Kelsie A. Lopez

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EDUCATION

Bachelor of Science, Biological Sciences. Concentration: Neurobiology and Behavior. Cornell University, College of Arts and Sciences, Ithaca, NY. Cumulative GPA: 3.512. Anticipated graduation: May 2021.
Senior Honors Thesis: *Using genetic approaches to understand evolutionary processes and diversification in Australian grass finches (Poephila*)

HONORS/AWARDS

- McNair Scholar –TRIO educational opportunity program designed to support underrepresented undergraduate students in the acquisition of doctoral degrees.
- Biology Scholar – program supports academic excellence for underrepresented students majoring in Biological Sciences. Current mentor of two first-year students.
- Bernard E. Iliff Undergraduate Research Fund, Cornell Lab of Ornithology, *$4,000*
- Sally Sutcliff Undergraduate Research Fund, Cornell Lab of Ornithology, *$2,830*
- Association of Field Ornithologists/Wilson Ornithological Society Travel Award, *$305*

PEER-REVIEWED PUBLICATIONS

Hunt, H. B., Miller, N. A., Hemmerling, K.J., Koga, M., **Lopez, K. A**., Taylor, E. A., Sellmeyer, D. E., Moseley, K. F., Donnelly, E. (2020) Bone tissue composition in post-menopausal women varies with glycemic control from normal glucose tolerance to type 2 diabetes mellitus, *Journal of Bone and Mineral Research*.

Lopez, K. A., McDiarmid, C. S., Griffith, S. C., Lovette, I. J., Hooper, D. M. Mitonuclear incompatibilities with the sex chromosomes suggested in the emergence of reproductive isolation within an avian hybrid zone. *In revision, Evolution.*

Lopez, K. A., Tang, S., Griffith, S. C., Lovette, I. J., Hooper, D. M. Divergence history and population connectivity inform conservation management in the endangered black-throated finch (*Poephila cincta*). *In preparation.*

Lopez, K. A, Ladin, Z. S., Walsh-Emond, J., Roth, R. R., Lovette, I. J., Shriver, W. G. Temporal dynamics of genetic diversity, structure, and extra-pair paternity of a declining Nearctic-Neotropical songbird. *In preparation*.

Hooper, D. M., **Lopez, K. A**., McDiarmid, C. S., Lovette, I. J., Griffith, S. C. Speciation dynamics in the avian genus Poephila: Recommendation for species advancement of the white-eared masked finch (*Poephila leucotis*). *In preparation*.

Sacher, S. E., Hunt, H. B., **Lopez, K. A**., Lekkala, S., Donnelly, E. Trabecular morphology and microdamage accumulation in cancellous tissue from patients with and without type 2 diabetes mellitus. *In preparation.*

PROFESSIONAL PRESENTATIONS

Lopez, K. A., McDiarmid, C. S., Griffith, S. C., Lovette, I. J., Hooper, D. M. Mitonuclear incompatibilities with the sex chromosomes suggested in the emergence of reproductive isolation within an avian hybrid zone. *North American Ornithological Conference*. August 2020. (Oral presentation)

Lopez, K. A., Hooper, D. M., Lovette, I. J. Mitochondrial DNA suggests potential for Z-W chromosome involvement in reproductive isolation between subspecies of the Long-tailed Finch. *National McNair Scholars Conference.* College Park, MD. March 2020. Oral presentation, *unable to deliver, meeting canceled due to COVID-19 outbreak.*

Lopez, K. A., Hooper, D. M., Lovette, I. J. Mitochondrial DNA suggests potential for Z-W chromosome involvement in reproductive isolation between subspecies of the Long-tailed Finch. 2019 *Joint Meeting of the Wilson Ornithological Society and the Association of Field Ornithologists.* Cape May, NJ. October 2019. (Oral presentation)

Lopez, K. A., Hooper, D. M., Lovette, I. J. Mitochondrial DNA suggests evidence for Z-W chromosomal interactions contributing to reproductive isolation between subspecies of the Long Tailed-Finch (*Poephila acuticauda*). *Cornell Undergraduate Research Board Spring Poster Symposium*. Ithaca, NY. May 2019. (Poster)

Hunt, H. B., Miller, N. A., Hemmerling, K. J., Koga, M., **Lopez, K A**., Moseley, Donnelly, E. Bone tissue composition in post-menopausal women varies with glycemic control. *Journal of bone and mineral research conference*. Montreal, Quebec. October 2018. (Oral presentation)

RESEARCH EXPERIENCE

Cornell Lab of Ornithology, Lovette Lab and The Fuller Evolutionary Biology Program, undergraduate honors researcher. October 2018-present.

- Independent research project on the role of mitonuclear interactions with the sex chromosomes in the development of reproductive isolation in a Long-tailed Finch (*Poephila acuticauda*) hybrid zone. Mentored by postdoc Dr. Daniel Hooper.
- Reduced-representation (ddRAD) sequencing to document genomic differentiation among populations of the Black-throated Finch (*Poephila cincta*); the southern subspecies is endangered and immediately threatened by a massive proposed open-pit coal mine.

- Temporal changes in genetic diversity due to forest fragmentation in a demographic sink population of Wood Thrushes (*Hylocichla mustelina*). I am leading bioinformatic analysis on ddRAD sequences and I'm mentored by postdoc Dr. Jen Walsh-Emond.
- Intensive 10-day research experience to assist Dr. Emma Greig with her long-term study in Organ Pipe National Monument in Arizona, on the effects of changing environmental conditions on Verdin (*Auriparis flaviceps*) population dynamics.

Cornell Lab of Ornithology, Bonter Lab Group, undergraduate researcher. September 2019-present.

- Attend weekly lab meetings, participate in various professional research development workshops, and present my research to the lab group.

Lyrebird Lab, Western Sydney University and University of Wollongong, REU program, Summer 2019.

- Assisted with long-term research on the life history of the female Superb Lyrebird (*Menura novaehollandiae*).
- Actively and passively recorded lyrebirds for an independently crafted project to investigate the sex differences and mimetic accuracy of Superb Lyrebird vocalizations.

Donnelly Research Lab, Cornell University, undergraduate researcher January 2018-October 2018.

- Aimed to understand how Type Two Diabetes Mellitus (T2DM) leads to increased fragility fracture risk by investigating bone material composition on a micro-scale with Fourier Transform Infrared Spectroscopy (FTIR).
- Assisted in investigating the role of trabecular (sponge-like bone) morphology in mechanical performance and microdamage accumulation by cleaning microCT images of bone in ImageJ for analysis.
- Aimed to understand how bone heterogeneity can help in distributing and attenuating damage by building two novel finite element models to be used for model-based assessment of fracture behavior.

Kenya Ivy Scholars Expedition, Cornell University

- Collaborative team member on undergraduate research expedition to Mpala Research Centre, Kenya for three weeks. I collected multimedia now archived in the Macaulay Library. I conducted an undergraduate-generated group research project on the effects of environmental conditions on nest placement in Black-capped Social-weavers and White-browed Sparrow-weavers.

Galapagos Curriculum, Cornell University

- Selective 9-credit series for biology scholars including full courses on evolutionary biology, biological illustration, and writing. Separate immersion trip to the Galápagos archipelago.

Patagonia Field Course, Cornell University

- 4-credit series with a 14-day immersive field component in Patagonia, Argentina. I tested for tidal effects on foraging behavior in Kelp Gulls (*Larus dominicanus*).

TECHNICAL/FIELD SKILLS

- **Wet lab**: DNA extractions, polymerase chain reactions, restriction fragment length polymorphism analysis, gel electrophoresis, molecular sexing, sanger sequencing, DNA extractions from agarose gels, ddRAD library preparation, Fourier Transform Infrared Spectroscopy, column and thin-layer chromatography, reflux, filtration, distillation.
- **Field**: Point counts, line transects, nest searching, both passive and target mist-netting, bird banding, audio playback experiments. Expertise with handheld audio recorders, passive audio recorders, and trail cameras.
- **Software**: Matlab, R studio, Linux coding, ImageJ, ISYS chemical analysis software, and Raven sound analysis software.

GRANT WRITING

- 2021 National Science Foundation Graduate Research Fellowship 2021, *Not yet notified,*
- 2021 Ford Foundation Predoctoral Fellowship 2021, *Not yet notified.*
- Undergraduate Research Award, Cornell University for independent summer research on microCT scans of osteoporotic bone in Donnelly Lab group. $300.
- American Ornithological Society Student Research Award, Conservation genetics of the endangered Black-throated Finch can inform management and recovery in a rapidly transforming habitat. *Not funded.*

WORK EXPERIENCE

- Project Assistant, Birds of the World, Cornell Lab of Ornithology, September 2020-present.
- Waitress, The Regent Lounge at the Statler Hotel, Cornell University. April 2018 -March 2020. *Restaurant currently closed due to Covid-19.*
- Receptionist and Cashier. Atlantic Toyota, Atlantic Chrysler Jeep Dodge Ram, Massapequa Nissan, Advantage Hyundai. April 2016 – January 2019.
- Server and Hostess, Gino's of Lindenhurst, NY. June 2015 - June 2017.

ACTIVITIES/OUTREACH

- Pre-Professional Programs (P3), Cornell University, Fall 2018 - present.
- Alpha Chi Sigma Professional Chemistry Fraternity, Cornell University. January 2018 - present.
- Orientation Leader for first year students. Fall 2018.
- Cornell Symphony Orchestra, Cornell University. Fall 2017.
- Into the Streets, Ithaca YMCA, October 2017

PROFESSIONAL MEMBERSHIPS

- Member, American Ornithological Society 2019-present
- Member, Wilson Ornithological Society, 2019-present
- Member, Association of Field Ornithologists, 2019-present

REFERENCES

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