

Christopher James Clark, Ph.D.

Assistant Professor
Department of Biology
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Expertise: Animal flight, bioacoustics, biomechanics, courtship displays, hummingbirds.

Employment, 2013 – present: Assistant Professor, Department of Biology, UC Riverside

Post-Doc

2009-2013 Postdoctoral Associate, Yale Institute of Biospheric Studies and Peabody Museum of Natural History, Yale University. Advisor: Richard Prum

Education

2003 - 2009 Museum of Vertebrate Zoology, University of California, Berkeley. Ph.D. in Integrative Biology. Advisor: Robert Dudley.

1997 - 2001 Washington State University, B.S. in Zoology. Advisor: Hubert Schwabl.

Grants and Fellowships

2009-2012 NSF IOS-090353, “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

2009 Outstanding Graduate Student Instructor Award (Dept. of Integrative Biol.)

2009 Teaching Effectiveness Award (Graduate Division, UC Berkeley)

Peer-reviewed Publications

20. **Clark, C. J.**, Elias, D. O., Girard, M. B. and Prum, R. O. Forthcoming. Structural resonance and mode of flutter of hummingbird tail feathers. *J Exp Biol*, accepted May 2013.
19. **Clark, C. J.**, Elias, D. O., and Prum, R. O. Forthcoming. Hummingbird feather sounds are produced by aeroelastic flutter, not vortex-induced vibration. *J. Exp Biol*, accepted May 2013.
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.
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.

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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.

Other Academic Publications

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

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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 Coverage (favorites in bold)

- 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*](#)
(extensive coverage of Brennan et al. 2010 not included)
- 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:

- 2013 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 Dept., Duke University, Durham, NC.
LSU Museum of Natural History (Graduate Student Invited Speaker), Baton Rouge, LA

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

Professional affiliations:

Society for Integrative and Comparative Biology (SICB)
Animal Behaviour
American Ornithologist's Union (AOU)
Society for the Conservation & Study of Caribbean Birds (SCSCB)

Professional and University Service

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

Peer Reviewer:

General: *Proc. R. Soc. Lond. B; Biol. Lett., Current Biology*
Behavior: *Anim. Behav., Ethology, Behaviour*
Ecology: *Ecology, Am. Nat., BMC Ecology, Oikos, Funct. Ecol.*
Physiology: *J. Exp. Biol., J. Comp. Phys. B, Proc. R. Soc. Interface, Bioinspiration & Biomimetics,*
Ornithology: *Auk, J. Avian Biol., Wilson J. Ornith., J. Carib. Ornith., J. Field Ornith.,*
Grants: *Nat. Geo. Soc., NSERC, NSF*

Consulting (TV/Documentaries): BBC, National Geographic, PBS, Discovery

Teaching

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)