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

USDA Agricultural Research Service

Fort Collins, Colorado

June 2018 to Present

Spatial Scientist

> I collaborate with researchers and seed 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: 40% of duties

- Evaluate and access existing species distribution and gap analysis modeling methods
- Conduct gap analysis to understand the completeness of current germplasm collections
- Collaborate with various stakeholders regarding the use of CWR and the data generated around CWR
- Contribute to technical reports using R Markdown
- Conduct queries on Germplasm Resources Information Network database to compile data for analysis
- Contribute analysis and methods to publications regarding a wide range of Crop Wild Relatives

Product Development: 40% of duties

- Generate reports, maps, and analysis that convey the result of research products
- Develop programs in R to conduct geospatial models on large spatial datasets
- Optimize existing modeling methodology
- Collaborate with BLM Seeds of Success program to demonstrate the impact of their program on Crop Wild Relatives
- Integrate remotely sensed data into existing species distribution modeling methods

Public Outreach: 10% of duties

- Provide presentations to specialized and general audience on the USDA efforts in Crop Wild Relative conservation
- Coordinate projects with other academic and federal researchers
- Contribute to the writing of peer reviewed scientific publications

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 administrative task and worked as a member of a research team. At the national level I provided educational trainings and provided 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 time line
- 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 trainings 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 effectively preform their jobs. This position was stationed within the Information Technologies Service section.

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 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 student 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. Created a promotional video which can be found here

Planning and Program Management. (50% of Duties)

- 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 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 a 5 year period 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

USDS Agricultural Research Service

June 2018 - Present

Examination of the BLM SOS program critribution to the conservation of Crop Wild Relative

Compiled data, preformed analysis, and produced multiple reports that highlight the relationship between the BLM SOS program and the USDA ARS National Plant Germplasm System.

Gap Analysis of Cucurbita Crop Wild Relatives

Contributed to the organization, evaluation, and production of a gap analysis of over 15 Crop Wild Relatives in the squash genus from around the world.

Gap Analysis of Capsicum Crop Wild Relatives

Contributed to the organization, evaluation, and production of a gap analysis of over 40 Crop Wild Relatives in the pepper genus from around the world.

Gap Analysis of the Crop Wild Relatives of the United States

Contributed to the organization, evaluation, and production of a gap analysis of over 250 Crop Wild Relatives that our present in the United States of America.

Ecogeographic classification of Lactuca in Chile

Provided geospatial production and ecological characterization of two species of wild lettuce in Chile

Ecogeographic classification of Daucus in Tunisia

Assisted in the development of a ecological characterization of wild carrots in Tunisia.

NASA DEVELOP

May 2017 - September 2018

Utah and Colorado Water Resource

Worked with the National Park Service to produce a web base modeling interface that allowed user to access changes in riparian vegetation over time.

Project Details

Minnesota and Texas Agriculture

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.

Project Details

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

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.

Project Detials

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 represent a validation of a remote sensing derived global land cover dataset. This is done by 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 Geomorphology and Geoarcheology 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 was granted funding for 14C dating of soil organic matter. Geomorphic landforms were field mapped using GPS, digitized, and expanded on based on the interpretation if 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. This was done to fill a gap a community I actively participate in.

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

- R; confident working with spatial data, R markdown, using Random Forest, and conduction sensitivity analysis on models.

- Python; confident using arcpy, numpy, pandas, scipy, and os.
- Markdown; Confident creating plain text docs using markdown and managing them via online repository.
- Git; Confident using version control software via command line and editing
- 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

- 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 included within 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