmental Studies, Yale University, New Haven, CT, 2017

EMPLOYMENT HISTORY

2023 - Present	Geospatial Analyst, Conservation Biology Institute, Remote
2020 - 2022	International Program Coordinator & Geospatial Analyst, Center for Large Landscape Conservation, Bozeman, MT
2020 - 2021	Conference Committee Member, Society for Conservation GIS
2020 - 2020	Geospatial Intern, Conservation International, Remote

2019 - 2020	GIS & Remote Sensing Intern, National Park Service, Remote
2017 - 2019	Junior Program Officer, Center for Large Landscape Conservation, Bozeman, MT

PROFESSIONAL SKILLS

Geographic information systems (GIS), remote sensing, spatial analysis, connectivity conservation, road ecology, project management & coordination, cartography, data visualization, StoryMaps, web maps, scientific communication and writing, stakeholder outreach & engagement

Software: ESRI ArcGIS, ArcGIS Online (StoryMaps, Web AppBuilder), QGIS, Google Earth Engine, ENVI, Adobe Creative Suite

Programming Languages: R, Python, JavaScript

SELECT PROJECT EXPERIENCE

Linear Infrastructure Safeguards for Asia (LISA) Project (Center for Large Landscape Conservation, USAID) – Managed a 20-person international USAID project team on a year-long multi-million-dollar research effort to understand Asia's capacity to safeguard wildlife from the impacts of linear infrastructure. Oversaw the production of key deliverables, including spatial analyses, literature reviews, case studies, capacity assessments, and training modules. Gained experience in international stakeholder engagement, survey creation and analysis, and developing training for broad audiences.

Mapping Potential Impacts of Linear Infrastructure on Biodiversity in 28 Asian Countries (Center for Large Landscape Conservation) – Led conversion of Asia-wide analysis to the country-level to make information more accessible to country-level decision-makers. Wrote Python script to manipulate spatial data, create new shapefiles, and calculate statistics regarding overlap of proposed linear infrastructure with core biodiversity areas. Produced 28 country reports that included summary statistics and a series of maps displaying relevant data.

Spatial Analysis of Road Crossing Hotspots on National Highway 37 in Assam, India (Center for Large Landscape Conservation, USAID) – Led spatial analysis of a roadkill/live-crossing dataset from NH-37 in Assam, India to identify key areas for conservation action under a potential highway expansion. Used ArcGIS to run a series of optimized hotspot analyses to find statistically significant clusters of observations by season, status (living vs. dead), and taxonomy. Created a series of maps displaying key trends and proximity to known elephant corridors.

Visualizing Impacts to Wildlife Along National Highway 37 in Assam, India (Penn State University) – Built a web map using HTML, CSS, and JavaScript to display roadkill and

live-crossing data collected along a stretch of NH-37 in Assam, India. Used the ArcGIS API for JavaScript to add interactive elements, allowing the user to filter data and visualize observations in different ways.

Spatial Analysis of Potential Impacts of Planned Paved Roads and Railways on Khulan and Goitered Gazelle in Mongolia (Center for Large Landscape Conservation, USAID) – Led spatial analysis of telemetry data from khulan and goitered gazelle to identify potential impacts from linear infrastructure (LI). Used R to map home ranges for individual animals and calculate average length of LI overlap, and to count the number of times animals crossed existing and planned LI. Created maps to show highly impacted home ranges and high-density crossing locations.

Proposed Roads, Rails, and Transmission Lines in Asia Dataset (Center for Large Landscape Conservation) – Co-led the compilation of a geospatial database of planned roads, rails, and transmission lines associated with global and regional economic development initiatives in Asia. Identified sources of existing spatial data and digitized 100+ roads from PDFs and images in ArcGIS.

Development of Restoration Planning Tool in Google Earth Engine (Conservation International) – Led development of a Google Earth Engine (GEE) app focused on identifying key areas for restoration action based on user-designated priorities. Managed back-end processing of input data assets in GEE and scripted user-interface for the app.

StoryMap: Using Remote Sensing to Examine the Great Coastal Gale in Coastal Oregon (National Park Service) – Led development of ESRI StoryMap to tell the story of the impacts of the Great Coastal Gale on Lewis and Clark National Park in 2007. Used satellite and aerial imagery and change detection to highlight highly-impacted areas, and to explain how the National Park Service's Inventory and Monitoring Program uses remote sensing to assist with park management.

Identifying Disturbances in Pacific Northwest National Parks (National Park Service) – Analyzed Landsat satellite imagery to identify and label landscape disturbance agents in Pacific Northwest National Parks. Used LandTrendr, TimeSync, and Google Earth to track landscape characteristics over time and ensure accurate labeling.

Connectivity Conservation Specialist Group (International Union for the Conservation of Nature, Center for Large Landscape Conservation) – Managed international group of 800+ members from 85 countries to share expertise regarding connectivity conservation. Coordinated creation of IUCN publication, "Guidelines for conserving connectivity through ecological networks and corridors" (2020). Conducted interviews and data analysis for a journal article on connectivity conservation plan implementation, published in *Environmental Research Letters*.

SELECT PUBLICATIONS

USAID. 2021. Final Report: Building a foundation for linear infrastructure safeguards in Asia. Authors: Ament, R., **G. Stonecipher**, M. Butynski, T. Creech, A.P. Clevenger, A. Neelakantan, A. Gangadharan, C. Krishna, M. Bell, T. Vilela, K. Bonine, M. Monga, T. Van Epp, A. Laur, A. Breuer, S. Parashar, C.G. Weinheimer, and K. Hoff. Prepared by Perez, APC for Contract no. AID-OAA-I-15-00051/AIDOAA-TO-16-00028, ESS WA#13. U.S. Agency for International Development (USAID), Washington, DC. https://largelandscapes.org/wp-content/uploads/2021/09/LISA_FinalReport_FINAL.pdf

USAID. 2021. Annex 1: Spatial analyses of linear infrastructure threats to biodiversity in Asia. In: Building a foundation for linear infrastructure safeguards in Asia. Authors: Creech, T., **G. Stonecipher**, M. Bell, A.P. Clevenger, and R. Ament. Prepared by Perez, APC for Contract no. AID-OAA-I-15-00051/AIDOAA-TO-16-00028, ESS WA#13. U.S. Agency for International Development (USAID), Washington, DC. https://largelandscapes.org/wp-content/uploads/2021/09/LISA_Annex1_SpatialAnalysis_FINAL.pdf

Keeley, A., P. Beier, T. Creech, K. Jones, R. Jongman, **G. Stonecipher**, and G. Tabor. 2019. Thirty years of connectivity conservation planning: an assessment of factors influencing plan implementation. Environmental Research Letters 14. https://doi.org/10.1088/1748-9326/ab3234

Ament, R., R. Callahan, L. Maxwell, **G. Stonecipher**, E. Fairbank, and A. Breuer. 2019. Wildlife Connectivity: Opportunities for State Legislation. Center for Large Landscape Conservation: Bozeman, Montana. https://largelandscapes.org/wp-content/uploads/2019/03/Wildlife_Connectivity_Opportunities_for_State-Legislation_2019.pdf

SELECT PRESENTATIONS

Stonecipher, G. 2021. Spatial Analysis of Linear Infrastructure Threats to Biodiversity in Asia. Presentation. International Congress on Conservation Biology. Online.

Stonecipher, G. and M. Gonzalez-Roglich. 2020. Strategic Siting for Future Forests: A Global Restoration Planning Tool to Identify Local Opportunities. Presentation. Conservation International, Moore Center for Science. Online. https://www.youtube.com/watch?v=ndg8_AyQPz0

Stonecipher, G., M. Reuling, and G. Tabor. 2018. Advancing Connectivity in a Post-2020 Conservation World. Poster presented at the 2018 North American Congress on Conservation Biology. Toronto, CA.