

Christopher James Clark, Ph.D.

Assistant Professor
Department of Biology
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Positions

2013 – present: Assistant Professor, Department of Biology, UC Riverside
2009-2013. Postdoctoral Associate, Peabody Museum of Natural History, Yale University.
2009 Ph.D., Museum of Vertebrate Zoology, UC Berkeley.
2001 B.S., Washington State University

Grants and Fellowships

2015 Co-PI: UCR Collaborative Seed Grant "Pollination biology of the Channel Islands". PI: Erin Rankin, Entomology (\$10,000).
2009-2013 NSF IOS-0920353, "Mechanics and Evolution of Tonal Sounds Produced by Feathers". PI: Richard Prum (\$448,964).
2009 Donnelley Postdoctoral Fellowship for research in biodiversity (2 years)

Awards

2014 Carl Gans Young Investigator Award for Comparative Biomechanics (Society for Integrative and Comparative Biology)
2009 Outstanding Graduate Student Instructor Award (Dept. of Integrative Biol.)
2009 Teaching Effectiveness Award (Graduate Division, UC Berkeley)

Peer-reviewed Publications

23. **Clark, C. J.** and Prum, R. O. 2015. Aeroelastic flutter of feathers, flight, and the evolution of nonvocal communication in birds. *J. Exp. Biol.* 218: 3520-3527. doi:10.1242/jeb.126458
22. Feo, T. J., Musser, J., Berv, J. and **Clark, C. J.** 2015. Divergence in morphology, calls, song, mechanical sounds, and genetics supports species status for the Inaguan hummingbird (Trochilidae: *Calliphlox "evelynae" lyrura*). *Auk*, 132: 248-264. [10.1642/AUK-14-108.1](https://doi.org/10.1642/AUK-14-108.1)
21. **Clark, C. J.** 2014. Harmonic hopping, and both punctuated and gradual evolution of acoustic characters in *Selasphorus* hummingbird tail feathers. *PLOS ONE*, 9: 10.1371/journal.pone.0093829
20. **Clark, C. J.**, Elias, D. O., Girard, M. B. and Prum, R. O. 2013. Structural resonance and mode of flutter of hummingbird tail feathers. *J. Exp Biol*, 216: 3404-3413.
19. **Clark, C. J.**, Elias, D. O., and Prum, R. O. 2013. Hummingbird feather sounds are produced by aeroelastic flutter, not vortex-induced vibration. *J. Exp Biol*, 216: 3395-3403.
18. **Clark, C. J.**, Feo, T. J. and van Dongen, W. 2013. Sounds and courtship displays of the Peruvian Sheartail, Chilean Woodstar, Oasis Hummingbird, and a hybrid male Peruvian Sheartail × Chilean Woodstar. *Condor*, 115: 560-577.
17. **Clark, C. J.** 2012. The role of power versus energy in courtship: what is the "energetic cost" of a courtship display? *Anim. Behav.*, 84: 269-277.

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16. **Clark, C. J.**, Feo, T. J., and Bryan, K. B. 2012. Courtship displays and sonations of a male hybrid Broad-tailed × Black-chinned Hummingbird (*Selasphorus platycercus* × *Archilochus alexandri*). *Condor*, 114: 329-340.
15. **Clark, C. J.**, Elias, D., and Prum, R. O. 2011. Aeroelastic flutter produces hummingbird feather songs. *Science*, 333: 1430-1433.
14. **Clark, C. J.** 2011. Wing, tail, and vocal contributions to the complex signals of a courting Calliope Hummingbird. *Curr. Zool.*, 57: 187-196.
13. **Clark, C. J.**, Feo, T. J. and Escalante, I. 2011. Courtship displays and natural history of the Scintillant (*Selasphorus scintilla*) and Volcano (*S. flammula*) hummingbirds. *Wilson J. Ornith.*, 123: 218-228.
12. Feo, T. J.* and **Clark, C. J.** 2010. The displays and mechanical sounds of the Black-chinned Hummingbird (Trochilidae: *Archilochus alexandri*). *Auk*, 127: 787-796.
11. **Clark, C. J.** 2010. Effects of tail length on an escape maneuver of the Red-billed Streamertail. *J. Ornith.*, 152: 397-408. DOI: 10.1007/s10336-010-0550-8.
10. **Clark, C. J.** and Dudley, R. 2010. Hovering and forward flight energetics in Anna's and Allen's Hummingbirds. *Physiol. Biochem. Zool.* 83: 654-662. DOI: 10.1086/653477
9. Brennan, P. L. R., **Clark, C. J.** and Prum, R. O. 2010. Explosive eversion and functional morphology of the waterfowl penis supports sexual conflict in genitalia. *Proc. R. Soc. Lond. B*, 277: 1309-1314. DOI: 10.1098/rspb.2009.2139.
8. **Clark, C. J.** 2010. The evolution of tail shape in hummingbirds. *Auk*, 127: 44-56.
7. **Clark, C. J.** and Feo, T. J.* 2010. Why do *Calypte* hummingbirds “sing” with both their tail and their syrinx? An apparent example of sexual sensory bias. *Am. Nat.*, 175: 27-37.
6. **Clark, C. J.** 2009. Courtship dives of Anna's Hummingbird offer insights into flight performance limits. *Proc. R. Soc. Lond. B*. 276: 3047-3052.
5. **Clark, C. J.** and Dudley, R. 2009. Flight costs of long, sexually selected tails in hummingbirds. *Proc. R. Soc. Lond. B*. 276: 2109-2115.
4. **Clark, C. J.** 2008. Fluttering wing feathers produce the flight sounds of male streamertail hummingbirds. *Biology Letters*, 4: 341-344.
3. **Clark, C. J.** and Feo, T. J.* 2008. The Anna's Hummingbird chirps with its tail: a new mechanism of sonation in birds. *Proc. R. Soc. Lond. B*. 275: 955-962.
2. Tobalske, B. W., Warrick, D. R., **Clark, C. J.**, Powers, D. R., Hedrick, T. L., Hyder, G. & Biewener, A. A. 2007. Three-dimensional kinematics of hummingbird flight. *J. Exp. Biol.*, 210: 2368-2382.
1. **Clark, C. J.** 2006. Observations on the Vervain Hummingbird's (*Mellisuga minima*) display dive and territorial behavior. *Ornitologia Neotropical* 17: 403-408.

* undergraduate

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Other Academic Publications (non-peer reviewed):

- Clark, C. J. Forthcoming. Locomotion-Induced Sounds and Sonations: Mechanisms, Communication Function, and Relationship with Behavior. In *Vertebrate Sound Production and Acoustic Communication* (Suthers, R., and Fitch, T., eds.). **Springer Handbook of Auditory Research**, 53: xx-yy.
- Clark, C. J. 2013. Peruvian Sheartail (*Thaumastura cora* Lesson and Garnot). *Neotropical Birds Online* (T. S. Schulenberg, Ed.). Ithaca: Cornell Lab of Ornithology; retrievable from http://neotropical.birds.cornell.edu/portal/species/overview?p_p_spp=276376
- Clark, C. J. and Mitchell, D. 2013. Allen's Hummingbird (*Selasphorus sasin*). *The Birds of North America* # 501 (Alan Poole, Ed.). Cornell Lab of Ornithology, Ithaca, NY. Retrievable from: <http://bna.birds.cornell.edu/bna/species/501>
- Clark, C. J., and Russell, S. M. 2012. Anna's Hummingbird (*Calypte anna*). *The Birds of North America* # 226 (Alan Poole, Ed.). Cornell Lab of Ornithology, Ithaca, NY. Retrievable from: bna.birds.cornell.edu/bna/species/226
- Clark, C. J. 2011. Scintillant Hummingbird (*Selasphorus scintilla* Gould), *Neotropical Birds Online* (T. S. Schulenberg, Ed.). Ithaca: Cornell Lab of Ornithology; retrievable from: http://neotropical.birds.cornell.edu/portal/species/overview?p_p_spp=281496
- Clark, C. J. 2009. Vervain Hummingbird (*Mellisuga minima* Linnaeus), *Neotropical Birds Online* (T. S. Schulenberg, Ed.). Ithaca: Cornell Lab of Ornithology; retrievable from: http://neotropical.birds.cornell.edu/portal/species/overview?p_p_spp=25694
- Altshuler, D. L., and Clark, C. J. 2003. Darwin's Hummingbirds [Perspective]. *Science*, 300: 588-589.

Selected Press and Popular Coverage (favorites in bold)

- 2016 UFA SHOW & FACTUAL ("Wer weiß denn sowas?") (German TV)
- 2015 [KQED](#) (owls), [The Southern Review](#); [Press release by the Cornell Lab of Ornithology](#); [UCR press release](#); [Birdwatching Magazine blog](#); [Discovery News](#); sci-news.com
- 2013 Irish Public Radio: *NewsTalk*, *Horizon Air Magazine*
- 2011 [New York Times](#) ×2, [Discover Magazine](#), [Wired Magazine](#), [msnbc.com](#), [Australian Geographic](#), [Der Standard](#), [Geek.com](#), [Berkeley Daily Planet](#), [earthsky.org](#) (NPR), [LiveScience.com](#), [National Wildlife magazine](#), [Swiss public radio](#), [The Daily Californian](#), [Science](#), [International Business Times](#)
- 2010 *PBS Nature* ("[Hummingbirds: Magic in the Air](#)"), [Yale Alumni Magazine](#) (not including extensive coverage of Brennan et al. 2010. Google the phrase "high-speed duck penis" for examples. The associated [youtube video](#) has >1 M views)

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- 2009 *Nature; Cage & Aviary Birds; The Daily Californian; Harper's Magazine; [Science News](#); [BBC News](#); [National Geographic](#); As It Happens (CBC radio); [National Geographic](#); [Scientific American](#); *Science*; *Irish Public Radio*; *Brink* (CBS Discovery Science Channel); *CBS News*; *BBC Wildlife*; *Yes Magazine*; *Anchorage Daily News*, [Discover Magazine](#), [The Guardian](#), [The Independent](#)*
- 2008 *Science*; [BBC News](#); [National Geographic News](#); [New Scientist](#); *Quirks and Quarks* (CBC radio); [Discovery News](#); [LiveScience](#); *DDP*; *London Daily Telegraph*; [COSMOS Magazine](#); *ABC Channel 7 News*; [San Francisco Chronicle](#); *Current Biology*; *Australian Broadcasting Corporation*; [New York Times](#); [The Daily Californian](#); *Discovery Channel*; [Nature](#); *Popular Science*; *Birding Magazine*; *KNOW magazine*; *GEO magazine*; *Audubon Magazine*; *Berkeley Science Review*; *California Magazine*; ([Berkeley Press Release](#))
- 2007 *Science News*; *BBC Natural History Magazine*

Invited Presentations:

- 2015 Saddleback College, Mission Viejo, CA
San Diego Field Ornithologists, San Diego, CA
Evolution, Ecology, & Organismal Biology, UC Irvine, Irvine, CA
Redwood Region Audubon Society, Humboldt, CA
Department of Wildlife, Humboldt State University, Humboldt, CA
- 2014 Department of Ecology and Evolutionary Biology, UCLA, Los Angeles, CA
San Bernadino Audubon Society, San Bernadino, CA
Osher/LIFE Lecture, UC Cooperative Extension, Riverside, CA
Ecology, Evolution and Marine Biology, UCSB, Santa Barbara, CA
Biology Department, University of La Verne, La Verne, CA
- 2013 Department of Biology, CSU San Bernardino, CA
Biology Department, San Diego State University, San Diego, CA
School of Biological Sciences (Integrative Biology), University of Texas, Austin, TX
- 2012 Biology Department, University of Massachusetts, Amherst, MA
The Hummingbird Society's Hummingbird Festival, Sedona, AZ
Biology Department, University of California, Riverside CA.
Biological Sciences, California State University, Long Beach, CA.
Biology Department, Duke University, Durham, NC.
LSU Museum of Natural History (Graduate Student Invited Speaker), Baton Rouge, LA
Baton Rouge Audubon Society, Baton Rouge, LA
- 2011 Arlington Bird Club, Arlington, MA
Yale Institute for Biospheric Studies, New Haven, CT
Columbia University Population Biology Seminar, New York, NY
Western CT Bird Club, Southbury, CT
- 2010 Cornell Lab of Ornithology, Ithaca, NY
Yale Institute for Biospheric Studies, New Haven, CT
Concord Field Station, Harvard University, Bedford, MA
Pontifica Universidad Catolica del Ecuador, Quito, Ecuador
- 2009 New Haven Bird Club, New Haven, CT

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2008 Division of Biological Sciences, University of Montana, Missoula, MT.

Professional affiliations:

Ecology, Evolution and Organismal Biology Graduate Program (UC Riverside)
San Diego State University/UC Riverside Joint Doctoral Program in Evolutionary Biology
Research Associate, San Diego Natural History Museum

Neotropical Ornithology Society (lifetime member)
Society for Integrative and Comparative Biology (SICB)
Animal Behavior Society (ABS)
American Ornithologist's Union (AOU); Elective Member, 2015
Society for the Conservation & Study of Caribbean Birds (SCSCB)

Professional and University Service

2013-present: Associate Editor for *Auk: Ornithological Advances*

2012: Co-coordinator, Grad student/ Postdoc seminar series, EEB department, Yale

Peer Review, **General:** *Proceedings of the Royal Society of London B; Biology Letters, PLOS ONE, Biological Journal of the Linnean Society, Proceedings of the Biological Society of Washington; Behavior: Animal Behavior, Ethology, Behaviour, Behavioral Ecology; Ecology: Ecology, American Naturalist, BMC Ecology, Oikos, Functional Ecology, Evolutionary Ecology, Natural Areas Journal; Evolution: Evolution; Physiology: Journal of Experimental Biology, Journal of Comparative Physiology B, Journal of Morphology; Biomechanics: Proceedings of the Royal Society Interface, Bioinspiration & Biomimetics, Mechanical Behavior of Biomedical Materials; Ornithology: Auk, Journal of Avian Biology, Wilson Journal of Ornithology, Journal of Caribbean Ornithology, Journal of Field Ornithology, Journal of Ornithology; Ornitología Neotropical; Funding agencies: National Geographic Society, NSERC, NSF*

Consulting

TV/Documentaries: BBC, National Geographic, PBS, Discovery, KQED (PBS San Francisco)
Nonprofits: The Pollinator Partnership (Pollinator.org)

Teaching

Graduate students supervised:

2013 - present Sean Wilcox, Ph.D. student, EEOB (UCR),
2014- present Katherine Johnson, Ph.D. student, EEOB (UCR),
2015- present Krista LePaine, Ph.D. Student, EEOB (UCR),
2014- present Brian Myers, Ph.D. Student, SDSU-UCR joint doctoral program

Committee member, non-UCR students:

2014-present: Richard Simpson, Arizona State University, Advisor: Kevin McGraw
2014-present: Robert Niese, University of Montana, Advisor: Bret Tobalske

Ph.D. Defense committee:

2013 Andrea Grunst, UC Riverside.

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Graduate Courses: Behavioral Ecology, Biol. 213 (W 2015).

Undergraduate courses, UCR:

Biol. 161B: Vertebrate Anatomy (team taught with Dr. Tim Higham) (W2014, W2015)

Biol. 163: Evolutionary Ecology of the Terrestrial Vertebrates (F2014, F2015)

Graduate Student Instructor-- UC Berkeley:

Integrative Biology 104: Vertebrate Natural History, (Spring 2005-2009)

Integrative Biology 135: Biomechanics (Fall 2007)

Integrative Biology 107: Animal Behavior (Fall 2004)

Biology 1B: Introductory Biology (Spring 2003, Fall 2005, 2007, 2008)