

Emily Elizabeth Bray

www.emilyebay.com
ebray@email.arizona.edu
ebray@cci.org

PROFESSIONAL EXPERIENCE

University of Arizona, School of Anthropology, Tucson, AZ and
Canine Companions for Independence®, Santa Rosa, CA **May 2017 – Present**
Post-doctoral Research Associate
Focus: Longitudinal cognitive and behavioral studies in assistance dogs
Supervisors: Dr. Evan MacLean and Dr. Brenda Kennedy

EDUCATION

University of Pennsylvania, Philadelphia, PA **May 2017**
PhD in Psychology (Concentration in Animal Learning and Behavior)
Center for Teaching & Learning Teaching Certificate in College and University Teaching
Dissertation: “A longitudinal study of maternal style, young adult temperament and cognition, and program outcome in a population of guide dogs”
Advisors: Dr. Robert Seyfarth, Dr. Dorothy Cheney, and Dr. James Serpell

University of Pennsylvania, Philadelphia, PA **May 2013**
M.A. in Psychology
Thesis: “Dogs as a model system for understanding problem-solving: Exploring the affective and cognitive mechanisms that impact inhibitory control”
Advisors: Dr. Robert Seyfarth, Dr. Dorothy Cheney, and Dr. James Serpell

Duke University, Durham, NC **May 2012**
B.A. in Cognitive Psychology and English (*summa cum laude*), Graduation with Distinction in Psychology
Psychology GPA 4.0, Cumulative GPA 3.97
Graduation with Distinction Thesis: “Factors Affecting Inhibitory Control in Dogs”
Advisors: Dr. Brian Hare and Dr. Stephen Mitroff

University College London, London, UK **August 2010 - December 2010**
Semester Abroad through Butler University’s Institute for Study Abroad

PEER-REVIEWED PUBLICATIONS

10. **Bray, E.E.**, Gruen, M.E., Gnanadesikan, G.E., Horschler, D.J., Levy, K. M., Kennedy, B.S., Hare, B.A., & MacLean, E.L. (in press). Dog cognitive development: a longitudinal study across the first two years of life. *Animal Cognition*. doi: 10.1007/s10071-020-01443-7.
9. **Bray, E.E.**, Gruen, M.E., Gnanadesikan, G.E., Horschler, D.J., Levy, K.M., Kennedy, B.S., Hare, B.A., & MacLean, E.L. (2020). Cognitive characteristics of 8- to 10-week-old assistance dog puppies. *Animal Behaviour*, 166, 193-206. doi:10.1016/j.anbehav.2020.05.019.
8. Byrne, M., **Bray, E.E.**, MacLean, E.L., & Johnston, A.M. (2020). Evidence of win-stay-lose-shift in puppies and adult dogs. *Proceedings of the Cognitive Science Society*.
7. **Bray, E.E.**, Levy, K.M., Kennedy, B.S., Duffy, D.L, Serpell, J.A., & MacLean, E.L. (2019). Predictive models of assistance dog training outcomes using the Canine Behavioral Assessment and Research Questionnaire and a standardized temperament evaluation. *Frontiers in Veterinary Science*. 6:49. doi: 10.3389/fvets.2019.00049.
6. **Bray, E.E.**, Sammel, M.D., Cheney, D.L, Serpell, J.A., and Seyfarth, R.M. (2017). The effects of maternal investment, temperament, and cognition on guide dog success. *Proceedings of the National Academy of Sciences of the United States of America*, 114(34), 9128-9133. doi:10.1073/pnas.1704303114.

5. **Bray, E.E.**, Sammel, M.D., Seyfarth, R.M., Serpell, J.A., and Cheney, D.L. (2017). Temperament and problem solving in a population of adolescent guide dogs. *Animal Cognition*, 20(5), 923-939. doi: 10.1007/s10071-017-1112-8.
4. **Bray, E. E.**, Sammel, M.D., Cheney, D.L, Serpell, J.A., and Seyfarth, R.M. (2017). Characterizing early maternal style in a population of guide dogs. *Frontiers in Psychology*, 8, 175. doi: 10.3389/fpsyg.2017.00175.
3. **Bray, E.E.**, MacLean, E.L., & Hare, B.A. (2015). Increasing arousal enhances inhibitory control in calm but not excitable dogs. *Animal Cognition*, 18(6), 1317-1329. doi: 10.1007/s10071-015-0901-1.
2. MacLean, E.L., Hare, B., Nunn, C. L., Addessi, E., Amici, F., Anderson, R. C., Aureli, F., Baker, J. M., Bania, A. E., Barnard, A. M., Boogert, N. J., Brannon, E. M., **Bray, E. E.**, Bray J., Brent, L. J. N., Burkart, J. M., Call J., Cantlon, J.F., Cheke, L. G., Clayton, N. S., Delgado, M. M., DiVincenti, L. J., Fujita, K., Herrmann, E., Hiramatsu, C., Jacobs, L. F., Jordan, K. E., Laude, J. R., Leimgruber, K. L., Messer, E. J. E. , Moura, A. C.de A., Ostojic, L., Picard, A., Platt, M. L., Plotnik, J. M., Range, F., Reader, S. M., Reddy, R. B., Sandel, A. A., Santos, L. R., Schumann, K., Seed, A. M., Sewall, K. B., Shaw, R. C., Slocombe, K. E., Su, Y., Takimoto, A., Tan, J., Tao, R., van Schaik, C. P., Virányi, Z., Visalberghi, E., Wade, J. C., Watanabe, A., Widness, J., Young, J. K., Zentall, T. R., & Zhao, Y. (2014). The Evolution of Self-Control. *Proceedings of the National Academy of Sciences of the United States of America*, 111(20), E2140-E2148. doi: 10.1073/pnas.1323533111.
1. **Bray, E.E.**, MacLean, E.L., & Hare, B.A. (2014). Context specificity of inhibitory control in dogs. *Animal Cognition*, 17(1), 15-31. doi: 10.1007/s10071-013-0633-z.

MANUSCRIPTS IN PREPARATION

Bray, E.E., Gnanadesikan, G.E., Horschler, D.J., Levy, K. M., Kennedy, B.S., & MacLean, E.L. (in prep). Early-emerging and highly heritable sensitivity to human communication in dogs.

Bray, E.E., Otto, C.M., Udell, M.A.R., Hall, N.J., Johnston, A.M., & MacLean, E.L. (in prep). Enhancing the selection and performance of working dogs.

Hall, N.J., Johnston, A.M., Otto, C.M., **Bray, E.E.**, MacLean, E.L., & Udell, M.A.R. (in prep). Modernizing working dog training for the 21st century.

RESEARCH GRANTS: CURRENT SUPPORT

National Institute on Aging— Postdoctoral Scholar/Key Personnel: Bray Development of Cognitive and Physical Activity Biomarkers for a Companion Dog Model of Alzheimer’s (\$300,577)	2020-2021
Office of Naval Research— Postdoctoral Scholar/Key Personnel: Bray Developmental and Genetic Influences on Working Dog Cognition (\$303,293)	2020-2023
AKC Canine Health Foundation— PIs: Bray & MacLean (\$105,949) The Effects of Early Life Experience on Working Dog Temperament and Cognition	2018-2020

RESEARCH GRANTS: PREVIOUS SUPPORT

Office of Naval Research— Postdoctoral Scholar/Key Personnel: Bray (\$451,920) Ontogeny and Heritability of Cognitive and Behavioral Traits Linked to Military Working Dog Success	2017-2019
National Science Foundation Graduate Research Fellowship (\$32,000 per year)	2013 - 2016
Benjamin Franklin Fellowship, University of Pennsylvania	2012 - 2013, 2016 - 2017

HONORS AND AWARDS

Wallis Annenberg PetSpace Leadership Institute Fellow, Class of 2020	2020
McDonogh School Young Alumni Award Recipient	2019
University of Arizona Sursum Postdoctoral Research Development Grant (\$1,083)	2018-2019
School of Arts & Sciences Dean’s Travel Subvention (\$500)	Spring 2017

Norman Anderson Graduate Student Fund, Dept. of Psychology (\$2,490)	Winter 2017
School of Arts & Sciences Dean's Travel Subvention (\$500)	Summer 2016
Norman Anderson Graduate Student Fund, Dept. of Psychology (\$3,000)	Summer 2015
School of Arts & Sciences Dean's Travel Subvention (\$300)	Summer 2014
Norman Anderson Graduate Student Fund, Dept. of Psychology (\$2,750)	Summer 2014
Teece Fellowship, University of Pennsylvania (\$2,000)	Summer 2013
Phi Beta Kappa, Duke University	Spring 2013
Karl E. Zener Award for Outstanding Performance in Psychology, Duke University	Spring 2012
Faculty Scholar Award Nominee, Duke University	Fall 2011
Undergraduate Research Support Office Independent Study Grant (\$400)	Fall 2011
Vertical Integration Program in Psychology Stipend (\$3,000)	Summer 2011
Student Marshal	Spring 2011
Winfred Quinton Holton Prize for Innovative Work in the Field of Education	Spring 2011
Duke Dean's List with Distinction	Fall 2008, Fall 2009, Spring 2011, Fall 2011
Duke Dean's List	Spring 2009, Spring 2010
Psi Chi Honor Society Inductee	Spring 2010

INVITED TALKS

Sonoma State University, Biology Department Colloquium speaker series, 2020
Virtual Heritage Society stakeholder events, Canine Companions for Independence, 2020
Northwest, Southwest, Northeast, Southeast, and South Central Regions
Wallis Annenberg PetSpace Leadership Institute Retreat, Wallis Annenberg PetSpace, 2020
Duke University, Duke Canine Cognition Center, 1st Annual Darwin Dogs Day, 2019
Evolutionary Anthropology Talk Series, Duke University, 2019
Breeder Caretaker Seminar, Canine Companions for Independence, 2018
TEAM Volunteer Leadership Conference, Canine Companions for Independence, 2018
Canine Companions for Independence, 2018
Canine Science Symposium, San Francisco SPCA, 2018
National Board meeting reception, Canine Companions for Independence, 2017
The Seeing Eye, 2017
University of Exeter, Centre for Research in Animal Behaviour, 2016
The Seeing Eye, 2015
University of Veterinary Medicine Vienna, Messerli Research Institute, Clever Dog Lab, 2013
Eötövos University Department of Ethology, 2013

PRESENTATIONS

Bray, E.E. & MacLean, E.L. (2020 July). Early ontogeny of social cognition in domestic dogs. Animal Behavior Society 2020 Virtual Conference.

Bray, E.E., Gnanadesikan, G.E., Horschler, D.J., & MacLean, E.L. (2020 Feb). Early development and longitudinal stability of cognitive traits in working dogs. East Coast Canine Cognition Workshop, Yale University, New Haven, Connecticut.

Byrne, M., **Bray, E.E.**, MacLean, E.L., & Johnston, A.M. (2020 Feb). Evidence for win-stay-lose-shift in puppies and adult dogs. East Coast Canine Cognition Workshop, Yale University, New Haven, Connecticut.

Horschler, D.J., **Bray, E.E.**, & MacLean, E.L. (2020 Feb). Do dogs re-engage humans when joint experiences end? East Coast Canine Cognition Workshop, Yale University, New Haven, Connecticut.

MacLean, E.L., Gnanadesikan, G., **Bray, E.E.**, & Snyder-Mackler, N. (2020 Jan). Dog diversity as a natural experiment in cognitive evolution. The Society for Integrative & Comparative Biology Annual Meeting, Austin, Texas.

MacLean, E.L., **Bray, E.E.**, Gnanadesikan, G.E., & Horschler, D.J. (2019 Oct). Ontogeny and heritability of cognitive and temperamental traits in an assistance dog population. International Canine Science Conference, Tempe, Arizona.

- Bray, E.E.,** Gnanadesikan, G., Horschler, D., & MacLean, E. (2019 April). Early emerging cognition in 9-week-old puppies. The 26th International Conference On Comparative Cognition, Melbourne Beach, Florida.
- MacLean, E., **Bray, E.E.,** Gnanadesikan, G., & Horschler, D. (2019 April). Heritability of Cognitive Traits in a Pedigreed Dog Population. The 26th International Conference On Comparative Cognition, Melbourne Beach, Florida.
- Bray, E.E.** (2018 Nov). How mothers matter: The impact of maternal style on later behavior and outcome in assistance dogs. East Coast Canine Cognition Workshop, Yale University, New Haven, Connecticut.
- Bray, E.E.,** Sammel, M., Cheney, D., Serpell, J., & Seyfarth, R. (2017 Oct). The effects of maternal investment, temperament, & cognition on guide dog success. Canine Science Conference, Tempe, Arizona.
- Bray, E.E.,** Sammel, M., Cheney, D., Serpell, J., & Seyfarth, R (2017 June). Puppies that succeed as guide dogs get tough love. 54th Annual Conference of the Animal Behavior Society, Toronto, Ontario.
- Bray, E.E.,** Sammel, M., Cheney, D., Serpell, J., & Seyfarth, R (2016 Aug). Cognitive and temperament predictors of guide dog success. 53rd Annual Conference of the Animal Behavior Society, Columbia, Missouri.
- Bray, E.E.** (2014 Aug). The effect of arousal on inhibitory control in dogs. 51st Annual Conference of the Animal Behavior Society, Princeton, New Jersey.
- Bray, E.E.** (2013 Aug). Dogs as a model system for understanding the effect of arousal on inhibitory control. University of Pennsylvania, 699 presentations to the Department of Psychology. Philadelphia, Pennsylvania.
- Bray, E.E.** (2012 Sept). What are the factors affecting inhibitory control in dogs? IGERT Common Ground Seminar. Philadelphia, Pennsylvania.
- Bray, E.E.,** MacLean, E.L., & Hare, B.A. (2012 April). Factors Affecting Inhibitory Control in Dogs. 7th Annual ACC Meeting of the Minds Conference, Blacksburg, Virginia.

POSTERS

**Denotes undergraduate mentee*

- Byrne, M., **Bray, E.E.,** MacLean, E.L., & Johnston, A.M. (2020). Evidence for win-stay-lose-shift in puppies and adult dogs. Poster presented at the 42nd Annual Meeting of the Cognitive Science Society, Virtual.
- Kennedy, B.S., Levy, K.M., **Bray, E.E.,** & MacLean, E.L. (2019 September). Maternal style: How early experiences are associated with future outcomes of assistance dogs. Poster presented at 11th International Working Dog Conference, Stockholm, Sweden.
- *Humphrey, E., **Bray, E.,** & Crocker, D. (2019 April). Cortisol and its tie to behavior in service dogs. Poster presented at Sonoma State University Science Symposium: Science, Technology, and Environmental Inquiry, Rohnert Park, California.
- *Seely, A., **Bray, E.,** & Seyfarth, R. (2014 September). Flexible Attention in Seeing Eye® Puppies. Poster Presented at Center for Undergraduate Research & Fellowships Open House and Research Expo, Philadelphia, Pennsylvania.
- MacLean, E.L., Rainey, C., **Bray, E.,** Duffy, K., & Hare, B. (2012 July). Cognitive & Temperamental Traits of Successful Assistance Dogs. Poster presented at 21st Annual Conference of the International Society of Anthrozoology, Cambridge, United Kingdom.

Bray, E.E., MacLean, E.L., & Hare, B.A. (2012 June). Factors Affecting Inhibitory Control in Dogs. Poster presented at 49th Annual Conference of the Animal Behavior Society, Albuquerque, New Mexico.

Bray, E.E., MacLean, E.L., & Hare, B.A. (2012 April). Factors Affecting Inhibitory Control in Dogs. Poster presented at Duke's Visible Thinking Day, Durham, North Carolina.

Bray, E.E. (2011 April). Recommendations for an English Language Learner Literacy Intervention in Durham Public Schools for Communities in Schools of Durham. Poster presented at Duke School Research Partnership End-of-Semester gathering poster presentation. Durham, North Carolina.

RESEARCH EXPERIENCE

Canine Companions for Independence, Santa Rosa, CA <i>Project coordinator, researcher, on-site supervisor</i>	2017 - present
The Seeing Eye, Inc., Morristown, NJ <i>Project coordinator and researcher</i>	2014 - 2016
Michigan State University Masai Mara Spotted Hyena Project, Kenya <i>Researcher</i>	Summer 2013
Canine Companions for Independence, Santa Rosa, CA <i>Project Co-Manager, Associate in Research in Evolutionary Anthropology</i>	July 2012
K2 Solutions, Pinehurst, NC <i>Associate in Research in Evolutionary Anthropology</i>	June 2012
Canine Companions for Independence, Santa Rosa, CA <i>Undergraduate researcher</i>	August 2011
Duke University, School Research Partnership Office, Durham, NC <i>Independent study student</i>	Spring 2011
Duke University, Duke Canine Cognition Center, Durham, NC <i>Undergraduate researcher and thesis student</i>	2010 - 2012

TEACHING AND MENTORING EXPERIENCE

Undergraduate Honors Theses Supervised

Chandler From	University of Arizona		2020
Camden Olson	Princeton University	<i>Service Dog Tales: A Tri-fold Study Investigating Diabetic Alert Dog Accuracy, the Use of Animal-Assisted Therapy to Address Executive Functioning Skills, and the Function of Calming Signals in Service Dog Puppies</i>	2018
Sarah Frommer	University of Pennsylvania	<i>Does Kennel Acclimation Reliably Indicate Stable Traits Related to Stress Reactivity In Young Seeing Eye® Dogs?</i>	2016
Molly Ream	University of Pennsylvania	<i>Stability of Behavioral Traits in Canines</i>	2016

Sonoma State University Biology Research Internship at Canine Companions: Mentor and on-site supervisor

Theresa Hatcher	Spring 2020
Kyla Guinon, Erin Hardin, and Emily Humphrey	Spring 2019
Alexzia Clark, Emily Humphrey, Facundo Ortega, and Camila Risueno-Pena	Fall 2018
Alexzia Clark, Emily Humphrey, and Amber Robello	Spring 2018

Undergraduate Research Assistants: Mentor and on-site supervisor

Camden Olson (Princeton)	2018
Mary Chiang (Franklin & Marshall)	2017
Lindsey Lang (University of Arizona)	2017
Sarah Frommer (University of Pennsylvania)	2015-2016

Molly Ream (University of Pennsylvania)	2015-2016
Rebecca Schwartz (University of Pennsylvania)	2015-2016
Leonie Cohen (Swarthmore College)	2015
Marie Torres (University of Pennsylvania)	2014
Stephanie Bartner (Franklin & Marshall)	2014
Ashleigh Seely (University of Pennsylvania)	2014

University of Pennsylvania Mentoring

The Graduate School Mentoring Initiative	2014 - 2015
The Penn Mentoring Program	2013 - 2014

Teaching assistant

Animal Behavior, Dr. Seyfarth and Cheney, University of Pennsylvania	Fall 2013, Fall 2014
--	----------------------

Guest Lectures:

<i>Field Studies in Animal Behavior: Dog Cognition and Behavior</i> Hunter College, Psychology Department. “Research methods to study canine behavior and cognition”	2020
--	------

<i>Animal Cognition Seminar</i> University of Pennsylvania, Psychology Department. “How can dog research help us to understand inhibitory control?”	2014
---	------

<i>Animal Behavior</i> University of Pennsylvania, Psychology Department. “How can dog research help us to understand inhibitory control?”	2013, 2014
--	------------

Alumni community reader for the Duke Reader Project

Psy 202: Research Methods	Fall 2020
Bio 329L: Principles of Animal Physiology	Spring 2020
Psy 301: Research Methods	Spring 2017

Tutoring experience

Thompson Writing Program: The Writing Studio, Durham, NC <i>Undergraduate Writing Tutor following completion of a semester-long course</i>	2010 - 2012
Partners for Success, Durham, NC (4 th grade) <i>Tutored as part of my service-learning course Psy 108A: Educational Psychology</i>	Fall 2011
The Duke School, Durham, NC (pre-school) <i>Student Observer for Psy 183B: Child Observation</i>	Spring 2011
Partners for Youth, Durham, NC (high school)	2008 - 2009

PROFESSIONAL SERVICE AND AFFILIATIONS

Grant reviewer <i>University of Arizona Postdoctoral Research Development grants</i>	2020
<i>Animal Behaviour Society student research grants</i>	2019
Ad Hoc reviewer <i>Animal Behaviour, Animal Cognition, Behaviour, Behavioural Processes, Journal of Applied Animal Welfare Science, Journal of Comparative Psychology, Journal of Ethology, Journal of Veterinary Behavior: Clinical Applications and Research, Learning & Behavior, PLOS One, Scientific Reports, Veterinary Record</i>	2014 - Present

Organized “Topics in Animal Behavior” graduate seminar, University of Pennsylvania	Spring 2014, 2015, 2016
--	-------------------------

ManyDogs consortium <i>Methods development committee</i>	2019 - Present
---	----------------

Member	
<i>Animal Behaviour Society</i>	2012 - Present
<i>The International Society of Anthrozoology</i>	2017 - Present
<i>Comparative Cognition Society</i>	2020 - Present

PUBLIC SCIENTIFIC ENGAGEMENT (SELECTED EXAMPLES)

“Join Canine Companions postdoctoral research associate Dr. Emily Bray.” Canine Companions for Independence, Facebook Live event. https://bit.ly/2yIlyMV	May 2020
“How Mothers Matter: The Influence of Early Maternal Interaction on Offspring Behavior and Development.” Continuing Education event presented as part of the 2019 VetVine Webinar Series, sponsored by AKC Canine Health Foundation. http://bit.ly/2QscPDb	May 2019
“What dogs teach us about parenting.” Top of Mind with Julie Rose, BYU Radio. https://bit.ly/2eMvETc	Sept 2017
“Guide Dog Success.” AAAS Science Update. http://bit.ly/2uQpa8n	Aug 2017
“Coddled puppies make poor guide dogs, study suggests.” All Things Considered, National Public Radio. http://n.pr/2uA1vrS	Aug 2017
“Puppies that get tough love succeed as guide dogs.” Quirks and Quarks, CBC Radio. http://bit.ly/2i7oTMC	Aug 2017

COMMUNITY SCIENCE OUTREACH

Canine Companions for Independence, National Puppy Program Workshop	Oct 2020
- Presented research involving assistance dogs and participated in a Q + A with puppy raisers for Canine Companions for Independence	
American Association of University Women (AAUW) Girls in Engineering, Math, and Science (GEMS)	Jan 2019
- Presented my research to and participated in a panel discussion for the local AAUW GEMS group during their tour of Canine Companions for Independence.	
Penn Alexander School	March 2017
- Presented my research to the 3 rd grade as part of their “Women in Science” unit.	
Ashley Park Pre K-8 School	January 2014
- Presented my work on impulse control in service dogs to a 2 nd grade class.	
Central Park School for Children, Durham, NC	August 2012
- Presented my service dog research to a 1 st grade class in an interactive setting.	
North Carolina Museum of Natural Sciences, Raleigh, NC	August 2012
- Played interactive cognition games with attendees of a bonobo conservation talk.	
Duke Canine Cognition Center, Durham, NC	March 2012
- Presented our dog research as part of the Pathways Health Careers Enrichment Program.	