

Dan Carver Spatial Scientist

Dan Carver is a spatial scientist based in Fort Collins, Colorado. He builds reproducible geospatial workflows and the tools that put their results in front of the people who use them. His work covers plant conservation, environmental justice, public health, and landscape ecology, most often as the analyst on a team of subject experts.

Dan works primarily in R, with Python and Google Earth Engine for remote sensing and machine learning. He shares code, data, and methods openly so that results can be checked and reused, and he has taught spatial analysis to students, interns, and working scientists since 2017.

Selected Projects

Colorado EnviroScreen

Colorado Department of Public Health and Environment

The state's environmental justice mapping tool, used to identify disproportionately impacted communities under Colorado's Environmental Justice Act. Dan was the lead developer of the data pipeline and R Shiny application for the 2022 release and rebuilt the data processing for version 2.0.

GapAnalysis R package

Open source, with the International Center for Tropical Agriculture

An R package on CRAN that scores how well a species is conserved in genebanks and botanic gardens and in protected areas, from occurrence records and a distribution model. Dan is the lead author. The method supports the national assessment of 600 crop wild relatives of the United States and the 2026 assessment of wild grapevines of the Americas.

GAMMa

Atlanta Botanical Garden and Botanic Gardens Conservation International

A [web application](#), now in public beta, that lets a botanic garden or genebank compare its living collection of a species with wild occurrence records, run a conservation gap analysis, and share a report. Dan is the lead developer. The project is funded by the Institute of Museum and Library Services.

Other recent work

- **Trees outside forests.** USDA-funded work to map tree cover outside forests from aerial imagery with image segmentation and a deep learning model, and to design the sampling that estimates it across Land Resource Regions.
- **JustGreen.** A health impact assessment of urban vegetation across the 200 most populated cities in the United States (*Landscape and Urban Planning*, 2026).
- **Floodplain integrity.** A national analysis of human pressures on floodplains across the contiguous United States (*Communications Earth & Environment*, 2023).



Education

M.A. Applied Geography and Geospatial Science
University of Colorado Denver, 2017

B.S. Geology, B.A. Geography
Adams State University, 2012

Experience

Technical Manager

Geospatial Centroid, Colorado State University,
2020–present

Spatial Scientist

USDA Agricultural Research Service, 2018–2026

GIS Specialist

Natural Resource Ecology Laboratory, 2019–2020

Geoinformatics Fellow

NASA DEVELOP, 2017–2018

GIS Technical Support

U.S. Geological Survey, 2016–2017

Education Technician

Great Sand Dunes National Park and Preserve,
2012–2013

Code and Citations

github.com/dcarver1

Google Scholar: 580 citations, h-index 13

Selected Publications

Conservation gap analysis for wild grapevines (*Vitis* L.) of the Americas. *Plants, People, Planet*, 2026.

GapAnalysis: an R package to calculate conservation indicators using spatial information. *Ecography* 44(7), 2021.

Crop wild relatives of the United States require urgent conservation action. *PNAS* 117(52), 2020.