

Carol L. Campbell, Ph.D.
Curriculum Vitae

Department of Geography
New Mexico State University
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Education

Ph.D. 2005, University of California, Los Angeles, Geography
Emphasis: Biogeography, habitat niche, remote sensing.
Dissertation Title: “A Biogeographic Benchmark to the Grinnell/Storer cross-section of the Sierra Nevada.”

M.A.G. 2002, New Mexico State University, Applied Geography
Emphasis: Avian community structure, riparian communities, endangered species, mapping habitat.
Thesis Title: “The Avian Community of a Riparian Landscape in a Semi-Arid Region.”

B.S. 1998, Humboldt State University, Wildlife /Minor in Biology
Emphasis: Ornithology

Academic Appointments

Associate Professor (June 2011 – present): Department of Geography, New Mexico State University. Las Cruces, New Mexico

Assistant Professor (August 2005 –May 2011): Department of Geography, New Mexico State University. Las Cruces, New Mexico

Adjunct Assistant Professor (March 2010 – present): Department of Biology, New Mexico State University. Las Cruces, New Mexico.

Graduate Research Assistant (January 2003-March 2003): Department of Geography University of California, Los Angeles, California

Graduate Teaching Assistant (August 2000 – May 2002) Department of Geography, New Mexico State University, Las Cruces, New Mexico

Research

My research explores birds and their habitats. Birds attract my attention, pique my curiosity and drive my research. Subtle differences in avian community composition across a landscape reflect gradients of habitat. Thus my research is couched in niche theory. Niche describes the set of ecological conditions that enables an organism to survive and reproduce. Exploration of niche is well facilitated within the four traditions of geography: the spatial tradition applies to range sizes, the area studies tradition emphasizes common and endemic species, the man-land tradition explores habitat alteration and environmental quality, and the earth science tradition facilitates ecosystem research and change detection.

Publications

- ◆ Ahmed H. Mohamed , Jerry L. Holechek , Derek W. Bailey, Carol L. Campbell, and Michael N. DeMers. 2011. **Mesquite encroachment impact on southern New Mexico rangelands: remote sensing and geographic information systems approach.** *Journal of Applied Remote Sensing*. Vol.(5)
- ◆ Monique DeVries, Anna Klimaszeski-Patterson, Carol L. Campbell and Martha J. Desmond. 2010. **Grassland fragmentation effects on Burrowing Owl (*Athene cunicularia*) productivity.** *Papers of the Applied Geography Conference (2010)* 33: 314-323.
- ◆ Campbell, Carol L. 2010. **Winter birds of Nichols Canyon, New Mexico.** *New Mexico Botanist, Special Issue 2. Proceedings of the Second Natural History of the Gila Symposium.*
- ◆ Monique De Vries, Campbell, Carol L., Anna Klimaszewski-Patterson, Martha J. Desmond. 2010. **Grassland fragmentation effects of burrowing owl (*Athene cunicularia*) productivity.** *Papers of the Applied Geography Conferences, 2010.*
- ◆ Mohamed, Ahmed H., Jerry Holechek, Derek W. Bailey, and Carol L. Campbell. 2010. **Using high-resolution satellite imagery to evaluate the relationship between honey mesquite canopy cover and forage production on Chihuahuan Desert.** *Conference Proceedings American Society for Photogrammetry and Remote Sensing 2010.*
- ◆ Campbell, Carol L. 2009. **Southwestern Willow Flycatcher (*Empidonax trailii extimus*) population trends at the Lower Gila Box, New Mexico.** *New Mexico Ornithological Society Bulletin* Vol. 37 (2): 25-40.
- ◆ Campbell, Carol L. 2009. **Circle of Geographers: The History of the Geography Department at New Mexico State University.** *Southwestern Geographer*, 13:89-101

- ◆ Campbell, Carol L. 2009. **Managing Riparian Habitats of the American Southwest: Birds in the Gila Lower Box, New Mexico.** *Southwestern Geographer*, 13:40-62
- ◆ Wright, John B., and Carol L. Campbell. 2008. **Moorish Cultural Landscapes of Las Alpujarras, Spain.** *Focus on Geography*, 51(1): 25-30.
- ◆ Wright, John B., and Carol L. Campbell 2008. **Landscape Change in Hispano and Chicano Villages of New Mexico.** *Geographical Review*, 98(4): 551-565.
- ◆ Campbell, Carol L., 2008. **Book Review**, The Ribbon of Green: Change in Riparian Vegetation in the Southwestern United States. *Geographical Review*, 98 (1): 143-145.

In Progress

- ◆ Campbell (2014) **Estimating forest canopy height from interferometric radar data.** In review IJAGR, submitted July 2014
- ◆ DeVries, and Campbell (2014) **Agricultural Habitat Fragmentation Effects on Burrowing Owl (*Athene cunicularia*) Productivity in the Great Plains.** *IJAGR* in preparation.
- ◆ Campbell (2014) Avian community composition: a century of change along an elevation gradient through Yosemite. In draft.

Article Reviews

- ◆ Campbell, C. 2006. Invited anonymous review of “Deforestation in Central Africa: estimates at regional, national, and landscape levels by advanced processing of systematically-distributed Landsat extracts,” an article submitted to Remote Sensing of the Environment. Review submitted November 2006 Manuscript # RSE –D-06-00794
- ◆ Campbell, C. 2009. Invited anonymous review of “Notes on some breeding raptors of central and northern Lea County, New Mexico,” An article submitted to New Mexico Ornithological Society Bulletin. Review submitted January, 2009
- ◆ Campbell, C. 2013. Invited anonymous review of “An examination of forest canopy interception loss across temporal scales: implications for urban greening initiatives.” An article submitted to the Professional Geographer. Review submitted June 4, 2013.

Theses & Dissertations

- ◆ Campbell, Carol L. 2005. **A Biogeographic Benchmark to the Grinnell/Storer cross-section of the Sierra Nevada.** Ph.D. Dissertation, University of California, Los Angeles, 181 pages.

- ◆ Campbell, Carol L. 2002. **The Avian Community of a Riparian Landscape in a Semi-Arid Region.** M.A.G. Thesis, New Mexico State University, 174 pages

Conference Presentations/Abstracts

- ◆ April 2012. Campbell, C. Presentation, AAG annual meeting, Association of American Geographers, Los Angeles, "**Avian community composition along an elevation gradient through Yosemite National Park**".
- ◆ January 11, 2013. Campbell, C., Poster, International Biogeography Society 6th Biennial Conference, International Biogeography Society (IBS), Florida International University, "**Avian community composition along an elevation gradient through Yosemite National Park.**".
- ◆ October 2012. Campbell, C., Southwest Association of American Geographers, Las Cruces, "**The effects of riparian Landscape differences on the avian community of the Gila Lower Box, NM.**"
- ◆ April 2010. **Ron Treminio**, Martha J. Desmond and Carol L. Campbell. **Burrowing owl nest success across the Great Plains.** New Mexico Ornithological Society. Albuquerque, New Mexico.
- ◆ February 2010. **Ahmed H. Mohamed**, Jerry L. Holechek, Derek W. Bailey, Carol L. Campbell, Andrés Cibils and Michael DeMers. **Evaluation of Quickbird imagery for identifying dominant vegetation types in Chihuahuan Desert Rangelands.** 63rd Annual Meeting of the Society for Range Management, Denver CO.
- ◆ February 2010. Ahmed H. Mohamed, Jerry L. Holechek, Derek W. Bailey, Carol L. Campbell, Andrés Cibils and Michael DeMers. **Using high spatial resolution satellite imagery to detect vegetation change in response to precipitation and grazing intensity in Chihuahuan Desert Rangelands.** 63rd Annual Meeting of the Society for Range Management, Denver CO.
**Second place award in Graduate Student competition at the PhD level.*
- ◆ February 2010. **Jenny Good**, Martha Desmond, Wm. Gould and Carol Campbell. **Predators of the burrowing owl, surveying with cameras.** The Wildlife Society Conference. Flagstaff, AZ.
- ◆ February 2010. Ron Treminio, Gary Roemer, Martha Desmond, and Carol Campbell. **Stable isotope analysis of burrowing owl populations.** The Wildlife Society Conference. Flagstaff, AZ.
- ◆ March 2009. Carol L. Campbell. **Bird diversity and forest structure along an elevation gradient.** Association of American Geographers, Las Vegas, Nevada

- ◆ October 2008. Carol L. Campbell. **Managing riparian habitats of the American Southwest: Birds in the Lower Gila Box, New Mexico.** Southwestern Association of American Geographers Annual Conference, San Marcos, Texas
- ◆ October 2008. Carol L. Campbell. **Avian community composition in the Gila Lower Box in winter.** Second Natural History of the Gila: A symposium. Silver City, New Mexico
- ◆ September 2007. Carol L. Campbell. **Seasonal differences in the avian community composition of a riparian landscape in a semi-arid area.** The Wildlife Society's 14th Annual Conference, Tucson, Arizona
- ◆ October 2006. Carol L. Campbell. **Avian community composition variation in time across the Sierra Nevada.** IV North American Ornithological Congress: Community Ecology Session, Veracruz, Mexico
- ◆ March 2006. Carol L. Campbell. **Quantifying temperate coniferous forest structure from space.** Association of American Geographer's Annual Conference: Landscape Ecology Session. Chicago, IL.
- ◆ February 2004. Carol L. Campbell. **A comparison of avian community composition and forest structure relationships in the footsteps of Grinnell and Storer in Yosemite.** The Western Section of the Wildlife Society's Annual Conference. Rohnert Park, California.
- ◆ March 2003. Carol L. Campbell. **Comparisons of a riparian avian community in summer and winter.** The Association of American Geographers, New Orleans, Louisiana
- ◆ September 2001. Carol L. Campbell. Poster: **The effects of riparian landscape differences on avian species diversity in the Gila Lower Box Wildlife Habitat Area, New Mexico.** The Wildlife Society's 8th Annual Conference Reno/Tahoe, Nevada.

Research Collaboration and Grants

Awarded

- ◆ 2011 NMSU, College of Arts & Sciences Mini-grant \$2,400. Bird surveys in Yosemite National Park. Mileage for travel to conduct field work.
- ◆ DATES-Co-PI with M. Desmond, PI, Fisheries and Wildlife, NMSU. (\$500,000 Total award). "The role of ecosystem integrity on burrowing owl spatial ecology and reproduction across the Great Plains: An integrated research and teaching approach." NRI-Managed Ecosystems grant.

- ◆ PI -AmericaView, NASA- New Mexico Space Grant Consortium. August 2009 Conduct remote sensing workshop for professionals/researchers in Las Cruces \$24,000 total. Nine participants in short course and employment for 2 undergraduates. (**\$9,800**).
- ◆ 2006 NMSU, College of Arts & Sciences Mini-Grant \$2,168
- ◆ 2004 UCLA Graduate School, Summer Research Mentorship Fellowship \$2,000.

In Review or not-funded

- ◆ NEH-Teaching Development Fellowship, U.S. National Parks: Exploring the Human-Land relationship, submitted September 2010. not funded
- ◆ America-View, NASA-New Mexico Space Grant Consortium, (repeat) Remote sensing short course 10/11, **submitted** May 21, 2010. not funded
- ◆ NEH-Wild Rivers grant proposal. **Not funded** Co-PI with M. Weisiger PI, History, NMSU. “Exploring the wildness of western rivers.” \$150,000.
- ◆ NSF grant proposal **Not funded** Co-PI with M. Weisiger PI. History, NMSU (\$425,046) Retreat/workshop Gila, New Mexico, August 5-8 2010
- ◆ NSF grant proposal in Review: Mike DeMers, Julia Parra, Randy Carr, Carol Campbell, Dan Dugas. Not funded - in revision, Oct 2014

Teaching Philosophy

My primary goal is to empower students, inspire them, nurture their curiosity and give them confidence in their own abilities and potential. I prepare them for advanced critical thinking by framing questions within the scientific method, and linking them to the four traditions of Geography. This process rewards curiosity and observations by generating hypothesis to explain processes and patterns, while encouraging experiential learning to demonstrate the wealth of information available for geographic research.

Teaching Responsibility

I teach undergraduate and graduate level courses in Geography, 5 courses per year (fall 3/spring 2). In my 9 years at NMSU I have prepared 10 new courses. Summer school is optional and I taught 1 course in summer 2007, 2008, and 2009. Time with students via graduate committees and advising, directed readings and special topics courses are an additional requirement as graduate faculty.

Teaching Activities

My student credit hours per semester have increased nearly 10% per year. My cumulative student evaluation score is 3.6 with higher scores associated with repeat courses in recent years. I have recruited dozens of students into the program – two of whom, Eric Garton and Katrina Barney, completed a prestigious HERO program at Clark University. I have been active in recruiting graduate students. I have written recommendation letters for numerous graduate and undergraduate students who have

been accepted into funded graduate programs in Colorado, Idaho and Utah. I try to keep my door open, learn names and to shake every student's hand in the first class.

Courses in current rotation in bold

***Cross-listed courses offer both graduate and undergraduate credit in the same classroom**

2005 – Present: Geography courses for undergraduates and graduates.

- ◆ GEOG 112G World Regional Geography (Summer 2007, 08, 09)
- ◆ GEOG 201G Humans in the Natural Environment (Fall & Spring 2005)
- ◆ **GEOG 120G Culture & Environment** (Fall & Spring 2006 - present)
- ◆ GEOG 295 Environmental Geography (Spring 2006)
- ◆ **GEOG 326 U.S. National Parks** (Fall 2007 - present)
- ◆ ***GEOG 351/557 Fundamentals of Biogeography** (Spring 2005 - present)
- ◆ ***GEOG 373/573 Introduction to Remote Sensing** (Fall 2010)
- ◆ ***GEOG 482/582 Digital Image Processing** (Fall 2007, 08, 09)
- ◆ GEOG 491 Desert Ecology (Spring 2007)
- ◆ GEOG 493 Recycling Resources (Spring 2013)
- ◆ GEOG 451/551 Landscape Ecology (Spring 2006, Fall 2013)
- ◆ GEOG 501 Research Design (Fall 2012)

Graduate Students

Geography Students Supervised (Advisor/ Committee Chair)

Complete:

- Laura Biddison, MAG 2006, (A) **Descriptive model of winter duck habitat at Caballo Reservoir, New Mexico.**
- Dana Robinson, MAG 2008, **Comparison of remote sensing techniques for detection of Tamarisk (*Tamarix spp.*) in White Sands National Monument.**
- Brent Lloyd, MAG 2009, **Use of remote sensing techniques to quantify border impacts from 2002 to 2007 at Coronado National Memorial, Arizona.**
- Monique DeVries, MAG 2010, **Grassland fragmentation effects of burrowing owl (*Athene cunicularia*) productivity.**
- Byron Calkins, MAG, 2014. **Spatial analysis of future climate structure in New Mexico viticulture regions.**

In Progress:

- Ruben Rodriguez, MAG, Predicting night-blooming cactus habitat; a modeling approach.
- Rebecca Martin, MAG, Salt-cedar effects on avian community composition.
- Curtis Atherton, MAG, land-change detection with Maxent.

Graduate Committee Member

Complete:

Elizabeth Hobson-Mossman, Ph.D. Biology (3/2013)
Katherine Smith, Ph.D. Biology (5/2012)

Jennifer Good, MS. Fisheries, Wildlife and Conservation Ecology 5/2012
Brian Burek, MAG, 5/2011
Charles Britt, MS. Fisheries, Wildlife and Conservation Ecology, 5/2011
Ahmed Mohammed, Ph.D. Range, 5/2011
Kathy Whiteman, Ph.D. Biology, 5/2010
Isabella Mariotto, Ph.D. Biology, 5/2010
Michael Calkins, MS Fish, Wildlife & Conservation Ecology, 5/2010
Sue Wood, MA Public History, 5/2010
Ariel Muldoon 2006, MS Fisheries & Wildlife, 12/2006
Kendra Sullivan 2008, MAG, 5/2008
Jennifer Beatty 2008, MAG, 5/2008

In Progress:

Forrest East, MS Fish, Wildlife & Conservation Ecology 2014
Gregory Penn, Ph.D. Biology comps 5/2012
Amy Slaughter, MAG, 2014
Darlene Servana, MAG, 2014
Ronny Forney, MAG, 2015

Awards

2007 “Distinguished Member” Teaching Academy, NMSU
2006 “Distinguished Member” Teaching Academy, NMSU

Service

Proposal Reviews

Invited proposal review NSF CAREER proposal in the geography and spatial sciences category - completed Oct 2011

Report Review

HAFB burrowing owl and pupfish report
Gila Flow Needs assessment and workshop- Silver City, NM Jan 2014

Committees and Activities

- ◆ **Member of Arts & Sciences College Speaker Series Committee.** 2008 to present. Evaluate speaker applications and help organize college speaker series.
- ◆ **Member of the Department of Geography Speaker Series Committee.** 2008 to present. Coordinate and host speakers to the department.
 - Fall 2009, 2 speakers hosted
 - TC McCarthy, Savannah River National Laboratories, Presentation, government employment.
 - Bob Ternes, Adam O’Connor, ITT Visual Information Solutions – ENVI software product demo and workshop.
 - Fall 2010, 1 speaker hosted
 - TC McCarthy, Savannah River National Laboratories, return – meet with students

- ◆ **Co-Advisor Geography Student Organization.** 2007 to present. Advisor and mentor to undergraduate and graduate students regarding activities and service opportunities.
- ◆ **Panel Participant.** Field Methods in Biogeography, March 2009. Association of American Geographers, Las Vegas, Nevada
- ◆ **Session Chair.** 2008 Southwestern Association of American Geographers Annual Conference, San Marcos, Texas
- ◆ **Judge: Student Poster Competition** 2008 Southwestern Association of American Geographers Annual Conference, San Marcos, Texas
- ◆ **Abstract Judge: NM MESA-Inc** Winter Design Contest

Outreach

- ◆ Consultant for Elephant Butte Irrigation District regarding riparian habitat restoration in Dona Ana County (May 2010 - June 2011)
- ◆ Remote-Sensing short course through NM Space Grant Consortium
- ◆ Lead birding field trip in Gila New Mexico as part of the 3rd Natural History of the Gila symposium October 17, 2010
- ◆ Lead Birding field trip on NMSU Campus for SWEC Back by noon. November 2010
- ◆ Christmas Bird Count, NMSU Main Campus (2009, 2010, 2012, 2013) Mesilla Valley Audubon Society

Professional Societies/Memberships

- ◆ Steering Committee Member: Natural History of the Gila Symposium. March 2009 to 2012. 3rd Symposium to be held October 2010 at Western New Mexico University.
- ◆ Board Member: Mesilla Valley Audubon Society. Feb. 2009 to present
- ◆ MVAS Audubon Scholarship Committee Chair – Feb. 2009 to present

Memberships: Association of American Geographers, American Geographical Society, International Society for Biogeography, Society for Conservation Biology, American Ornithologist' Union, Cooper Ornithological Society, The Wildlife Society, National Audubon.

Relative Employment History

- ◆ **Biological Science Technician**, 5/01-8/01, GS-07, U.S.F.S. Lake Tahoe Basin Management Unit, Survey birds, established plots, conduct vegetation measurements.
- ◆ **Wildlife Biologist/Geographer- Natural Resources**, 4/00-3/01, GS-05, U.S.D.O.I. Bureau of Land Management, Las Cruces Field Office. Conduct endangered species surveys (Southwestern Willow Flycatcher), train field assistants, monitor wildlife, create maps, and write reports.

- ◆ **Wildlife Biologist**, 4/99-8/99, GS-05, U.S.F.S. Pacific Southwest Research Station, Fresno, CA. 93710. Monitor birds and nests, describe and measure vegetation
- ◆ **Biological Science Technician**, 5-98-8/98 GS-05, U.S.F.S. Pacific Southwest Research Station, Fresno, CA. 93710. Monitor birds and nests, describe and measure vegetation