

# Curriculum Vitae

Robert Dudley  
Department of Integrative Biology  
University of California, Berkeley  
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## Personal

Year/place of birth: 1961/Edinburgh, Scotland  
Married to Han Junqiao; two children

## Education

1987. Ph.D. in Zoology, University of Cambridge, United Kingdom  
1983. B.S. *summa cum laude*, Duke University, North Carolina; graduation with  
Distinction in Zoology

## Professional Appointments

2003–present: Professor, Department of Integrative Biology, UC-Berkeley  
2003–present: Research Morphologist, Museum of Vertebrate Zoology, UC-Berkeley  
2003–present: Research Faculty, Essig Museum of Entomology, UC-Berkeley  
1997–2002: Associate Professor, Section of Integrative Biology, University of Texas, Austin  
1992–1997: Assistant Professor, Department of Zoology, University of Texas, Austin  
1992–present: Research Associate, Smithsonian Tropical Research Institute, Panama

## Research Interests

1. Biomechanics, functional morphology, and evolution of animal flight
2. Physiological ecology of tropical insects, particularly flight energetics and migration
3. Evolutionary origins of human alcoholism in primate frugivory

## Fellowships, Research Grants, and Awards

2019–2024. NSF DEB-1831833: "Dimensions: Convergent evolution of nectarivory and its association with high-altitude adaptation in hummingbirds and sunbirds", Co-PI with R. Bowie and J.A. McGuire (\$1,999,978; 5 years)  
2016–2021. Class of 1933 Chair in the Biological Sciences, University of California, Berkeley  
2013–2016. AFOSR Flow Interactions and Control #13RSA030: "Into turbulent air: hummingbird aerodynamic control in unsteady circumstances" (\$580,395; 3 years)  
2011–2012. NSF IBN-1110855: "The biomechanics and evolution of flight reduction in stick insects", Dissertation Improvement Grant with Y. Zeng and D. Wake (\$9,230; 16 months)  
2009–2016. NSF DGE-0835290: "IGERT: Biological and bio-inspired motion systems operating in complex environments", Co-PI with R.J. Full, R. Fearing and M.A.R. Koehl (\$3,195,091; 5 years with 2 one-year no-cost extensions)  
2009–2013. NSF IOS-0837866/-0843120 (Collaborative research) and REU Supplements: "How to fall from trees: biomechanics and ecology of gliding flight in arthropods", Co-PI with S.P. Yanoviak (\$538,547; 4 years)  
2008–2009. National Geographic Society Research Grant: "Toward a biogeography of salt", Co-Investigator with M. Kaspari and S. Yanoviak (\$21,700; 12 months)

- 2007–2012. John and Mary Gompertz Endowed Chair in Integrative Biology, University of California, Berkeley
- 2007–2008. National Geographic Society Research Grant: "Flight into thin air: the physiology and diversity of alpine bumblebees", Co-Investigator with M. Dillon (\$16,200; 1 year)
- 2006–2011. NSF DEB-0543556 and REU Supplements: "Phylogenetic and biogeographic history of high-altitude adaptation in hummingbirds", Co-PI with J.A. McGuire (\$485,698; 5 years)
- 2005–2006. National Geographic Society Research Grant: "Gliding flight in rainforest canopy ants", Co-Investigator with S.P. Yanoviak and M. Kaspari (\$20,000; 1 year)
- 2004–2005. NSF IOB-0437613: "SICB Symposium: Adaptation for life at high elevation (\$3000; 1 year), co-organized with D. Altshuler
- 2003–2004. NSF IBN-0335585: "SICB Symposium: The coevolution of frugivorous animals with the natural occurrence of ethanol in fermenting fruit" (\$11,550; 1 year), co-organized with M. Dickinson
- 2003–2005. National Geographic Society Research Grant: "Optimal migration in butterflies: quantifying the aerodynamic power curves for flight", Co-Investigator with R.B. Srygley (\$30,585; 2 years)
- 2002–2003. United States-Israel Binational Science Foundation: "Role of ethanol in the nutritional and sensory physiology of frugivores", Co-Investigator with C. Korine and B. Pinshow (\$50,000; 1 year)
- 2002–2004. Texas Advanced Research/Technology Program: "Dynamic models for flapping wing micro-air vehicles derived from hummingbird flight", Co-Investigator with M. Akella (\$241,340; 2 years)
- 2001–2005. NSF DEB-0108555: "Evolution of flight performance and the phylogeny of hummingbirds", Co-Investigator with J.A. McGuire (\$303,760; 4 years)
2001. National Geographic Society Research Grant: "Do migrating Neotropical butterflies use a magnetic compass to orient?", Co-Investigator with R.B. Srygley and E. Oliveira (\$22,680; 1 year)
2000. Association of American Publishers Award for Best Professional/Scholarly Book in Biological Science for *The Biomechanics of Insect Flight: Form, Function, Evolution*
- 2000–2003. NSF OPP-9980360: "Temperature compensation in Antarctic pteropods: an integrative approach" (\$174,180; 3 years)
- 1999–2002. NSF IBN-9817138: "Limits to hummingbird flight performance: ecological and comparative perspectives" (\$325,000; 3 years)
- 1999–2001. NSF IBN-9902155: "Hummingbird morphology and its influence on flight performance, competitive ability, and foraging behavior", Dissertation Improvement Grant with D. Altshuler (\$9880; 18 months)
1999. Invited participant, NSF Antarctic Biology Training Course (McMurdo)
1999. Study Visit, Deutscher Akademischer Austauschdienst, Erlangen Universität: "Hovering in glossophagine phyllostomid bats" (\$3100)
- 1998–2000. Earthwatch Institute: "Physiology and ecology of hummingbirds along an altitudinal gradient", Co-Investigator with D. Altshuler (\$58,145; 2 years)
1998. Short Term Visitor Award, Smithsonian Institution (\$1925)
- 1997–1999. NSF IBN-9601089: "Biomechanical and physiological limits to animal flight performance" (\$110,000; 2 years)
- 1997–1999. NIH NRSA MH11703: "Evolution of communication in anuran amphibians", (postdoctoral fellowship for W. Martin; \$74,024; 2 years)

1997. Short Term Visitor Award, Smithsonian Institution (\$1875)  
1996–1999. National Geographic Society Research Grant: "Flying lizards (Genus *Draco*) and the evolution of vertebrate flight", Co-investigator with J.A. McGuire (\$40,765; 30 months)  
1996. Short Term Visitor Award, Smithsonian Institution (\$1875)  
1994–1997. National Geographic Society Research Grant: "Orientation of butterflies migrating across the Caribbean Sea and Panama", Co-Investigator with R.B. Srygley (\$59,500; 30 months)  
1994–1996. NIH NRSA AR008331: "Energetic limits to hummingbird flight performance (postdoctoral fellowship for P. Chai; \$69,100; 2 years)  
1994. Short Term Visitor Award, Smithsonian Institution (\$2000)  
1993. National Academy of Sciences Project Development Grant (\$2000)  
1993. Short Term Visitor Award, Smithsonian Institution (\$1900)  
1991–1992. Whitehall Foundation Grant-in-Aid (\$15,000)  
1988–1991. Smithsonian Institution Three-year Postdoctoral Fellowship for research at the Smithsonian Tropical Research Institute (\$75,000)  
1987–1988. Smithsonian Institution Postdoctoral Fellowship, STRI (\$21,000)  
1983–1987. Marshall Scholarship for doctoral studies at the University of Cambridge  
1983. Olney Fellowship at the Cold Spring Harbor Laboratory, Long Island  
1983. Horn Memorial Prize for Excellence in Zoology, Duke University

### **Teaching and Training Activities**

*Undergraduate courses:* Biomotion, Comparative Physiology, Entomology, Mechanics of Organisms (lecture and laboratory)

*Graduate courses:* Air & Water, Animal Locomotion, Bio-inspired Design of Motion Systems, Biomechanics & Metabolic Physiology seminar

*Doctoral student advisorship:*

Leah Lee (2018–present)

Aleksey Maro (2017–present)

Erik Sathe (2015–present)

Ashley Smiley (2015–present)

Leeann Louis (2013–present)

Sofia Chang (M.S., 2018; co-advisor with Mimi Koehl)

Marc Badger (Ph.D., 2016); postdoctoral fellow, University of Pennsylvania

Erica Kim (Ph.D., 2014); proof.bwoc@gmail.com

Yu Zeng (Ph.D., 2013; co-advisor with Dave Wake); postdoctoral fellow, UC-Merced

Dennis Evangelista (Ph.D., 2013); Assistant Professor, US Naval Academy

Yonatan Munk (Ph.D., 2011; co-advisor with Mimi Koehl); software designer

Jose Maria Fernandez (Ph.D., 2010); mjose.fernandezj@gmail.com

Greg Byrnes (Ph.D., 2009); Associate Professor, Department of Biology, Siena College

Chris Clark (Ph.D., 2009); Assistant Professor, Department of Biology, UC-Riverside

Matt Medeiros (Ph.D., 2009); biology teacher, The Urban School of San Francisco

Ryan Hill (Ph.D., 2008); Associate Professor, Dept. of Biological Sciences, University of the Pacific, Stockton, CA

Brendan Borrell (Ph.D., 2006); science journalist: brendanborrell.com

Travis LaDuc (Ph.D., 2003; co-advisor with D. Cannatella); Curator of Herpetology, Texas Memorial Museum, University of Texas at Austin

Jennifer Yeh (Ph.D., 2001; co-advisor with D. Cannatella); science writer  
Doug Altshuler (Ph.D., 2001); Professor, Department of Zoology, University of British  
Columbia, Vancouver

*Postdoctoral sponsorship:*

Ammon Corl (NSF Postdoctoral Fellow, 2019–2024)  
Alejandro Rico-Guevara (UC-Berkeley Miller Fellow, 2017–2020)  
Victor Ortega-Jiménez (UC MEXUS-CONACYT Postdoctoral Fellowship, 2010–2012;  
AFOSR Postdoctoral Fellow, 2013–2016); Postdoctoral Fellow, UC-Davis  
Marta Wolf (Swedish Research Council Postdoctoral Fellowship, 2010–2012); Postdoctoral  
Fellow, Lund University  
Nir Sapir (Rothschild Foundation Postdoctoral Fellowship, 2010–2012); Senior Lecturer,  
Department of Evolutionary and Environmental Biology, University of Haifa  
Michael Dillon (NSF Minority Postdoctoral Research Fellowship, 2007–2009);  
Associate Professor, Department of Zoology and Physiology, University of Wyoming  
Robert Buchwald (NSF Minority Postdoctoral Research Fellowship, 2006–2010);  
Biology Instructor, University of Colorado, Boulder  
Stacey Combes (UC-Berkeley Miller Fellow, 2004–2007); Associate Professor, Department  
of Neurobiology, Physiology & Behavior, University of California, Davis  
Chris Witt (NSF, 2004–2006; co-sponsor with J. McGuire); Associate Professor, Department of  
Biology, University of New Mexico  
Sagiri Horisawa (Texas Advanced Research Program, 2001–2004); Lecturer in Engineering,  
Tokai University, Japan  
Peng Chai (NIH NRSA, 1994–1998); statistician, Celerion (Lincoln, Nebraska)

## **Reviewing Activities**

Journals: *Acta Biomaterialia*, *Aerospace Science & Technology*, *Alcoholism: Clinical and  
Experimental Research*, *American Journal of Physiology (Regulatory, Integrative and Comparative  
Physiology)*, *American Naturalist* (Associate Editor, 2005–present), *Animal Behaviour*, *Animal  
Conservation*, *Annals of the Entomological Society of America*, *Arthropod Structure & Development*,  
*Austral Ecology*, *Australian Journal of Entomology*, *Behavioral Ecology*, *Behavioral Pharmacology*,  
*Biochemical Genetics*, *Bioinspiration & Biomimetics*, *Biological Journal of the Linnean Society*,  
*Biological Reviews of the Cambridge Philosophical Society*, *Biology Letters*, *Biotropica*, *Brain*,  
*Behavior and Evolution*, *Canadian Journal of Zoology*, *CEAS Aeronautical Journal*, *Condor*,  
*Comparative Biochemistry and Physiology*, *Current Zoology*, *Ecology*, *eLife*, *Entomological News*,  
*Entomological Science*, *Evolution* (Associate Editor, 2009–2012), *Experiments in Fluids*, *Functional  
Ecology*, *Geobiology*, *Geology*, *Integrative and Comparative Biology*, *Insect Conservation and  
Diversity*, *Insect Science*, *Journal of Aircraft*, *Journal of Animal Ecology*, *Journal of Anatomy*,  
*Journal of Bionic Engineering*, *Journal of Comparative Physiology B*, *Journal of Experimental  
Biology*, *Journal of Experimental Zoology*, *Journal of Fluid Mechanics*, *Journal of Fluids  
Engineering*, *Journal of Herpetology*, *Journal of Insect Behavior*, *Journal of Insect Physiology*,  
*Journal of Mammalogy*, *Journal of Morphology*, *Journal of Neuroscience Methods*, *Journal of the  
Kansas Entomological Society*, *Journal of the Royal Society Interface*, *Journal of Theoretical  
Biology*, *Journal of Tropical Ecology*, *Nature*, *Naturwissenschaften*, *Oecologia*, *Paleobiology*,  
*Philosophical Transactions of the Royal Society of London B*, *Physiological Entomology*,  
*Physiological and Biochemical Zoology* (Editorial Board member, 2014–2019), *PLOS ONE*,  
*Proceedings of the Royal Society B*, *Proceedings of the National Academy of Sciences USA*,

*Quarterly Review of Biology, Royal Society Open Science, Science, Science of Nature, Scientific Reports, The Auk, Wilson Bulletin, Zoologia, Zoologica Scripta, Zoology*

Book publishers: Chicago University Press, Johns Hopkins University Press, Oxford University Press, Princeton University Press, Rutgers University Press, University of California Press

Funding agencies: Academia Europaea, American Philosophical Society, Biotechnology and Biological Sciences Research Council (U.K.), Deutsche Forschungsgemeinschaft, European Research Council, European Research Council Advanced Grants, Israel Science Foundation, National Geographic Society Research Grants, National Environment Research Council (U.K.), National Science Foundation, National University of Singapore Academic Research Fund, Portuguese Foundation for Science and Technology, USDA SBIR Program

### **Foreign Languages**

*Deutsch als Fremdsprache* certificate, Friedrich-Alexander-Universität, Erlangen  
reading and conversational knowledge of French and Spanish  
survival conversational Mandarin

### **Membership in Professional Societies**

American Ornithological Society, Association for Tropical Biology, Association of Marshall Scholars, Entomological Society of America, International Canopy Network, Phi Beta Kappa, Sigma Xi, Society for Integrative and Comparative Biology, Society for the Study of Evolution

### **University Service (UC-Berkeley)**

*Department:*

2016–2021: Chair of Integrative Biology

2014–2016: Vice-Chair of Integrative Biology; Member, Executive Committee

2014–2015: Member, Adaptation Search Committee

2013–2014: Member, Curriculum Committee

2012–2013: Member, Animal Physiology Search Committee; Member, Curriculum Committee

2011–2012: Graduate Advisor for first-year Ph.D. students; Member, MVZ Director Search

Committee; Member, Undergraduate Achievement Committee

2009–2010: Member, Space Committee; Graduate Advisor for fourth-year Ph.D. students

2008–2009: Member, Curriculum Committee; Graduate Advisor for third-year Ph.D. students

2007–2008: Chair, Departmental Retreat Planning Committee; Graduate Advisor for second-year Ph.D. students; Member, Grinnell Medal Award Committee, Museum of Vertebrate Zoology

2006–2007: Chair, Graduate Admissions Committee; Graduate Advisor for first-year Ph.D. students

2005–2006: Member, Graduate Admissions and Fellowships Committee; Member, Vertebrate Evolution (Mammalogy) Search Committee

2004–2005: Chair, Vertebrate Evolution Search Committee; Chair, Academic Program Committee; Member, Graduate Admissions and Fellowships Committee; Member, Executive Committee

2003–2004: Chair, Mammalian Physiology Search Committee; Member, Executive Committee

*University:*

2013–2016: Member, Academic Senate Committee on Demonstrations and Student Actions

2007–present: Co-director (with R.J. Full, M.A.R. Koehl, and R. Fearing), Center for Integrative Biomechanics, Education, and Research (*ciber.berkeley.edu*)  
2006–2010: Member, Senate Committee on Academic Freedom

### **Organized Symposia**

- 2020: "Insect migration research takes wing" (XXVI International Congress of Entomology, Helsinki; co-organized with Jason Chapman and Kristjan Niitepold)
- 2017: "Primates and dietary ethanol: evolutionary outcome, or modern accident?" (American Association of Physical Anthropology Annual Meeting, New Orleans; co-organized with Nate Dominy)
- 2016: "The physiological ecology of insect flight: from millisecond escape to long-distance migration" (XXV International Congress of Entomology, Orlando; co-organized with Jason Chapman)
- 2016: "Wings and powered flight: morphological core features in insect evolution" (XXV International Congress of Entomology, Orlando; co-organized with Günther Pass)
- 2012: "Insect flight and migration: aerial performance in a changing world" (XXIV International Congress of Entomology, Daegu, South Korea; co-organized with Jason Chapman)
- 2011: "The biomechanics and behavior of gliding animals" (Annual Meeting of the Society for Integrative and Comparative Biology, Salt Lake City; co-organized with Steve Yanoviak)
- 2005: "Adaptations to life at high elevation" (Annual Meeting of the Society for Integrative and Comparative Biology, San Diego; co-organized with Doug Altshuler)
- 2004: "*In Vino Veritas*: The comparative biology of ethanol consumption" (Annual Meeting of the Society for Integrative and Comparative Biology, New Orleans; co-organized with Michael Dickinson)

### **Extramural Presentations** (last five years)

- 2019: "Science and Culture of Fermentation" symposium, Dartmouth College; Schoodic Institute for Education & Research (Acadia National Park, Maine); Smithsonian Tropical Research Institute, Panama
- 2018: Monterey Bay Aquarium Research Institute (Moss Landing); Schoodic Institute for Education & Research (Acadia National Park, Maine); "Alcohol and Humans: A Long and Social Affair" symposium, British Academy (London); Institute of Vertebrate Paleontology & Paleoanthropology (Beijing; two talks); Dept. of Biology, Hebei Normal University (Shijiazhuang); Nanjing Aeronautics Institute (two talks); Institute of Plant Physiology and Ecology, Chinese Academy of Sciences (Shanghai); Dept. of Physics, Georgia Tech
- 2017: "Darwin Week", College of Charleston; "Primates and Dietary Ethanol" symposium, Annual Meeting, American Association of Physical Anthropologists (New Orleans); Dept. of Biology, University of Akron (two seminars)
- 2016: "U-turn on Addictions" symposium, European Union Reframing Addictions Project (Barcelona); Dept. of Zoology, University of British Columbia; Annual Meeting, Society for Integrative and Comparative Biology (Portland)
- 2015: Dept. of Biology, Univ. of Washington; Smithsonian Tropical Research Institute, Panama; Dept. of Biological Sciences, University of Texas Rio Grande Valley; Gorgas Science Foundation (Brownsville); Pacific Grove Museum of Natural History; Dept. of Mechanical Engineering, Chiba University, Japan (two seminars); Acadia Summer Art Program (Bar Harbor)

## Publications

- Badger, M.A., Wang, H. and R. Dudley. (2019). Avoiding topsy-turvy: how Anna's Hummingbirds (*Calypte anna*) fly through upward gusts. *Journal of Experimental Biology* **222**:176263 (10 pp.)
- Dudley, R. (2019). The natural biology of dietary ethanol, and its implications for primate evolution. In: *Alcohol and Humans: A Long and Social Affair* (eds. K. Hockings and R. Dunbar), in press. Oxford: Oxford University Press.
- Ortega-Jimenez, V.M. and R. Dudley. (2019). Superb autorotator: rapid decelerations in impulsively launched samaras. *Journal of the Royal Society Interface* **16**:20180456 (5 pp.)
- Rico-Guevara, A., Rubega, M.A., Hurme, K.J. and R. Dudley. (2019). Shifting paradigms in the mechanics of nectar extraction and hummingbird bill morphology. *Integrative Organismal Biology* 10.1093/iob/oby006 (15 pp.)
- Rico-Guevara, A., Sustaita, D., Gussekloo, S., Olsen, A., Bright, J., Corbin C. and R. Dudley. (2019). Feeding in birds: thriving in terrestrial, aquatic, and aerial niches. In: *Feeding in Vertebrates: Evolution, Morphology, Behavior, Biomechanics* (eds. V.L. Bels and I.Q. Whishaw), pp. 643–693. Berlin: Springer Verlag.
- Dudley, R. and G. Pass. (2018). Wings and powered flight: core novelties in insect evolution. *Arthropod Structure & Development* **47**:319-321.
- Ortega-Jimenez, V.M. and R. Dudley. (2018). Ascending flight and decelerating vertical glides in Anna's Hummingbirds. *Journal of Experimental Biology* **221**:191171 (5 pp.)
- Volponi, M.A.S., McLean, D.J., Volponi, P. and R. Dudley. (2018). Moving like a model: mimicry of hymenopteran flight trajectories by clearwing moths of Southeast Asian rainforests. *Biology Letters* **14**:20180152 (6 pp.)
- Yanoviak, S.P. and R. Dudley. (2018). Jumping and the aerial behavior of aquatic mayfly larvae (*Myobaetis ellenae*, Baetidae). *Arthropod Structure & Development* **47**:370-374.
- Anderson, P., Berridge, V., Conrod, P., Dudley, R., Hellman, M., Lachenmeier, D., Lingford-Hughes, A., Miller, D., Rehm, J., Room, R., Schmidt, L., Sullivan, R., Ysa, T. and A. Gual. (2017). Reframing the science and policy of nicotine, illegal drugs and alcohol – conclusions of the ALICE RAP Project. *F1000Research* **6**:289. doi:10.12688/f1000research.10860.1 (13 pp.)
- Badger, M., Ortega-Jimenez, V., Wang, H. and R. Dudley. (2017). Into rude air: hummingbird flight performance in variable aerial environments. *Philosophical Transactions of the Royal Society of London B* **371**:20150387 (7 pp.)
- Muijires, F.T., Chang, S., van Veen, W., Spitzen, J., Biemans, B.T., Koehl, M.A.R. and R. Dudley. (2017). Escaping blood-fed malaria mosquitoes minimize tactile detection without compromising on take-off speed. *Journal of Experimental Biology* **220**:3751-3762.
- Ortega-Jimenez, V.M., von Rabenau, L. and R. Dudley. (2017). Escape jumping by three age-classes of water striders from smooth, wavy and bubbling water surfaces. *Journal of Experimental Biology* **220**:2809-2815.
- Ortega-Jimenez, V.M., Martín-Alcántara, A., Fernandez-Feria, R. and R. Dudley. (2017). On the autorotation of animal wings. *Journal of the Royal Society Interface* **14**:20160870. (10 pp.)
- Skandalis, D.A., Bahlman, J.W., Groom, D., Segre, P.S., Welch, K.C., Witt, C.C., McGuire, J.A., Dudley, R., Lentink, D. and D.L. Altshuler. (2017). The biomechanical origin of extreme wing allometry in hummingbirds. *Nature Communications* **8**:1047 (9 pp.)
- Ortega-Jimenez, V.M., Arriaga-Ramírez, S. and R. Dudley. (2016). Meniscus ascent by thrips (Thysanoptera). *Biology Letters* **12**:20160279 (4 pp.)
- Sun, Y.-F., Ren, Z.-P., Wu, Y.-F., Lei, F.-M., Dudley, R. and D.-M. Li. (2016). Flying high: limits to flight performance by sparrows on the Qinghai-Tibetan plateau. *Journal of Experimental Biology* **219**:3642-3648.

- Zeng, Y., Lam, K., Chen, Y., Gong, M., Xu, Z. and R. Dudley. (2016). Biomechanics of aerial righting in wingless nymphal stick insects. *Interface Focus* **7**:20160075 (12 pp.)
- Badger, M., Ortega-Jimenez, V.M., von Rabenau, L., Smiley, A. and R. Dudley. (2015). Electrostatic charge on flying hummingbirds and its potential role in pollination. *PLOS ONE* **10**(9):e0138003 (11 pp.)
- Full, R.J., Dudley, R., Koehl, M.A.R., Libby, T. and C. Schwab. (2015). Interdisciplinary laboratory course facilitating knowledge integration, mutualistic teaming, and original discovery. *Integrative and Comparative Biology* **5**:912-925.
- Munk, Y., Yanoviak, S.P., Koehl, M.A.R. and R. Dudley. (2015). The descent of ant: field-measured three-dimensional trajectories of gliding ants. *Journal of Experimental Biology* **218**:1393-1401. doi:10.1242/jeb.106914
- Yanoviak, S.P., Munk, Y. and R. Dudley. (2015). Arachnid aloft: directed aerial descent in a Neotropical canopy spider. *Journal of the Royal Society Interface* **12**:20150534 (5 pp.)
- Zeng, Y., Lin, Y., Abundo, A. and R. Dudley. (2015). The visual ecology of directed aerial descent in first-instar nymphs of the stick insect *Extatosoma tiaratum*. *Journal of Experimental Biology* **218**:1393-1401. doi:10.1242/jeb.106914
- Dillon, M.E. and R. Dudley. (2014). Surpassing Mt. Everest: extreme flight performance of alpine bumble-bees. *Biology Letters* doi:10.1098/rsbl.2013.0922 (4 pp.)
- Dudley, R. (2014). *The Drunken Monkey: Why We Drink and Abuse Alcohol*. Berkeley: University of California Press. 154 pp.
- Evangelista, D., Cam, S., Huynh, T., Krivitskiy, I. and R. Dudley. (2014). Ontogeny of aerial righting and wing flapping in juvenile birds. *Biology Letters* doi:10.1098/rsbl.2014.0497 (4 pp.)
- Evangelista, D., Cam, S., Huynh, T., Kwong, A., Mehrabani, H., Tse, K. and R. Dudley. (2014). Shifts in stability and control effectiveness during evolution of Paraves support aerial maneuvering hypotheses for flight origins. *PeerJ* **2**:e632; doi:10.7717/peerj.632 (25 pp.)
- Kim, E.J., Wolf, M., Ortega-Jimenez, V.M. and R. Dudley. (2014). Hovering performance of Anna's Hummingbirds (*Calypte anna*) in ground effect. *Journal of the Royal Society Interface* **11**:20140505 (8 pp.)
- McGuire, J.A., Witt, C.C., Van Remsen, J., Corl, A., Rabosky, D.L., Altshuler, D.L. and R. Dudley. (2014). Molecular phylogenetics and the diversification of hummingbirds (Apodiformes: Trochilidae). *Current Biology* doi:10.1016/j.cub.2014.03.016 (7 pp.)
- Ortega-Jimenez, V.M., Wolf, M., Variano, E.A. and R. Dudley. (2014). Into turbulent air: size-dependent effects of von Kármán vortex streets on hummingbird flight kinematics and energetics. *Proceedings of the Royal Society of London B* doi:10.1098/rspb.2014.0180 (10 pp.)
- Srygley, R.B., Dudley, R., Oliveira, E.G. and A.J. Riveros. (2014). El Niño, host plant growth, and migratory butterfly abundance in a changing climate. *Biotropica* **46**:90-97.
- Xu, X., Zhou, Z., Dudley, R., Mackem, S., Chuong, C.-M., Erickson, G.M. and D.J. Varricchio. (2014). An integrative approach to understanding bird origins. *Science* **346**:1253293 doi:10.1126/science.1253293 (12 pp.)
- Ortega-Jimenez, V.M. and R. Dudley. (2013). Rapid spiderweb deformation induced by electrostatically charged insects. *Scientific Reports* doi:10.1038/srep02108 (4 pp.)
- Projecto-Garcia, J., Natarajan, C., Moriyama, H., Weber, R.E., Fago, A., Cheviron, Z.A., Dudley, R., McGuire, J.A., Witt, C.C. and J.F. Storz. (2013). Repeated elevational transitions in hemoglobin function during the evolution of Andean hummingbirds. *Proceedings of the National Academy of Sciences USA* **110**:20669-20674.
- Sapir, N. and R. Dudley. (2013). Implications of floral orientation for flight kinematics and metabolic expenditure of hover-feeding hummingbirds. *Functional Ecology* **27**:227-235.



- Wolf, M., Ortega-Jimenez, V.M. and R. Dudley. (2013). Structure of the vortex wake in hovering Anna's Hummingbirds (*Calypte anna*). *Proceedings of the Royal Society of London B* doi:10.1098/rspb.2013.2391 (7 pp.)
- Dudley, R., Kaspari, M. and S.P. Yanoviak. (2012). Lust for salt in the western Amazon. *Biotropica* **44**:6-9.
- Medeiros, M.J. and R. Dudley. (2012). Jumping performance in flightless Hawaiian grasshopper moths (Xyloryctidae: *Thyrocopa* spp.). *Proceedings of the Hawaiian Entomological Society* **44**:55-61.
- Ortega-Jimenez, V.M. and R. Dudley. (2012a). Aerial shaking performance of wet Anna's Hummingbirds. *Journal of the Royal Society Interface* **9**:1093-1099.
- Ortega-Jimenez, V.M. and R. Dudley. (2012b). Flying in the rain: hovering performance of Anna's Hummingbirds under varied precipitation. *Proceedings of the Royal Society of London B* **279**:3996-4002.
- Sapir, N. and R. Dudley. (2012). Backward flight in hummingbirds employs unique kinematic adjustments and entails low metabolic cost. *Journal of Experimental Biology* **215**:3603-3611.
- Buermann, W., Chaves, J.A., Dudley, R., McGuire, J.A., Smith, T.B. and D.L. Altshuler. (2011). Projected changes in elevational distribution and flight performance of montane Neotropical hummingbirds in response to climate change. *Global Change Biology* **17**:1671-1680.
- Dudley, R. and S.P. Yanoviak. (2011). Animal aloft: the origins of aerial behavior and flight. *Integrative and Comparative Biology* **51**:926-936.
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