Daniel P Carver

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Education

Masters of Applied Geography and Geospatial Science

Masters Certificate in Geographic Information Science

University of Colorado Denver

Graduation: 05/2017

GPA:3.86/4

B.S. Geology & B.A. Physical Geography

Adams State University

Graduation: 05/2012

GPA: 3.70/4

Professional Experience

Colorado State University: Natural Resource Ecology Laboratory

Fort Collins, Colorado

April 2019 - Present

GIS specialist

As a contributing member of the Evangelista lab group at CSU I develop methods and execute spatial data analysis for a wide range of research topics.

Project Development 70%

- Continue work with the USDA on CWR (see position description below)
- Assist with method development for R, GEE, and other desktop GIS programs.

- Develop a GEE training series for ecologists.

Outreach 15%

- conduct public presentations on behalf of the lab group
- connect with potential project partners through outreach and networking events

Grant writing 15%

- contribute to the literature review, data collection, method development, and writing of various grant proposals, including NSF proposals.

USDA Agricultural Research Service

Fort Collins, Colorado

June 2018 to April 2019

Spatial Scientist

I collaborate with researchers and curators at the National Laboratory for Genetic Resource Preservation to develop geospatial models that add to the understanding of the distribution, collection, and use of the Crop Wild Relatives.

Research: 50% of duties

- evaluate and access existing species distribution and gap analysis modeling methods
- collaborate with various stakeholders regarding the use of CWR and the data generated around CWR
- contribute to technical reports and publications regarding

Product Development: 50% of duties

- generate reports, maps, and analysis that convey the result of research products
- develop programs in R to conduct geospatial models

NASA DEVELOP

Fort Collins, Colorado

June 2017 to September 2018

Geoinformatics Fellow & Assistant Center Lead

Half of my time is spent supporting the node location in Fort Collins, and the other half is spent supporting the National Program office in Virginia. At the node level, I assisted in the administrative tasks and worked as a member of a research team. At the national level, I provided educational training and geospatial analysis support to all 13 nodes across the country.

Research: 40% of duties

- Work in a close-knit team environment on 10-week feasibility studies
- Develop methods and conduct predictive modeling using Arcpy, Python, R and Google Earth Engine
- Produce multiple deliverables (technical report, poster, presentation, video) on a strict timeline
- Present work in a public forum

Fellow Class: 40% of duties

- Work remotely as one of a three-person geoinformatics team
- Response to questions via the DEVELOP Earth Science Collaborative forum.
- Support teams moving through the legal steps of the NASA code release process
- Contributed to the updates and maintenance of NASA DEVELOP's Interactive Web Map
- Create and conduct training on the use of Markdown and Arcpy
- Lead the print material team in the creation posters, invitation, and other material for 20th Anniversary Celebration

Administrative: 20% of duties

- Communicate with partner organizations regarding the current and future project
- Conduct weekly educational chalk talk session to promote technical and interpersonal learning

United States Geological Survey; National Geospatial Technical Operations Center

Denver, Colorado

May 2016 to June 2017

Geography/GIS Support

Ensure that the 100 plus individuals who are producing data and supporting data production for the National Map have the technical support and software to perform their jobs effectively. I work as a member of the Information Technologies Service team.

Technical Support: 40% of Duties

- Provide timely and consistent technical support to the 100+ GIS users
- Problem solve geographical and software related issues for desktop and server-based geospatial software programs
- Troubleshooting issues with the following software; ArcGIS Desktop, ArcGIS Pro, FME, Global Mapper, and LP360.
- Coordinate software deployments with various groups from data production to development

Computer Maintenance: 40% of Duties

- Install the standardize geospatial software builds for new and reformatted machines base on configuration management protocols
- Maintain proper protocols regarding the use of Administrative account for altering computers

Method Development: 20% of Duties

- Develop automated methodologies to improve efficiencies in software deployment and use.

University of Colorado Denver: Geography and Environmental Sciences

Denver, Colorado

August 2015 to May 2016

Teaching Assistant – Physical Geography, Environmental Science, Landscape Architecture

Worked to support student engagement in the class and provide instruction material related to course content.

Act as resource for student engagement (80% of duties)

- Hold office hours, respond to emails, and hold pretest study sessions
- Provided training and troubleshooting help for geospatial questions for a graduate-level course in Landscape Architecture

Hold classroom lectures for classes (20% of duties)

- Lectured on 3 chapters a semester for the physical geography course

Colorado Mountain Club: Youth Education Program

Golden, Colorado

October 2013 to August 2015

Lead Instructor

Organized and facilitated curriculum, ensured safety in various outdoor settings and acted as the point of contact for the organization for specific trips.

Teach and engage students (70% of duties)

- Facilitate environmental education programs for students from 2nd to 12th grade in various indoor and outdoor settings.

Curriculum Development (30% of duties)

- Evaluated, adapted, and created educational lesson plans on a wide range of subjects.

Great Sand Dunes National Park and Preserve

Mosca, Colorado

May-November 2012 & April-October 2013

Education Technician

Managed a wilderness-based outdoor education program that took middle and high school students into the backcountry for 5 and 7 days at a time. I created a promotional video about the program.

Planning and Program Management. (50% of Duties)

- The primary organizer of logistical duties, planning, and evaluation of the Ambassador for Wilderness Program
- Provide leadership and mentoring capacity for student participants

Safety and Risk Management (30% of Duties)

- Develop and facilitate the instructor training course.
- Facilitate debriefing with students and staff when necessary (mediated discussion involving personal and group injuries, illness, mental health and near misses)

Interpretation and Education (20% of Duties)

- Design, prepare and presented thematic walks, talks, and demonstrations through the Interpretation Program.

Adams State College Earth Science Department

Alamosa, Colorado

June 2011 –December 2011

Teachers Assistant

Acted as the lab manager for the soils and geomorphology laboratories.

Lab Management

- Organize the equipment and supplies soils and geomorphology laboratories
- Monitor laboratory and equipment for cleanliness and functionality

Adams State Adventure Program (ASAP)

Alamosa, Colorado

October 2007 – May 2012

Trip Leader

Preformed a variety of roles over 5 years as a student employee that involved risk management and outdoor education of groups.

Co-Instructor of Adventure Leadership and Programming Expedition HPPE 179

- Plan, Design, Organize and Facilitate a 14 day 6 credit hour expeditionary learning course

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Research Experience

USDA Agricultural Research Service

I currently, have five articles of which I am a co-author under review. Four of these are on species distribution modeling of crop wild relatives, and one is an evaluation of the relationship between the USDA ARS and the BLM Seeds of Success program.

Crop wild relatives of chile pepper (Capsicum L.): Distributions, conservation status, and implications for adaptations to abiotic stresses" is presently being given full consideration for publication in Diversity and Distributions.

Crop wild relatives of pumpkins, squashes, and gourds (Cucurbita L.): Distributions, conservation status, and abiotic stress tolerance potential, is submitted to Plants, People, Planet.

Collecting Native Seed for Restoration: Collateral Benefits to Agricultural Crop Improvement, Research and Education, is presently being considered for publication in Crop Science.

Distributions and conservation status of carrot (Daucus L.) wild relatives in Tunisia: A case study in the Western Mediterranean basin, is presently being considered for publication in Crop Science.

Research gaps and challenges in the conservation and exploitation of North American wild lettuce (Lactuca L.) germplasm, is presently being considered for publication in Crop Science.

NASA DEVELOP

May 2017 - September 2018

Minnesota and Texas Agriculture

In progress

> Worked with the USDA Plant and Animal Genetic Resource Preservation group to predict the extent and temporal variability of wild rice in Minnesota and Texas.

Colorado River Basin Water Resources II

Project Details

> Used NASA Earth Observations to predict Russian Olive presence and estimate Evapotranspiration rates of riparian vegetation along the San Juan River in New Mexico and Colorado.

Colorado River Basin Water Resources I

Project Detials

> Used NASA Earth Observations to predict Tamarisk presence and percent cover along a stretch of the Colorado, Green, and Dolores river in Utah and Colorado.

Thesis Research

Accessing the representational accuracy of GlobeLand30's classification of Mexico's Forest.

Chair: Dr. Rafael Moreno

Committee: Dr Galen Maclaurian, Dr. Peter Athamathem, Dr. Jaun Manuel Torres Rojo

This work represents a validation of a remote sensing derived global land cover dataset using a ground verified series of forest inventory sites. Through this process, I have done extensive research on the development and limitations of remote sensing derive land cover maps, validation methodology for land cover maps, and potential sources of errors in both the imagery and the validation sets. Overall it is a very detail examination of how well a Landsat product can represent a land cover.

Soil and Geoarchaeology research

Upper Rio Grande Basin

Worked with Dr. Jared Beeton on a soils based geoarchaeological investigation of 2nd and 3rd order tributaries of the Rio Grande River in the Upper Rio Grande Basin. Through this work, I have made multiple public presentations, learned and exercised field-based scientific research, proposed and obtained funding for 14C dating of soil organic matter. Geomorphic landforms were field mapped using GPS, digitized, and expanded on based on the interpretation of high resolution remotely sensed data.

Mammoth Site Excavation

During 2011 I worked under Dr. Jared Beeton, and The Denver Museum of Natural Science in the excavation and geomorphic investigation of mammoth remains found within the San Luis Valley. I ran laboratory analysis on the soils and sediment collected from the site.

Relevant Couse Work and Projects

Personal Project: Disc Golf Mapping

I have developed an automated methodology that takes a lidar point cloud and GPS data and produces an accurate representation disc golf course as a map. The lidar processing is down within the arcpy module, and GPS points are field collected.

Relevant Course Work

- Environmental Modelling
- Introduction to Applied Spatial Statistics in Geography
- Remote Sensing 1 and 2
- GIS programming and Automation
- Patagonia Travel Study
- Cartography
- Geology Field Camp

Instrumentation and Computer Experience

- Python; confident using arcpy, numpy, pandas, scipy, and os.
- Markdown; Confident creating plain text docs using markdown and managing them via an online repository.
- Git; Confident using version control software via command line and editing
- R; confident working with spatial data, R markdown, using Random Forest, and conduction sensitivity analysis on models.

- Google Earth Engine; Functional experience creating ocular sampling scripts and running classifications of passive and active remotely sensed imagery
- Experienced transferring field mapped landforms to digital format
- Background in enterprise-level GIS systems (Servers, Virtual Machines, Databases, Desktops)
- Confident using ESRI software, learning open-source alternatives
- Producing professional level cartographic products using Adobe Suite (Illustrator - Photoshop - InDesign)
- Proficient with the Microsoft Office Suite on both PC and MAC
- Working experience with I Movie and Final Cut Pro on a MAC

Grants Awarded

- Successfully applied for and received grant funding from the Porter Scholar Fund for the radiometric age dating of soil organic matter -$2,500. Spring 2011

Publications

- Khoury CK, Carver D, Kates HR, Achicanoy HA, van Zonneweld M, Thomas E, Heinitz C, Jarret R, Labate JA, Reitsma K, Nabhan GP, and Greene SL (2019) Distributions, conservation status, and abiotic stress tolerance potential of wild cucurbits (Cucurbita L.). Plants, People, Planet.
- Khoury CK, Carver D, Barchenger DW, Barboza G, van Zonneweld M, Jarret R, Bohs L, Kantar MB, Uchanski M, Mercer K, Nabhan GP, Bosland PW, and Greene SL (2019) Modeled distributions and conservation status of the wild relatives of chile peppers (Capsicum L). Diversity and Distributions. Doi: 10.1111/DDI.13008.
- Greene SL, Carver D, Khoury CK, Irish B, Olwell P, Leah P (2019) Seeds of Success: Collateral Benefits to Agricultural Crop Improvement, Research and Education. Crop Science
- Lebeda A, Kristkova E, Kitner M, Majesky L, Dolezalova I, Khoury CK, Carver D, Achicanoy HA, Sossa C, Widrlechner M, Hu J (2019) Research gaps and challenges in the conservation and exploitation of North American wild lettuce (Lactuca L.) germplasm. Crop Science
- Woodward, Brian., Evangelista, Paul., Young, Nicholas., Vorster, Anthony., West, Amanda., Carroll, Sarah., Girma, Rebecca., Hatcher, Emma., Anderson, Ryan., Vahsen, Megan., Vashisht, Amandeep., Mayer, Timothy., Carver, Daniel., Jarnevich, Catherine. (2018). CO-RIP: A Riparian Vegetation and Corridor Extent Dataset for Colorado River Basin Streams and Rivers. ISPRS International Journal of Geo-Information. 7. 397. 10.3390/ijgi7100397.
- Moreno-Sanchez, R., Manuel Torres Rojo, J., Moreno-Sanchez, F., Carver, D., Niknami, L., Clay, E., Exploration of Land-cover Changes 2000-2010 at the National Level in Mexico Using GlobeLand30 Data Sets. Reality, Data and Space International Journal of Statistics and Geography Vol.8, Num 3 (2018)
- Carver, D.P., Beeton, J.M., Holocene landscape evolution and geoarchaeology of low-order streams in the Rio Grande basin, San Juan Mountains, Colorado, USA. Journal of Quaternary Research 82 (2014), 331-341.
- Wilderness Ranger Cookbook, 2nd: A Collection of Backcountry Recipes by Bureau of Land Management, Forest Service, National Park Service, and U.S. Fish and Wildlife Service Wilderness Rangers.
  - My recipe for Ambassadorial Breakfast Gravel is in this text.
- Contributed to two professional peer-reviewed reports submitted to the Colorado Historical Society; Principal Investigator: Dr. Jared Beeton.
  - Geoarchaeology and 14C Dating of Landform Sediment Assemblages in La Jara Creek, Hot Creek and the Alamosa River Basins, San Luis Valley,= Colorado. Submitted Winter 2012

– Soils and Geoarchaeology of La Jara Creek, Hot Creek and Alamosa River, Rio Grande Basin, Colorado. Accepted Spring 2011