David La Puma

Department of Ecology and Evolution
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Education

Rutgers University New Brunswick, New Jersey 2004 - Present
Ph.D. Candidate
Department of Ecology, Evolution & Natural Resources
Thesis Topic: Effects of Fire on the Cape Sable Seaside Sparrow (*Ammodramus maritimus mirabilis*)

Florida International University, Miami, Florida 2000- 2001
Graduate coursework in Biology

Ithaca College, Ithaca, New York 1993-1997
BA in Planned Studies / Environmental Studies
Concentration in Land Management

Awards

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.

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: 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 eCompanion, ArcInfo/GIS 9.x, ArcView GIS 3.x, ERDAS Imagine 8.4, Microsoft Access, Word, Excel, Outlook, Adobe Photoshop, Adobe Illustrator, Adobe Acrobat, Dreamweaver MX; Experience with CADD 6, IDRISI, HTML, CSS, and JavaScript

Current Research

PhD Dissertation, Effects of fire on the Cape Sable seaside sparrow: Adaptive management planning for the future state of a restored Everglades ecosystem, March 2002 - Present

My current dissertation research is three-part. First, due to a chance fire event, we have 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 (see publications section below). Through our work we have identified the mechanistic link between fire and recolonization of burned habitat by sparrows. Our second phase was to "scale-up" our results to the landscape level, using 16 years of fire history data in conjunction with 13 years of sparrow occupancy data to determine the pattern of sparrow return time after fire (see publication section below). The third phase, currently underway, is to redesign the historical survey protocols in order to more accurately detect changes in sparrow occupancy both spatially and temporally, and to develop scenarios and project the effect of everglades restoration on the remaining populations of this critically endangered subspecies.

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

This is a citizen-science project developed to provide insight into seasonal migration of landbirds over the Eastern flyway of the US. The project began in January 2004 with the launch of http://www.woodcreeper.com, where I post nightly radar loops from the two WSR-88D stations covering New Jersey (KDIX and KDOX), as well as a composite image for the

entire northeastern US. In 2006 I began a second site, Badbirdz-Reloaded (http://badbirdz2.wordpress.com) where I also post nightly radar loops for south Florida (KAMX and KBYX) as well as a regional composite of the southeastern US. The goal of this research is to gain insight into spring and autumnal migration patterns through observing the radar in conjunction with weather variables such as wind direction, speed, and precipitation, and receiving citizen-driven ground truthing data in the form of comments on the site. The "Blog" format of both sites allows for discussions to ensue based on my predictions and the observations of the local birding community.

Principal Investigator, Avian diversity and distribution across a successional gradient at the Hutcheson Memorial Forest, Somerset, NJ. July 2006 – Present

In a collaborative effort with Inga La Puma and Ben Baiser, we are investigating patters of avian species distribution across four habitat types; old growth forest, secondary forest, abandoned farm fields, and actively cultivated lands within the 560 acre Hutcheson Memorial Forest property. Because differences within and between habitat types may favor different species, we aim to determine the mechanism of this selection through a combination of avian *distance* surveys in conjunction with habitat structure and composition measurements.

Co-Principal Investigator, Spatial distribution of breeding birds within the Old Growth Hutcheson Memorial Forest, Somerset, NJ. July 2007 – Present

In a collaborate effort with Ben Baiser (PI), we have established a 50-meter grid across the entire 26-hectare old-growth woods within Hutcheson Memorial Forest, upon which we are mapping the territories of all breeding birds at each elevational stratum to determine current habitat use. Because of intense deer browse and impact of invasive plant species, we anticipate that breeding bird diversity has decreased significantly since the 1970's, with the greatest impact being to ground and mid-canopy nesters.

Past Research Experience

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, quadrats, 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 censusing
- Analyzed topographical maps and other data to select viable sites

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

- Collected and processed data for rainforest restoration project
- Designed new transects and quadrants for future study
- Identified local flora and fauna including an extensive number of plant 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

Assistant, North American Breeding Birds Survey, Central New York. Summer 1997

- Collected data towards an accurate survey of Upstate New York's bird populations

Teaching Experience

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

- 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 2007 – Present (Fall)

- 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 lecture period on three occasions
- Supported lecturer by facilitating group discussions during lecture
- 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

- Taught 2 laboratory sections of Introduction to Biology, 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
- Organized evening review sessions before each of the two cumulative examinations
- Provided administrative support for lecture instructor through proctoring examinations, switching discussion topics, and substitute teaching

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

- Taught 3 laboratory sections of Introduction to Biology, composed of a short lecture, lab demonstration, and support during lab implementation
- Developed weekly quizzes to reinforce material and provide students with a comprehensive understanding of the course
- 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
- Organized evening review sessions before each of the two cumulative examinations
- Provided administrative support for lecture instructor through proctoring examinations, switching discussion topics, and substitute teaching

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

Peer-reviewed Publications

La Puma, D.A., Cassey, P, Lockwood, J.L., 2007. Change in Cape Sable seaside sparrow site use after fire in Everglades National Park, Florida: importance of fire characteristics and time-since-fire. In Prep.

Baiser, B.H., Lockwood, J.L., La Puma, D.L., and Aronson, M.F. A Perfect Storm: Two Ecosystem Engineers Interact to Degrade Deciduous Forests of New Jersey. Biological Invasions. In Press.

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. 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

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.

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

Presentations

2007 Doyelstown, 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, Florida – From Lopez to the Landscape: Beginning to See the Big Picture. Everglades Fire Management working group.

2006 Veracruz, Mexico – 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, Florida – 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, California – 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, Florida – And a Fire Runs Through It: The Return of the Cape Sable seaside sparrow following fire. Everglades Fire Management working group.

Membership

2006 – American Ornithologists' Union
2005 – American Association for the Advancement of Science
2004 – 2005 Society for Conservation Biology

Additional Skills

- Knowledge of written and spoken Spanish
- Red Cross CPR and Emergency First Aid certification