DAKOTA E. MCCOY

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ACADEMIC POSITIONS

Neubauer Family Assistant Professor 2024-present

University of Chicago

Department of Ecology and Evolution, Chicago, IL
Marine Biology Laboratory, Woods Hole, MA

Stanford Science Fellow and NSF PRFB Fellow 2021-2024

Stanford University

Department of Materials Science & Engineering, Stanford, CA
Hopkins Marine Station, Pacific Grove, CA
Advisors: Jennifer Dionne (Nanophotonics), Steve Palumbi (Coral Reef Biology), Sönke Johnsen (Physics and Biology; Duke University)

EDUCATION

PhD in Organismic and Evolutionary Biology 2021

Harvard University, Cambridge, MA, USA

NDSEG Fellow and Ashford Fellow
Advisor: Professor David Haig
Dissertation: *Signaling, Cooperation, and Conflict in Animals*

MPhil in Geography and the Environment 2015

Oxford University, Oxford, UK

Rhodes Scholar
Advisor: Professor Cameron Hepburn

BS in Biology 2013

Yale University, New Haven, CT, USA

Kennedy T. Friend Scholar

AWARDS AND GRANTS

International and National

Theodosius Dobzhansky Prize, Society for the Study of Evolution 2023
International award for one outstanding early-career evolutionary biologist

Early Career Investigator Award, American Society of Naturalists 2023
Award for four outstanding early-career scientists

Stanford Science Fellowship 2021-present

NSF Postdoctoral Research Fellowship in Biology 2021-present
National Science Foundation Rules of Life division

Trail-Crisp Medal of the Linnean Society 2021
International award for biological microscopy

Miller Research Fellowship, Berkeley (declined) 2021

NDSEG Graduate Fellowship 2016-2021
Department of Defense, Army Research Office

Rhodes Scholarship 2013-1015

Marshall Scholarship (elected) 2013

Capital One Academic All-American 2013

Sigma Xi student research award 2013

National Science Foundation Research Experience for Undergraduates Fellow 2012

Goldwater Scholar; elected as a sophomore 2011

Stanford University

Poster Award ($1000). Stanford Bio-X Interdisciplinary Initiatives Poster Session. 2022
Title: *Windows in a clamshell: how natural fiber optic cables and condensing lenses transmit sunlight for photosynthesis.*

Harvard University

Ashford Fellowship 2015-2021
Awarded to 6 incoming graduate students across all disciplines.

Office for Sustainability Grant ($5,000) to plant native trees and shrubs on campus 2020

Bowdoin Prize for Graduate Essay in the Natural Sciences ($10,000) 2020
Essay: "Cheating Darwin: Germline Parasites and the Paradox of Transplant Rejection"

Chapman Fellowship ($2,000) for vertebrate locomotion. 2020

Regeneron Prize Harvard Nominee for "inventive" biomedical research proposals 2019

Harvard Integrated Life Sciences, Student Proposal Grant ($2,000) 2017

Mind, Brain, and Behavior Graduate Student Award ($5,229) 2016

Mind, Brain, and Behavior Conference Award 2015

Yale University

Edgar J. Boell Prize, awarded annually to one senior for excellence in biology. 2013
Branford Fellows Prize, awarded to one graduating senior for academic excellence. 2013
Kiphuth Student-Athlete Distinction Award, awarded to one female varsity athlete. 2013
Francis Gordon Brown Prize 2012
Top prize for Yale juniors for distinction, leadership, and service
Yale Creative and Performing Arts Award 2012
To write and hand-make a book (*A Dozen Birds)*
Richter Fellowship, for fieldwork to study primate cognition 2012
Dean's Research Fellowship, for fieldwork to study primate cognition 2012
Yale Writing Center Essay Contest winner 2011
Title: "Do octopuses think like vertebrates?"
Environmental Summer Fellowship 2011
To study conservation & ecosystem management.
Von Damm Fellowship 2010-11
To study paleontology at the Yale Peabody Museum.
Kennedy T. Friend Scholarship 2009-13
For Allegheny County residents who attend Yale

RESEARCH

Summary: I have published 19 peer-reviewed articles, 2 book chapters, and 4 white papers/public comments in journals including *Nature Communications*, *Current Biology*, *eLife*, and *Trends in Ecology and Evolution* (see Google Scholar). My work has received media coverage in the New York Times, Scientific American, National Geographic, The Atlantic, Science News, and more.

Manuscripts Under Review

1. **McCoy, D.E.,** Cornwell, B, and Dionne, J.A. Host-symbiont conflict in reef-building corals and the risk of bleaching. (under review, invited chapter for *The Paradox of the Organism: Adaptation and Internal Conflict*)

Manuscripts In Preparation

3. **McCoy, D. E.**, Johnsen, S. Palumbi, S., and Dionne, J. (in prep.) Heat stress, light stress, and runaway bleaching in 6 species of Palauan coral.
2. **McCoy, D.E.,** Kaholoaa, K., Dionne, J. & Palumbi, S. (in prep.). Optics of the heat-resistant mounding coral *Porites lobata.*

1. **McCoy, D.E.**, Gu, Y., Haig, D., and Dionne, J. (in prep.) GDF15 and the paradox of nausea and vomiting during pregnancy: a side effect of immunological tolerance to the invasive placenta.

Published Papers

22. **McCoy, D.E.,** Burns, D.H., Klopfer, E., Herndon, L.K., Ogunlade, B., Dionne, J.A. ,Johnsen, S. (accepted, *Nature Communications*). Heart cockles transmit sunlight for photosynthesis using natural fiber optic cables and condensing lenses. [LINK to preprint]
21. **McCoy, D.E.,** Haig, D., and Kotler, J. (2024). Egg donation and gestational surrogacy: pregnancy is riskier with an unrelated embryo. *Early Human Development* [LINK]; [PDF version]
20. Braganza, O., John, Y. J., Caldwell, L., & **McCoy, D. E.** (2024). Teleonomy, legibility, and diversity: Do we need more "proxynomics"?. *Behavioral and Brain Sciences*, *47*, e88. [LINK]
19. **McCoy, D.E.,** Shultz, A.J., Dall, J.E., Dionne, J.A. and Johnsen, S., 2023. The carotenoid redshift: Physical basis and implications for visual signaling. *Ecology and Evolution*, *13*(9), p.e10408. [LINK]; [PDF version]
    - cover image
18. John Y.J., Caldwell L., **McCoy D.E.**, Braganza O. (2023). Dead rats, dopamine, performance metrics, and peacock tails: Proxy failure is an inherent risk in goal-oriented systems. *Behavioral and Brain Sciences*. 2024;47:e67. [LINK]; [PDF version]
    - selected for commentary
17. **McCoy, D.E.*,** Goulet-Scott, B.*, Meng, W., Atahan, F., Kiros, H., Nishino, M., & Kartesz, J. (2022). Species clustering, climate effects, and introduced species in 5 million city trees across 63 US cities. *eLife,* 11:e77891. [LINK]
    - selected to be featured in *eLife* Digest
16. Ågren, J.A., Haig.D. & **McCoy, D.E.** (2022). Meiosis solved the problem of gerrymandering. *Journal of Genetics*, 101, 38 (2022). [LINK]; [PDF version]
15. **McCoy, D.E.*,** Shneidman, A.*, Davis, A, and Aizenberg, J. (2021). Finite-difference Time-domain (FDTD) Optical Simulations: A Primer for the Life Sciences and Bio-Inspired Engineering. *Micron*, 103160. [LINK]; [PDF version].
14. Frye, B.M., **McCoy, D.E.,** Kotler, J., Embury, A., Burkart, J.M., Burns, M., Eyre, S., Galbusera, P., Hooper, J., Idoe, A. and Goya, A.L., 2021. After short interbirth intervals, captive callitrichine monkeys have higher infant mortality. *IScience*, p.103724. [LINK]; [PDF version].
13. **McCoy, D.E.,** Shultz, A.J., Vidoudez, C., van der Heide, E., Dall, J., Trauger, S.A., & Haig, D.A (2021). Microstructures amplify carotenoid signals in tanagers. *Scientific Reports.* 8582 (2021) [LINK]; [PDF version]
12. **McCoy, D. E.** and Haig, D. (2020). Embryo selection and mate choice: can 'honest signals' be trusted? *Trends in Ecology and Evolution,* 35(4), 308-318. [LINK]; [PDF version]

11. **McCoy, D.E.** & Prum, R.O. (2019). Convergent evolution of super black plumage near bright color in 15 bird families. *Journal of Experimental Biology*, *222*(18), jeb208140. [LINK]; [PDF version]
    - cover image
10. Miller, R., Frohnwieser, A., Schiestl, M., **McCoy, D. E**., Gray, R. D., Taylor, A. H., & Clayton, N. S. (2019). Delayed gratification in New Caledonian crows and young children: influence of reward type and visibility. *Animal cognition*, *23*(1), 71-85. [LINK]; [PDF version]
9. **McCoy, D. E.,** Schiestl, M., Neilands, P., Hassall, R., Gray, R. D., & Taylor, A. H. (2019). New Caledonian Crows Behave Optimistically after Using Tools. *Current Biology*, *29*(16), 2737-2742. [LINK]; [PDF version]
8. **McCoy, D. E.***, Frye, B. M.*, Kotler, J., Burkart, J. M., Burns, M., Embury, A., ... & Goya, A. L. (2019). A comparative study of litter size and sex composition in a large dataset of callitrichine monkeys. *American journal of primatology*, e23038. [LINK]; [PDF version]; * co-first authors
    - cover image
7. **McCoy, D. E.**, McCoy, V. E., Mandsberg, N. K., Shneidman, A. V., Aizenberg, J., Prum, R. O., & Haig, D. (2019). Structurally assisted super black in colourful peacock spiders. *Proceedings of the Royal Society B*, *286*(1902), 20190589. [LINK]; [PDF version]
    - cover image
6. **McCoy, D. E.*,** Feo, T.*, Harvey, T. A., & Prum, R. O. (2018). Structural absorption by barbule microstructures of super black bird of paradise feathers. *Nature communications*, *9*(1), 1. [LINK]; [PDF version]
5. **McCoy, D.E.** (2018) Evolutionary Change. In: Shackelford T., Weekes-Shackelford V. (eds) *Encyclopedia of Evolutionary Psychological Science,* Pp. 1–16. Cham: Springer International Publishing. Springer, Cham. [LINK]; [PDF version]
4. **McCoy, D.E.** (2018) Game Theory as a Foundation of Evolutionary Psychology. In: Shackelford T., Weekes-Shackelford V. (eds) *Encyclopedia of Evolutionary Psychological Science*. Pp. 1–17. Cham: Springer International Publishing Springer, Cham. [LINK]; [PDF version]
3. Petelle, M. R., **McCoy D.E.**, Alejandro, V.A., and Blumstein, D.T. (2013) Development of boldness and docility in yellow-bellied marmots. *Animal Behaviour* 86: 1147-1154. [LINK]; [PDF version]
2. **McCoy, D.E.** (2012) Connecticut birds and climate change: Bergmann's rule in the fourth dimension. *The Northeastern Naturalist* 19(2):323–334. [LINK]; [PDF version]
1. **McCoy, D. E.** and Norris, C.A. (2012) The Cranial Anatomy of the Miocene Notoungulate Hegetotherium mirabile (Notoungulata, Hegetotheriidae) with Preliminary Observations on Diet and Method of Feeding. *Bulletin of the Peabody Museum of Natural History* 53(2):355-374. [LINK]; [PDF version]

Invited Talks and Guest Lectures

Michigan State University, Symposium in Ecology, Evolution, and Behavior May 2, 2024
Keynote Talk: Solar-Powered Animals
Internal Conflicts and Organismal Adaptation STN April 18, 2024
Immunology and Diseases of Pregnancy
Beyond Center for Fundamental Concepts in Science at ASU Nov. 27, 2023
Thinking Beyond Series: Physics Lecture.
University of Illinois, Colloquium in Evolution, Ecology, and Behavior Sep. 22, 2023
Super Black and Solar-Powered Animals
Georgetown University, Advanced Topics in Evolution Course Sep. 18, 2023
Guest lecture. Host-symbiont conflict and coral bleaching.
Society for the Study of Evolution: Dobzhanky Prize Talk July, 2023
Solar-Powered Animals
Marine Biological Laboratory (MBL), Seminar May 2, 2023
Arizona State University, Physics Seminar Apr. 24, 2023
Massachusetts Institute of Technology, EAPS Department Lecture Series Feb. 15, 2023
Harvard University School of Engineering and Applied Sciences Feb. 10, 2023
Climate and Energy Science & Technology Seminar Series
University of Chicago, Ecology and Evolution Seminar Series Jan. 30. 2023
University of Wisconsin Milwaukee; Conservation Paleontology Course Apr. 18, 2022
Guest lecture. Conservation biology: coral reefs, city trees, and bio-inspired design.
Stanford University, Rodolfo Dirzo Lab Meeting Apr. 1, 2022
Runaway bleaching in coral reefs (and other optical oddities in nature
The Nature Conservancy Dangermond Preserve; Capstone Thesis Feb. 28, 2022
Conservation of coral reefs, birds, and bugs: bio-inspired design and design-inspired bio.
Google Brain Research Team meeting. Jul. 31, 2020
Sensory perception across species: evolution and machine learning
The 28th First Annual IgNobel Prize Ceremony & Lectures; 24/7 Speech. 2018
Super Black in Animals.
Harvard University, Ornithology Course Guest Lecture 2018
Guest lecture. Structural Color in Birds
Harvard Museum of Natural History, Adult Class on Bird Coloration. 2018
Color, Feathers, and the Evolution of Beauty
Harvard University, Vertebrate Viviparity Course 2017
Guest lecture. Huddling: Conflict and Thermogenesis
Yale University, Leadership Forum: Careers, Life, and Yale. 2016
Yale Peabody Museum of Natural History. Verrill Medal Symposium, 2016
The Value of Museum Collections
University of Zurich, Afternoon Seminars 2016
Conflict in Evolution: Thermoregulation to sexual selection

Harvard University, Mind, Brain, and Behavior Open Science Conference April 21, 2016
Super Black
University of Oxford, St. Hilda's College Greenfeast Environmental Festival 2014
Connecticut Birds and Climate Change: Bergmann's Rule in the Fourth Dimension.
Yale National University of Singapore Launch; Leadership Forum. 2014
One of four panelists speaking to the inaugural class of the Yale National University of Singapore.
Yale Peabody Museum, Leadership Council Presentation 2014
Invited to present to assembled financial sponsors, curators, professors, and the board of directors of the Yale Peabody Museum.

Conferences

Organizing Symposia

"Photosynthesis across the tree of life: symbiosis, photonics, and evolution." Society of Naturalists Standalone Meeting (Asilomar, Pacific Grove). January 6-10, 2023.

Session Chairing

Conservation Biology, Session Chair. Botany Annual Meeting (virtual). July 21, 2021.
Reproductive Biology, Session Chair. Evolution Annual Conference (virtual). June 23, 2021

Judging

Society for Integrative & Comparative Biology 2021, Best Student Presentation Award. Botany Division.

Research Talks and Presentations

McCoy, D. E., Johnsen, S. Palumbi, S., and Dionne, J. Biophotonics of "runaway bleaching" in coral reefs. *Society for Integrative and Comparative Biology*. January 2023.
McCoy, D.E., Burns, D.H., Klopfer, E., Herndon, L.K., Ogunlade, B., Johnsen, S., Dionne, J.A. Windows in a clamshell: heart cockles transmit sunlight for photosynthesis with natural fiber-optic cables and condensing lenses. *Society for Integrative and Comparative Biology*. January 2023.
McCoy, D.E., Goulet-Scott, B., Meng, W., Atahan, F., Kiros, H., Nishino, M., & Kartesz, J. (2022). More than 5 million city trees across 63 US cities: data science for sustainable cities. *Gear-Up for Science Data (Stanford Libraries and Lane Medical Library).* October 14, 2022.
McCoy, D.E., Burns, D.H., Klopfer, E., Herndon, L.K., Ogunlade, B., Johnsen, S., Dionne, J.A. Windows in a clamshell: how natural fiber optic cables and condensing lenses

transmit sunlight for photosynthesis. *Stanford Bio-X Interdisciplinary Initiatives Seed Grants Symposium and Poster Session.* August 26, 2022. [LINK]

- Poster award ($1000)

McCoy, D.E, Goulet-Scott, B., Meng, W., Atahan, F., Kiros, H., Nishino, M., & Kartesz, J. City Tree Communities Across the USA: Urban Ecology and Biodiversity. *Botany Annual Meeting* (virtual). January 5, 2022.

McCoy, D. E., Schiestl, M., Neilands, P., Hassall, R., Gray, R. D., & Taylor, A. H. New Caledonian Crows are Optimistic After Tool Use. *Animal Behaviour Live Online Meeting*; November 19, 2021.

McCoy, D.E., Goulet-Scott, B., Meng, W., Atahan, F., Kiros, H., Nishino, M., & Kartesz, J. (2021). City Tree Communities Across the USA: Urban Ecology and Biodiversity. *Botany Annual Meeting* (virtual). July 21, 2021.

McCoy, D.E., Utter, D., & Haig, D. Pregnancy is an arms race: Primates, horses, and health consequences. *Evolution Annual Conference* (virtual). June 23, 2021.

McCoy, D.E., Shultz, A.J., Vidoudez, C., van der Heide, E., Trauger, S.A., & Haig, D.A. (2019). "The Corruption of Honest Signals: Mate Choice in Red Birds, Pregnancy, & the SAT" *Society for Integrative and Comparative Biology Annual Meeting*. January 3-7, 2019. Tampa, FL.

Finalist: Huey Award for best student paper (Division of Ecology and Evolution)

McCoy, D. E., McCoy, V. E., Mandsberg, N. K., Shneidman, A. V., Aizenberg, J., Prum, R. O., & Haig, D. (2019) "Structurally assisted super black in colorful peacock spiders" (Poster). *Evolution Meeting.* June 21-25, 2019. Providence, RI.

McCoy, D.E., Shultz, A.J., Vidoudez, C., van der Heide, E., Trauger, S.A., & Haig, D.A. (2019). "Microstructure matters: amplifiers of carotenoid signals in Tanagers." *Fourth Annual Boston Area Bird Meeting.* January 24, 2019. Cambridge, MA.

McCoy, D.E., Shultz, A.J., Vidoudez, C., van der Heide, E., Trauger, S.A., & Haig, D.A. (2017). "Red velvet and neon yellow: vivid color from pigment and structure in the *Ramphocelus* tanagers." *The 135th Meeting of American Ornithology.* July 31-August 5, 2017. East Lansing, MI.

McCoy, D.E. and Prum., R.O.(2016). "Super black feathers: structure, perception, and a proposed sensory bias." Conference on Comparative Cognition. April 13-16, **2016.** Melbourne, FL.

McCoy, D.E. (2012). "Biogeography of Sociality in Terrestrial Vertebrates". *Yale Ecology and Evolutionary Biology Senior Research Symposium*

McCoy, D.E. (2012). "Theory of Mind in Rhesus Macaques" *Caribbean Cayo Santiago Primate Research Center*

McCoy, D.E. (2012). "A Drumlin Marmot: Behavioral Syndromes in the Yellow-Bellied Marmot" *Rocky Mountain Biological Laboratory Symposium*, Gothic, CO.

McCoy, D.E. and Norris, C. (2011). "Was Hegetotherium a 'Mammalian Woodpecker?'" *Yale Engineering & Science Weekend* (presentations to newly admitted science students)

White Papers and Public Comments

Cattaneo, L, **McCoy, D.E.**, Matchett, J., Pollack, E., and Saltzman, V.. (2020). *Waste-to Energy and Community Resiliency: Quapaw Nation, OK.* Harvard Law School; Climate Solutions Living Lab. Available at http://clinics.law.harvard.edu/environment/files/2019/05/Team-2-Quapaw-Imp.Plan-FS-FINAL-reduced-size.pdf

McCoy, D.E., Meeks, A., Clark, A., Gersony, J., Edelman, N. and Goulet, B. (2017) *Public comment on the Department of the Interior (DOI) Notice*: Review of Certain National Monuments Established Since 1996. Available at https://www.regulations.gov/document?D=DOI-2017-0002-780036

Goulet, B., Wilkin, H., Lai, P., Gersony, J., Treibergs, K., **McCoy, D.E.**, and Edwards, M. (2017). *Public comment on the Bureau of Ocean Energy Management (BOEM) Notice: Environmental Impact Statements; Availability, etc.:* 2019-2024 Draft Proposed Outer Continental Shelf Oil and Gas Leasing Program. Available at: https://www.regulations.gov/document?D=BOEM-2017-0074-21028

McCoy, D.E., Meeks, A.,, and Ross, A. (2017). *Public comment on the U.S. Department of State (DOS) Notice: Environmental Impact Statements; Availability, etc.:* Proposed Enbridge Energy, Limited Partnership Line 67 Expansion Project. Available at https://www.regulations.gov/document?D=DOS-2017-0009-0305

Research Work/Internships

Research Assistant, Corporate Environmental Management. Oxford University, UK.2014-15
Smith School of Enterprise and the Environment, with Professor Gordon Clark.

Research Assistant, Environmental Policy. Oxford University, UK. 2014-15
Blavatnik School of Public Policy, with Dr. Thomas Hale.

Curatorial Assistant, Vertebrate Paleontology. Yale University, New Haven, CT. 2009-13
With Dr. Chris Norris.

Intern at the National Aviary, Pittsburgh, PA 2010
Conservation, outreach, behavior, natural history, & training.

TEACHING & MENTORSHIP

Teaching Experience

Stanford University Biosciences Fall 2023
BIOS 273: Ethics and Justice at the Frontiers of Conservation Biology

- *Mini-course in a long weekend workshop format*
- *Primary instructor and co-course designer*

Harvard Law School

Climate Solutions Living Lab (Professor Wendy Jacobs) Spring 2020

- *Teaching Assistant, focusing on climate change and biochemical processes.*
- *Enrollees from business, law, policy, and public health schools.*
- *Directly supervised Carbon Crop Credit team (financial instrument to pair carbon offsets with agricultural emissions reductions via cover crops)*

Harvard University (Faculty of Arts and Sciences)

GenEd 1084: The First Nine Months (Professor David Haig) Spring 2020

- *Head Teaching Fellow, managed team of 5 teaching fellows*
- *Designed and led section discussions*

OEB 101: Biology of Mammals (Professor Jonathan Losos) Fall 2017

- *Teaching Fellow; led lab section; helped write exams*

OEB 114: Vertebrate Viviparity (Professor David Haig) Spring 2017

- *Teaching Fellow; led section; wrote exam*

Harvard University January-Term

How to Make a Book: From the Evolution of Writing to Movable Type January 2016

- *Designed and taught a 3-week course*

University of Oxford, Said Business School

Corporate Environmental Management (Professors Alex Money and Gordon Clark)Spring 2015

- *Teaching Assistant; led section; guest lectured*

University of Oxford, Centre for the Environment

Corporate Environmental Management (Professor Gordon Clark) Fall 2014

- *Teaching Assistant; led section*

Mentoring Experience

Research Mentor, Senior Project in Biology (Dawson High School) 2024

Sukirthan Namachivayam, high school senior. Project: Coral bleaching and PAM fluorimetry.

Research Advisor, Materials Science Undergraduate Research Fellowship (Stanford University) 2023

Amiri Nasari Tate, undergraduate. Project: Light stress and bleaching risk in Palauan corals.

Research Advisor, Biology Summer Research Project (Stanford University) 2023- present

Lynn Gu, undergraduate at Berkeley. Project: The coevolution of hormones and receptors in mammalian pregnancy.

Harvard Resident Advisor (Adams House Tutor) 2016-2021

Live-in social and academic advisor for sophomores through seniors. Academically advised 6 sophomores per year; mentored students as they apply for science PhDs, post-graduate fellowships, jobs, and more; provided social programming and welfare support to 30 students each year.

NSF REU Advisor, Organismic and Evolutionary Biology (Harvard University) 2020
Furkan Atahan, undergraduate. Project: City trees across the USA: native species, biodiversity, and equity. Paper published in *eLife.*

FDR Foundation Summer Research Advisor (Harvard University) 2020
Fellowship program for students of highest financial need. Hana Kiros, undergraduate. Project: City trees across the USA: native species, biodiversity, and equity. Paper published in *eLife.*

Environmental Policy Summer Research (Harvard University) 2020
Wooddynne Dejeanlouis, undergraduate: Project in preparation for publication: Anaerobic digestion: waste-to-energy as a backstop for intermittent renewables.

Senior Thesis Adviser, Integrative Biology (Harvard University) 2019-20
Justina Hewitt, undergraduate: Thermoregulation and Sociality in Ground Squirrels. Justina received a Harvard Teacher Fellowship to teach Biology.

Term-time Research Advisor, Integrative Biology (Harvard University) 2017-18
Emma van der Heide, undergraduate: Microstructures amplify carotenoid plumage signals in colorful tanagers. Paper published in *Scientific Reports*.

ZLR Valeon Tutor. 2015-17
Mentor talented Chinese students as they consider graduate programs in Environmental
Studies and Biology in the USA.

Freshman Counselor Program, Yale University. 2012-13
Mentor and residential advisor for 16 first-year undergraduates.

LEADERSHIP, SERVICE, AND OUTREACH

Academic Service: International

Rhodes Scholarship China Preselection Committee 2017-present
Interview 6-10 candidates for the Rhodes Scholarship from China

Reviewer 2013-present
Proceedings of the National Academy of Sciences; Current Biology; Proceedings of the Royal Society B.; Nature Communications; American Naturalist; Evolution, Medicine, and Public Health; Biological Journal of the Linnean Society; Journal of Animal Ecology; Current Zoology; Journal of Vertebrate Biology; Frontiers in Marine Science; Biological Reviews; Biology Letters; Royal Society Open Science

Evolution Community Resources for Early Career Researchers; Policy Panel 2020
Volunteer Code of Conduct Monitor

Academic Service: University

DEI Taskforce Member (Stanford Materials Science) 2023-present
Participate in one or more subgroups, including planning the Rising Stars Symposium for the academic year 2023-2024.

Rhodes and Marshall Preselector Interviewer 2023-present
Interview Stanford University candidates.

DEI Taskforce Facilitator (Stanford Materials Science) 2021-2023
Facilitator; set agenda for and host monthly meetings, apply for funding, field community questions, and report progress at town halls twice annually.

Fellowships Adviser for Undergraduates 2016-present
Mentor, mock interview, and write letters for students applying for post-grad. fellowships.
Of my ~80 advisees to date, more than 35 have won high-profile fellowships and prizes including 2 Rhodes Scholarships, 1 Marshall Scholarship, 4 Fulbright Awards, a Churchill Scholarship, and a Schwarzman Scholarship.

Ashford Fellowship Coordinating Intern 2017-2019
Organized social events for Ashford fellows at Harvard.

Oxford University Course Policy Committees 2013-15
Student representative on Joint Consultative Committee (Environmental Policy course matters), Postgraduate Research Course Forum, MSc Committee, and Taught Course Forum.

Rhodes Service and Leadership Committee: Student Representative 2013-14
Designed and structured programming to encourage and foster service and leadership in all different forms among the Rhodes community. Spoke to assembled benefactors reporting on progress.

Yale College Task Force on Alcohol and Other Drugs 2013
One of five undergraduate members. Submitted final report to Dean Mary Miller and presented findings to the Council of Trustees.

Policy Activities

CovidLoanTracker for Small Business Loans 2020
www.covidloantracker.com/
Volunteer Data Scientist: visualization, analysis, website design.

- Crowd-sourced effort to track the disbursement of government loans to small businesses during the covid19 crisis.
- Received survey replies from >30,000 small businesses, received news coverage in CNN, NBC Miami, Business Insider, Forbes, the LA Times, and more.

Harvard GSAS Environmental Action Team[1] 2016-2021

[1] Formerly named the GSAS Action Coalition.

https://www.facebook.com/HarvardGrEAT
Co-founder and President 2016-2019, Executive Board 2020.

- Graduate students for environmental justice. Averaging three focal topics per semester, we encouraged graduate students to use their research skills for good and become engaged citizens.
- Wrote and submitted multiple public comments to Regulations.gov on oil and gas leasing, the preservation of wild lands, and more. Partnered with the Harvard Law School Emmett Environmental Policy Clinic
- Hosted multiple letter-writing, text-banking, and phone-banking advocacy sessions
- Wrote the Harvard Against Solitary Confinement petition (over 400 signatures) and submitted it to legislators; prompted Representative Denise Provost to submit a proposed amendment to the Massachusetts omnibus criminal justice bill

Harvard Votes Challenge 2018
Co-chair, Graduate School of Arts and Sciences
Nonpartisan initiative to get out the vote at Harvard. Tabled, flyered, hosted social events.

Popular Press Articles

McCoy, D.E. and M. Sharp (May 9, 2022). "Why abortion is health care." *Slate.* Available at https://slate.com/technology/2022/05/abortion-access-health-care-pregnancy.html

McCoy, D.E. (December 14, 2021). "Convergent optical illusions in colourful creatures." *Functional Ecology Blog.* Available at: https://functionalecologists.com/2021/12/14/convergent-optical-illusions-in-colourful-creatures/

Mastroianni, A. and **McCoy, D.E**. (May 17, 2018) "Countries with Less Gender Equity Have More Women in STEM--Huh?" *Scientific American.* Available at: https://blogs.scientificamerican.com/voices/countries-with-less-gender-equity-have-more-women-in-stem-huh/

McCoy, D.E. (January 9, 2018). Super-black feathers can absorb virtually every photon of light that hits them. *The Conversation.* Available at: http://theconversation.com/super-black-feathers-can-absorb-virtually-every-photon-of-light-that-hits-them-89689

Edelman, N.B., Goulet, B., and **McCoy, D.E**. (October 27, 2017) Ecologically Critical National Monument Lands are Under Attack. *Harvard Crimson*. Available at: https://www.thecrimson.com/article/2017/10/27/ecologically-critical-under-attack/

Hollingsworth, L.R., Veeraraghavan, P., Wu, K.J., **McCoy, D.E.**, Van Dervort, A., and Gunther K.E. (December 1, 2017). Letter: Speak out against tuition waiver taxes. *Science*. Available at: http://science.sciencemag.org/content/358/6369/1395.1

Kolb, R. and **McCoy, D.E.**. (August 3, 2017) "Gene-editing tool raises questions about what is 'disease'." *San Francisco Chronicle.* Available at: https://www.sfchronicle.com/opinion/openforum/article/Gene-editing-tool-raises-questions-about-what-is-11732894.php

McCoy, D.E. (June 2, 2017). Pittsburgh isn't the city you think it is, Mr. President. *PennLive*. Available at: https://www.pennlive.com/opinion/2017/06/pittsburgh_isnt_the_city_you_t.html

McCoy, D.E. (February 17, 2017). Climate & business: Letter to the Editor. *Pittsburgh Tribune Review (TribLive.com).* Available at: http://triblive.com/opinion/letters/11939678-74/climate-business-coal

McCoy, D.E. (September 25, 2011). In Praise of the Peabody. *Yale Daily News.* https://yaledailynews.com/blog/2011/09/25/mccoy-in-praise-of-the-peabody/

Scientific Outreach

"Super Black Feathers with Dakota McCoy." (2021). Specimen Stories Podcast Interview, Klara Norden. https://anchor.fm/klara-norden/episodes/1--Super-black-feathers-with-Dakota-McCoy-e16hqj6/a-a6e2fog

Boston Museum of Fine Art: Art-Science Collaboration. (2018). Jason Chase developed three pieces of art using Singularity Black, a super black structural paint developed by NanoLab. Boston, MA. Viewable at https://www.jasonchase.com/singularity-black-art

"Love is a Battlefield." (2018). Veritalk Podcast Interview, Harvard Graduate School of Arts and Sciences. Cambridge, MA. Available at https://www.iheart.com/podcast/256-veritalk-43086282/episode/plumage-episode-1-love-is-a-44831286/

"Super Black." (2018). Presentation with Harvard Project Teach, Harvard Museum of Natural History. Cambridge, MA.

Science in the News Public Presentation: "Super Black Birds and Spiders: Conflict in Evolution." (2018). Cambridge, MA. Available at http://sitn.hms.harvard.edu/seminars/2018/may-2-super-black-birds-spiders-snakes/

Host, Op-Ed Writing Workshop for Scientists. (2018). Designed and led workshop for graduate students with science writer Madeline Drexler, supported by Harvard Integrated Life Sciences. Cambridge, MA.

Paid Science Blogger at passle.net, focusing on the environment, animal cognition, and evolution. (2014-15). Oxford, UK. More than 11,000 post views and 2,400 shares

Peabody Museum Public Outreach Programs. (2009-13). Annually recurring events, e.g., Meet the Scientist Dino Days (hands-on demonstrator), Paleo-Knowledge Bowl (judge & question writer).

OTHER

Media Coverage

Super Black Birds

- **New York Times**; Ultra-Black Is the New Black https://www.nytimes.com/2019/11/11/science/black-fashion-physics-animals.html
- **Scientific American:** Back to Black: How Birds-of-Paradise Get Their Midnight Feathers https://www.scientificamerican.com/article/back-to-black-how-birds-of-paradise-get-their-midnight-feathers/
- **Audubon:** Birds-of-Paradise Have Feathers That Act Like Black Holes https://www.audubon.org/news/birds-paradise-have-feathers-act-black-holes
- **The Atlantic:** Super-Black is the New Black https://www.theatlantic.com/science/archive/2018/01/super-black-is-the-new-black/549869/
- **Science:** 'Superblack' bird of paradise feathers absorb 99.95% of light https://www.sciencemag.org/news/2018/01/superblack-bird-paradise-feathers-absorb-9995-light
- **Wired:** The World's Most Metal Bird Makes Darkness Out of Chaos https://www.wired.com/story/the-worlds-most-metal-bird-makes-darkness-out-of-chaos/
- **Gizmodo:** These Birds Evolved Feathers So Dark, They're Like A 'Black Hole' https://gizmodo.com/these-birds-evolved-feathers-so-dark-they-re-like-a-b-1821906446
- **Inside Science:** BRIEF: For Birds of Paradise, Super-Black Feathers Make Bright Spots Shine https://www.insidescience.org/news/brief-birds-paradise-super-black-feathers-make-bright-spots-shine
- **Smithsonian**: Scientists Shine New Light on the Blackest Black Feathers https://www.smithsonianmag.com/smart-news/scientists-shine-new-light-birds-super-black-feathers-180967796/

Super Black Peacock Spiders

- **Science News:** Peacock spiders' superblack spots reflect just 0.5 percent of light https://www.sciencenews.org/article/peacock-spiders-superblack-spots-reflect-just-05-percent-light
- **National Geographic:** How peacock spiders use optical illusions to woo females https://www.nationalgeographic.com/animals/2019/05/peacock-spiders-black-females-courtship/
- **Harvard Gazette:** Researchers eye flashy coats of peacock spiders inpursuit of new solar products. https://news.harvard.edu/gazette/story/2019/07/researchers-eye-flashy-coats-of-peacock-spiders-in-pursuit-of-new-solar-products/

- **Smithsonian Mag:** A Nanoscale Light Trick Is the Key to Peacock Spiders' Super-Black Spots https://www.smithsonianmag.com/smart-news/peacock-spiders-use-nanotech-produce-their-superblack-spots-180972200/

New Caledonian Crows

- **Sci-News:** New Caledonian Crows Enjoy Using Tools, Study Finds http://www.sci-news.com/biology/new-caledonian-crows-enjoy-using-tools-07529.html
- **Inside Science:** Using Tools Puts Crows in a Good Mood https://www.insidescience.org/news/using-tools-puts-crows-good-mood
- **ABC News:** Crows really enjoy using tools, researchers find https://abcnews.go.com/Technology/crows-enjoy-tools-researchers-find/story?id=64739159
- **BBC:** Crows could be the smartest animal other than primates https://www.bbc.com/future/article/20191211-crows-could-be-the-smartest-animal-other-than-primates
- **Natural History Magazine:** Animal Optimism https://www.naturalhistorymag.com/samplings/263719/animal-optimism
- **Harvard Magazine:** Crows Know How to Have Fun https://www.harvardmagazine.com/2019/08/crows-know-how-to-have-fun
- **Phys.org:** After using tools, crows behave more optimistically, study suggests https://phys.org/news/2019-08-tools-crows-optimistically.html
- **Harvard Gazette:** At Home with Harvard: The Secret Lives of Animals https://harvardmagazine.com/2020/05/at-home-with-harvard-the-secret-lives-of-animals

Deceptive Tanagers

- **New York Times:** Some Male Birds Fly Under False Colors to Attract Mates, Study Suggests https://www.nytimes.com/2021/04/21/science/birds-tanagers-mating-color.html
- **Forbes:** Brilliant 'SuperRed' Feathers Are Created By More Than Just Pigments https://www.forbes.com/sites/grrlscientist/2020/09/29/brilliant-superred-feathers-are-created-by-more-than-just-pigments/#1e5dfd33ae1f
- **The Society for Integrative and Comparative Biology:** The Devil Wears Prada: Birds have Designer Cheats to Make the Bland Look Beautiful https://sicb.burkclients.com/students/2019/hensley.php

City Trees

- **eLife Digest:** More naturally occurring trees and less clustering could benefit urban forests https://elifesciences.org/for-the-press/4dc2e673/more-naturally-occurring-trees-and-less-clustering-could-benefit-urban-forests

Biomimetics

- **SPIE:** Biomimetics: The sincerest form of flattery https://spie.org/news/photonics-focus/septoct-2024/taking-cues-from-nature

Skills & Interests

- Computer science: familiar with Lumerical, COMSOL, Python, and R; some experience with Matlab
- Music: 9 years of a cappella singing, including 3 CDs and international tours (past groups: VoiceLab, The New Blue, Whim 'n Rhythm)
- Running and Sports: Yale Varsity Track & Field, top ten all-time at Yale in javelin throw and 60m hurdles, varsity starter in 400m hurdles, 100m hurdles, 4x400m relay; Capital One Academic All-American Division I women's track and field: second team (2013). Capital One First Team Academic All-District I Women's Track & Field team (2011, 2013).
- Egyptian hieroglyphics
- Bookbinding (affiliated with the Bow & Arrow Press)

Rap Music Discography

Backup Dancer. La Perla, Puerto Rico, USA. **2012**
Uncredited appearance as backup dancer in music video by Puerto Rican reggaeton artist Audi.