
DAVID LA PUMA

New Jersey Audubon
Center for Research and Education
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Education

Institution	Degree	Year
Ithaca College	BA Environmental Studies	1997
Rutgers University	Ph.D. Ecology & Evolution	2010

Peer-reviewed Publications

La Puma, D.A., Elgersma, K.J., Lockwood, J.L. (anticipated). Power to detect declines in occupancy and abundance in a rare species: lessons from a long-term dataset Bird Conservation International, In Prep.

La Puma, D.A., Cassey, P, Lockwood, J.L. (anticipated). Change in Cape Sable seaside sparrow site use after fire in Everglades National Park, Florida: importance of fire characteristics and time-since-fire. Ecological Applications, In Prep.

Baiser, B.H., Lockwood, J.L., **La Puma, D.A.**, and Aronson, M.F., 2008. A Perfect Storm: Two Ecosystem Engineers Interact to Degrade Deciduous Forests of New Jersey. *Biological Invasions* 10 (6), 785-795.

La Puma, D.A., Lockwood, J.L., Davis, M.J., 2007. Endangered species management requires a new look at the benefit of fire: The Cape Sable seaside sparrow in the Everglades ecosystem. *Biological Conservation* 136, 398-407.

Popular science Publications

La Puma, D.A. November-December 2009. Everglades Endemic Species Profile: Cape Sable Seaside Sparrow (*Ammodramus maritimus mirabilis*). **WildBird Magazine** 23 (6), 38-39.

La Puma, D.A. July-August 2007. Mega-Scale Observations: Use weather radar to predict birding conditions in your neck of the woods. **WildBird Magazine** 21 (4), 34-39.

Reports

2011 Mizrahi, D.M., **La Puma, D.A.**, Hodgetts, P., Eila, V. Effects of Weather and Habitat Condition on Avian Migration Patterns in New York. Final Report to the New York State Department of Environmental Conservation.

2007 Lockwood, J.L., **La Puma, D.A.**, Cassey, P., Davis, M.J., and Fenn, K.H. Final Report: Fire effects on Cape Sable seaside sparrow Demography. Everglades National Park, Homestead, Florida.

2007 Lockwood, J.L., Boulton, R.L., Baiser, B.H., Davis, M.J., and **La Puma, D.A.** Detailed study of Cape Sable seaside sparrow nest success and causes of nest failure. Recovering small populations of the Cape Sable seaside sparrow. US Fish and Wildlife Service, Vero Beach, Florida.

2006 Lockwood, J.L., **La Puma, D.A.**, Cassey, P., Davis, M.J., Fenn, K.H. Effects of fire on the Cape Sable seaside sparrow 2006 Annual Report. US National Park Service, Homestead, Florida.

2004 Lockwood, J.L. and **La Puma, D.A.**, Fire effects on Cape Sable seaside sparrow demography: 2004 final report. US Fish and Wildlife Service, Vero Beach, Florida.

Awards

Critical Ecosystems Science Initiative, National Park Service (2008) Recovering small Cape Sable seaside sparrow subpopulations: the breeding and dispersal of sparrows in the eastern Everglades – \$185,000 (With Dr. Julie Lockwood)

Hutcheson Memorial Forest Summer Research Grant, (2008) \$1,500 - Avian diversity and distribution across a successional gradient at the Hutcheson Memorial Forest (continued funding)

Hutcheson Memorial Forest Summer Research Grant, (2007) \$1,500 - Avian diversity and distribution across a successional gradient at the Hutcheson Memorial Forest (continued funding)

Hutcheson Memorial Forest Summer Research Grant, (2006) \$1,200 - Avian diversity and distribution across a successional gradient at the Hutcheson Memorial Forest

American Ornithologists' Union Student Travel Award, (2006) \$450 – Travel to IV North American Ornithological Conference, Veracruz, Mexico.

Rutgers Graduate School Travel Award, (2006) \$200 – Travel to IV North American Ornithological Conference, Veracruz, Mexico.

Current Research

Postdoctoral Research Associate, New Jersey Audubon Society, Cape May Courthouse, New Jersey. January 2010 - Present.

Assist and initiate statistical and spatial analyses of existing datasets to explore questions related to avian migration behavior and stopover ecology

Assist and initiate development of manuscripts for publication in peer-reviewed literature that summarize results of data analyses

Assist and initiate development of reports to agencies that fund research and monitoring work on avian migration behavior and stopover ecology

Prepare and present information about the program in public and technical forums

With the Vice-president, develop new, statistically robust projects that address questions related to avian migration behavior and ecology

Develop and submit grant proposals to support existing and future projects

Develop web-based information dissemination products

With the Vice-president, integrate project findings into other NJAS mission areas

Principal Investigator, Using Doppler Radar to predict migrant landbird concentrations in New Jersey and Florida, January 2004 – Present

Designed a citizen-science project to gain insight into seasonal migration of landbirds over the mid-Atlantic region of the United States (<http://www.woodcreeper.com>)

In 2006, expanded coverage to the southeastern region of the United States with the launch of a second site (<http://badbirdz2.wordpress.com>)

Previous Research

PhD Dissertation, Effects of fire on the Cape Sable seaside sparrow: Adaptive management planning for the future state of a restored Everglades ecosystem, January 2004 - October 2010

Tested the direct effect of fire on the demography and habitat structure and composition of the federally endangered Cape Sable seaside sparrow (*Ammodramus maritimus mirabilis*) in Everglades National Park
Identified the mechanistic link between fire and recolonization of burned habitat by sparrows (La Puma et al. 2007)

Employed occupancy modeling to scale our results to the landscape level and determined the pattern of sparrow return time after fire (La Puma et al, in review)

Conducted a sensitivity and feasibility analysis of three survey methods to aid management in detecting changes to sparrow abundance and occupancy (La Puma, in prep)

Principal Investigator (in collaboration with Inga La Puma and Benjamin Baiser), Avian diversity and distribution across a successional gradient at the Hutcheson Memorial Forest, Somerset, New Jersey. July 2006 – 2010.

Designed study to investigate patterns of avian species distribution across four habitat types; old growth forest, secondary forest, abandoned farm fields, and actively cultivated lands
Employed Distance sampling methods to achieve estimates of species abundance within each habitat type
Collected structural and compositional measurement of vegetation with which to characterize each habitat type using multivariate ordination techniques

Co-Principal Investigator (in collaboration with Benjamin Baiser (PI)), Spatial distribution of breeding birds within the Old Growth Hutcheson Memorial Forest, Somerset, NJ. July 2007 – 2010.

Developed a theoretical framework on the effect of invasive plant species and white-tailed deer on breeding bird distribution within an old growth forest (Baiser et al. 2008)
Mapped the territories of all breeding birds at multiple elevational strata to determine habitat use
Compared results to historical data from 1950's through 1970's to test the hypothesized synergistic effect of increased deer pressure and exotic vegetation

Work Experience

Graduate Assistant, Rutgers University, New Brunswick, New Jersey, January 2004 – August 2006

Coordinated ongoing research on the conservation of the Federally Endangered Cape Sable seaside sparrow (*Ammodramus maritimus mirabilis*) (CSSS) in Everglades National Park
Collected, analyzed, and published field data on the relationship between fire and the demography of the CSSS

Obtained federal and state permits for conducting research in a US national park (NPS) and on an endangered species (FWS)

Produced annual reports for both the US Fish & Wildlife Service and the National Park Service CESI program

Presented findings and advised management efforts at annual adaptive management meetings in coordination with Everglades Fire Management and Everglades NP wildlife biologists

Cartographic Technician, Everglades National Park. Homestead, Florida. July 2002 – January 2004

Designed a GIS Geodatabase to manage 50 years of fire perimeter data for the 1.5 million acre National Park
Populated the GIS with fire perimeter data through digitization of hardcopy, as well as digitally obtained data
Developed Standard Operating Procedures for GPS data collection

Provided primary GIS support during both prescription and wildland fire operations

Managed all Everglades Fire GIS data

Provided daily GIS and GPS support for 35 Everglades Fire Management personnel

Research Assistant, Fairchild Tropical Garden Research Center. Miami, Florida. February 2000 – November 2001

Mapped, tagged, and monitored all known extant populations of *Jacquemontia reclinata* (Beach Jacquemontia) using GPS (Trimble ProXRS) and GIS (ArcView 3.2; ERDAS Imagine)

Created a GIS database of all known individual *J. reclinata* plants

Created professional digital and paper-based maps of *J. reclinata* populations

Designed several field experiments to test effects of microhabitat variables on *J. reclinata* recruitment and establishment

Excavated and illustrated root system of *J. reclinata*

Prepared annual and semi-annual reports for U.S. Fish and Wildlife Service

Collected GPS data and created a GIS project for the monitoring and restoration of *Pseudophoenix sargentii* to Elliott Key, Florida

Created digital and paper-based maps to aid in the monitoring of four endangered species endemic to the South Florida Pine Rockland community
Created a database of all plant species found in the Coastal Dune community of South Florida
Collaborated with land managers at county, state, and national levels
Provided field and office support for Director of Conservation
Assisted senior scientists in collection of data and analysis of results

Field Biologist, University of California, Santa Cruz. June 2001 – July 2001; December 2001 – July 2002

Used GPS and GIS to design and install a two-square kilometer study plot in Everglades National Park
Created a dynamic GIS project to monitor the effects of fire on the endangered Cape Sable Seaside Sparrow (CSSS) (*Ammodramus maritimus mirabilis*)
Resighted color-banded CSSS individuals
Created territory maps for CSSS individuals within the study plot

Field Biologist, Tropical Forestry Initiative, Costa Rica. Dec 2000 – January 2001

Used GPS and GIS to map TFI property and locations of study transects, study plots, and individual trees
Created an expandable GIS project to aid in the reforestation efforts of TFI
Created digital and paper-based maps to aid in the relocation of study sites
Collected and processed tree measurement data

Research Technician, Avian Assessment Study. Costa Rica. May 1999 – July 1999

Independently conducted point counts in three distinct habitats: monoculture plantation, native forest and pastureland
Assessed vegetation at each site by measuring DBH, canopy height, percent canopy cover and understory density
Mastered the identification of over 250 bird species in SW Costa Rica by sight and sound
Marked 50 meter fixed radius points to prepare sites for sampling
Analyzed topographical maps and other data to select viable point-count locations

Research Technician, Dr. A. Carl Leopold, Tropical Forestry Initiative, Costa Rica. February 1998 – March 1998

Collected and processed tree measurement data for rainforest restoration project
Designed new study transects and quadrats for future research
Identified local flora and fauna including an extensive number of plant and bird species
Ability to work independently and adapt easily to foreign surroundings resulted in early completion of project

Preserve Management Coordinator, The Finger Lakes Land Trust. Ithaca, New York. September 1997 – December 1997

Worked with Preserve Management Committee to develop management plans for nature preserves in upstate New York
Compiled work plans for implementing management plans
Coordinated the efforts of volunteer organizations and local schools in implementing work plans
Developed strategies to address various controversial issues in management of natural areas
Created expandable workbook outlining duties for future interns. Structure and content set standard for job workbooks within entire organization by providing a means for efficient training of student interns in a busy nonprofit setting
Conducted extensive landowner research, completed reports on preserve visits, designed hiking trails, and participated in flora and fauna identification

Provided administrative support for the Director of Land Management and Office Manager

Teaching Experience

Co-Instructor, *Field Techniques in Ecology & Evolution*, Department of Ecology & Evolution, Rutgers University, New Brunswick, New Jersey, May 2007 – May 2008 (Spring)

Developed unique presentation material to stimulate collaborative group activities and experiential learning throughout week-long course
Led students through group discussions and decision-making process
Mentored student groups and guided them during experimental design and implementation
Provided expertise support for students and keep students on task during independent group learning
Evaluated final project results and provided feedback to groups for interactive reflection at end of course
Responsible for oversight of 20 undergraduates in a remote field environment for one week per semester

Co-Instructor, *Ecology of the Jersey Shore*, Department of Arts & Sciences, Rutgers University, New Brunswick, New Jersey August – October 2007

Developed a Freshman seminar course aimed to foster understanding of evolutionary and ecological concepts through exploration of the New Jersey shoreline
Created lectures ranging from shoreline physiognomy to coastal community dynamics to introduce students to ecological concepts within the primary literature
Developed field lectures illuminating ecological and evolutionary concepts for two full-day field trips to coastal ecosystems
Provided constructive criticism for writing assignments aimed at developing critical analytical skills

Graduate Teaching Assistant, *Invertebrate Zoology*, Department of Ecology & Evolution, Rutgers University, New Brunswick, New Jersey. August – December 2007

Taught 2 laboratory sections of Invertebrate Zoology, composed of a lecture, lab demonstration, and support during execution
Developed two practical laboratory exams per semester
Researched and prepared lab experiments
Provided performance evaluations for each student, twice during the semester
Held regular office hours during the week to provide student support and engagement
Provided administrative support for lecture instructor

Graduate Teaching Assistant, *Ornithology*, Department of Ecology & Evolution, Rutgers University, New Brunswick, New Jersey. January 2007 – Present (Spring)

Developed curriculum for laboratory portion of Ornithology course, including original lecture material, laboratory procedures and interactive course website (eCompanion)
Designed two semester-long field projects, digital photography and bioacoustics, for students to apply concepts learned in lecture
Developed two practical laboratory exams per semester
Guest lecturer for Ornithology on topics of Evolution of Bird Song, Patterns of Migration, and Conservation
Supported lecturer by facilitating group discussions
Prepared online quizzes twice a week to test student knowledge of lecture material
Provided performance evaluations for each student, twice during the semester
Held regular office hours during the week to provide student support and engagement
Organized evening review sessions before each of the two cumulative examinations

Graduate Teaching Assistant, *General Biology*, Department of Life Sciences, Rutgers University, New Brunswick, New Jersey. August 2006 – December 2006

Graduate Teaching Assistant, *General Biology*, Department of Biological Sciences, Florida International University, Miami, Florida. August 2002 – December 2002

Environmental Educator, Miami-Dade Community College Environmental Center. February 1998 – September 1999

Conducted environmental education activities for children grades K-9
Created curriculum and provided instruction on diverse topics including: Everglades Wildlife, Plants of South Florida, Native Plant Landscaping, Florida's Water, Alternative Energy, Organic Gardening and Butterfly Gardening
Constructed nature trails and restored native pineland
Developed a program teaching children bird identification techniques
Designed and maintained organic and butterfly gardens
Trained new instructors
Gained extensive knowledge of South Florida's ecosystems, flora and fauna and natural history

Naturalist Guide, The Original Canopy Tour, Monteverde, Costa Rica. March 1998 – May 1998

Lead three nature walks per day through primary and secondary Cloud Forest
Taught about local flora and fauna as well as local history
Guided groups through a system of cables and platforms 80-110 feet above the ground, immersed in the forest canopy
Gained knowledge of canopy flora and fauna as well as rock climbing gear and safety techniques

Invited Lectures

2011 Cape May, NJ. 2-day workshop on using weather and radar to predict migration conditions (2nd day field component). Cape May Bird Observatory CAPE MAYgration Festival.
2011 Owing Mills, MD. Where are the birds? A methodology for using weather and radar to predict birding conditions. Feathers In Flight Symposium. Irvine Nature Center.
2010 Galloway, NJ. Where are the birds? Using weather and radar to predict birding conditions. Atlantic County Audubon Society.
2008 Pennington, NJ. Birdwatching on a Mega-Scale: Using Doppler Radar to predict birding conditions in your neck of the woods. Washington Crossing Audubon Society.
2008 Red Bank, NJ. Birdwatching on a Mega-Scale: Using Doppler Radar to predict birding conditions in your neck of the woods. Monmouth County Audubon Society.
2007 Homestead, FL. Eight steps toward better management of the Cape Sable seaside sparrow. Everglades Fire Management working group.
2007 Doylestown, PA. Birdwatching on a Mega-Scale: Using Doppler Radar to predict birding conditions in your neck of the woods. Bucks County Bird Club.
2007 Philadelphia, PA. Birdwatching on a Mega-Scale: Using Doppler Radar to predict birding conditions in your neck of the woods. Delaware Valley Ornithological Club.
2007 Burlington, NJ. Fall migration over New Jersey. Burlington County Naturalists.
2006 Homestead, FL. From Lopez to the Landscape: Beginning to See the Big Picture. Everglades Fire Management working group.
2006 Veracruz, MX. Poster presentation; Little Sparrow on the Prairie: A Landscape Approach to Estimating Return Time of the Cape Sable seaside sparrow (*Ammodramus maritimus mirabilis*) following fire. North American Ornithological Congress.
2005 Homestead, FL. Fire, Who Needs It? An empirical look at fire effects on the Cape Sable seaside sparrow in Everglades National Park. Everglades Fire Management working group.
2005 Santa Barbara, CA. Fire, Who Needs It? An empirical look at fire effects on the Cape Sable seaside sparrow in Everglades National Park. American Ornithologists' Union .

2004 Homestead, FL. And a Fire Runs Through It: The Return of the Cape Sable seaside sparrow following fire. Everglades Fire Management working group.

Related Coursework

Courses (Graduate level): Conservation Ecology, Concepts in Evolution, Community Dynamics, Winter Field Ecology, Quantitative Ecology, Advanced Remote Sensing, Tropical Botany, Plant Ecology, Advanced Ecology: Populations and Communities, Advanced Ecology: Ecosystems, Statistics for Research I, Statistics for Research II, Introduction to Biological Research

Courses (Undergraduate level): Field Ornithology, Ecology of Aquatic Communities, Plant Ecology, Biology of Non-Woody Plants, Biology, Chemistry, Intermediate GIS and ArcView, Intro to GIS and ArcView, Geographical Information Systems (GIS/GPS), Writing as a Naturalist, Environmental Politics, Environmental Economics, Economics of Natural Resources, United States Environmental History, Environmental Ethics, Small Group Communications, Public Communications

Computer Skills: Proficiency in SAS, R statistical package, Program MARK, Program PRESENCE, Program DISTANCE, eCompanion, ArcInfo/ArcGIS (all versions), ArcView GIS 3.x, ERDAS Imagine, Microsoft Access, Word, Excel, Outlook, Adobe Photoshop, Adobe Illustrator, Adobe Acrobat, Dreamweaver MX; Experience with CADD 6, IDRISI, HTML, CSS, and JavaScript

Professional Memberships

2007 – American Birding Association

2006 – American Ornithologists' Union

2004 – 2005 Society for Conservation Biology