

CURRICULUM VITAE

Lauren Vanessa Ritters

Department of Zoology

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Education

Ph.D. Experimental Psychology

May 1997

M.A. Experimental Psychology

August 1993

Cognitive and Behavioral Neuroscience Program

Bowling Green State University

Bowling Green, OH 43403 USA

Thesis advisor: Dr. Verner P. Bingman

B.A. Psychology

May 1991

Miami University

Oxford, Ohio 45056 USA

Professional Positions

Full Professor and Director of Zoology Graduate Studies

2012 - present

Department of Zoology

Member of Neuroscience Training Program

Affiliated Faculty Appointment in Psychology

University of Wisconsin, Madison

Madison, WI

Associate Professor and Director of Zoology Graduate Studies

2008 - 2012

Department of Zoology

Member of Neuroscience Training Program

Affiliated Faculty Appointment in Psychology

University of Wisconsin, Madison

Madison, WI

Assistant Professor

2003-2008

Department of Zoology and Member of

Neuroscience Training Program

University of Wisconsin, Madison

Madison, WI

Visiting Assistant Professor 2001-2003
Department of Zoology and Member of
Neuroscience Training Program
University of Wisconsin, Madison
Madison, WI

Assistant Professor January 2000-May 2001
Department of Psychology
University of Nebraska at Omaha
Omaha, NE

Postdoctoral Fellow January 1998-1999
Behavioral Neuroendocrinology Group
Department of Psychology
The Johns Hopkins University
Baltimore, MD
Postdoctoral advisor: Dr. Gregory F. Ball

Postdoctoral Fellow May 1997-December 1998
Research Group in Behavioral Neuroendocrinology
Laboratory of Biochemistry
University of Liège
Liège, Belgium
Postdoctoral advisor: Dr. Jacques Balthazart

Research Assistant, University of Salzburg, Salzburg, Austria 1994
Investigated individual recognition in adult Japanese quail and vasotocin
involvement in imprinting in quail chicks

Research Assistant, Bowling Green State University Summer 1993
Investigated the effects of phase shifting on circadian activity rhythms in mice

Research Assistant, Bowling Green State University 1991-1996
Investigated neural mechanisms of spatial cognition in homing pigeons

Grants and Awards

PI R01 Grant from the National Institutes of Mental Health: Opioids and individual
differences in social communication (2012-2017).
Total Costs: \$1,861,050

University of Wisconsin Graduate School Research Committee Grant: Opioids,
communication, and reward (2013-2014; did not activate). \$52,323

PI R01 Grant from the National Institutes of Mental Health: Dopamine and individual differences in social communication (2007-2012).

Total Costs: \$1,432,400

PI National Science Foundation: Catecholamine activity and female responses to mate cues (2007-2010). Total Costs: \$338,063

Wisconsin/Hilldale Undergraduate/Faculty Research Award: Opioids and conditioned place preference for song in male zebra finches (2009 – 2010).

University of Wisconsin Vilas Associate Award Recipient: Neural control of context-specific vocal communication (2006 – 2008). \$60,000

University of Wisconsin Graduate School Research Committee Grant: Opioids and context-appropriate communication (2007-2008; did not activate). \$31,470

University of Wisconsin Graduate School Research Committee Grant: Dopamine involvement in the motivation to communicate (2005-2006). \$26,322

PI R01 Grant from the National Institutes of Mental Health: Neuroendocrine Control of Reproductive Behavior (2001-2004).

Total Costs: approximately \$550,000

Wisconsin/Hilldale Undergraduate/Faculty Research Award: Opioids and Courtship in Male House Sparrows (2003 – 2004).

University of Wisconsin, Research Animals Resource Center matching funds equipment support (2002).

Wisconsin/Hilldale Undergraduate/Faculty Research Award: Dominance and Risky Behavior in House Sparrows (2002 - 2003).

Graduate Faculty Fellowship Appointment, University of Nebraska at Omaha, 2000.

University Committee on Research, University of Nebraska at Omaha: Effects of Aromatase on Male Starling Courtship Behavior (2000-2001).

PI National Science Foundation Starter Grant: Neural regulation of song and courtship behavior in male songbirds (2000).

National Science Foundation Postdoctoral Research Fellowship in Biosciences Related to the Environment: Seasonal changes in testosterone sensitivity of the starling song system (July 1997-1999).

Young Scientist Award to attend The Integrative Neurobiology of Affiliation Conference of the New York Academy of Sciences (1996).

Non-Service Fellowship Award. Bowling Green State University (1994-1995).

International Travel Grant from Bowling Green State University in support of research on imprinting in Japanese quail at the University of Salzburg, Austria (1994).

Charles E. Shanklin Award for Research Excellence. The effects of MK- 801 on Navigational Learning in Homing Pigeons (1993).

Sigma Xi Graduate Student Research Award. The NMDA-receptor antagonist MK-801 blocks navigational learning in homing pigeons (1993).

Frank M. Chapman Memorial Fund of the American Museum of Natural History in support of research on neural mechanisms of landmark navigational learning in birds (April 1992).

Proposals submitted

R01 National Institute of Mental Health: Opioid circuits, affect, and affiliative social communication (under review).

Thesis Titles

The NMDA receptor antagonist MK-801 impairs navigational learning in homing pigeons, Masters thesis, Advisor: Dr. Verner P. Bingman

The role of the caudolateral neostriatum in homing pigeon spatial cognition, Doctoral dissertation, Advisor: Dr. Verner P. Bingman

Research Interests

Behavioral neuroendocrinology, neuroendocrine mechanisms of song production, the motivation to communicate, sexual behavior, and responses to communication signals

Peer Reviewed Publications

Kelm-Nelson, C. A., Stevenson, S. A., Cordes, M. A., and Ritters, L. V. (in press). Modulation of male song by naloxone in the medial preoptic nucleus. *Behavioral Neuroscience*.

Ellis, J. M. S. and Ritters, L.V. (in press). Patterns of phosphorylated tyrosine hydroxylase vary with song production in female starlings. *Brain Research*.

Pawlish, B. A., Kelm-Nelson, C. A., Stevenson, S. A., and Ritters, L.V. (2012). Behavioral indices of breeding readiness in female European starlings correlate with immunolabeling for catecholamine markers in brain areas involved in sexual motivation. *General and Comparative Endocrinology*. 179(3), 359-368.

- Kelm-Nelson, C. A., Stevenson, S. A., Ritters, L. V. (2012). Context-dependent links between song production and analgesia in male European starlings. *PLoS One*. 7(10).
- Ellis, J. M. S. and Ritters, L. V. (2012). Patterns of FOS protein induction in singing female starlings. *Behavioural Brain Research*. 237, 148-156.
- Ritters, L.V. and Stevenson, S.A. (2012). The Role of Reward in Vocal Production: Song-associated Place Preference in Songbirds. *Physiology & Behavior*. 106(2):87-94.
- Ellis, J. M. S. and Ritters, L. V. (2012). Vocal parameters that indicate threat level correlate with FOS immunolabeling in social and vocal control brain regions. *Brain, Behavior and Evolution*. 79(2):128-140.
- Heimovics, S. A., Salvante, K. G., Sockman, K.W., Ritters, L.V. (2011). Individual differences in the motivation to communicate relate to levels of midbrain and striatal catecholamines and related markers in male European starlings. *Hormones and Behavior*. 60(5), 529-539.
- Alger, S. J., Juang, C., Ritters, L. V. (2011). Social affiliation relates to tyrosine hydroxylase immunolabeling in male and female zebra finches (*Taeniopygia guttata*). *Journal of Chemical Neuroanatomy*. 42(1), 45-55.
- Pawlish, B. A., Stevenson, S.A., and Ritters, L. V. (2011). Alpha 1-noradrenergic receptor antagonism disrupts female songbird responses to male song. *Neuroscience Letters*. 496(1), 20 -24.
- Heimovics, S. A., Cornil, C. A., Ellis, J. M. S., Ball, G. F. and Ritters, L. V. (2011). Seasonal and individual variation in singing behavior correlates with alpha 2-noradrenergic receptor density in brain regions implicated in song, sexual, and social behavior. *Neuroscience*. 182, 133-143.
- Kelm, C. A. Forbes-Lorman, R. M., Auger, C. J., Ritters, L. V. (2010). Mu-opioid receptor densities are depleted in regions implicated in agonistic and sexual behavior in male European starlings (*Sturnus vulgaris*) defending nest sites and courting females. *Behavioural Brain Research*. 219(1), 15-22.
- Pawlish, B. A. and Ritters, L.V. (2010). Selective behavioral responses to male song are affected by the dopamine agonist GBR-12909 in female European starlings (*Sturnus vulgaris*). *Brain Research*. 1353, 113-124.
- Heimovics, S. A., Cornil, C. A., Ball, G. F., and Ritters, L. V. (2009). D1-like dopamine receptor density in nuclei involved in social behavior correlates with song in a context-dependent fashion in male European starlings. *Neuroscience*. 159(3), 962-973.

- Alger, S. J., Maasch, S. N., and Ritters, L. V. (2009). Lesions to the medial preoptic nucleus affect immediate early gene immunolabeling in brain regions involved in song control and social behavior in male European starlings. *European Journal of Neuroscience*, 29(5), 970-982.
- Heimovics, S. A. and Ritters, L. V. (2008). Evidence that dopamine within motivation and song control brain regions regulates birdsong context-dependently. *Physiology and Behavior*, 95, 258-266.
- Ritters, L. V., Olesen, K. M., and Auger, C. J. (2007). Evidence that female endocrine state influences catecholamine responses to male courtship song in European starlings. *General and Comparative Endocrinology*, 154, 137-149.
- Ritters, L.V., and Pawlisch, B. A. (2007). Evidence that norepinephrine influences responses to male courtship song and activity within song control regions and the ventromedial nucleus of the hypothalamus in female European starlings. *Brain Research*, 1149, 127-140.
- Heimovics, S. A. and Ritters, L. V. (2007). ZENK labeling within social brain regions reveals breeding context-dependent patterns of neural activity associated with song in male European starlings (*Sturnus vulgaris*). *Behavioural Brain Research*, 176 (2), 333-343.
- Alger, S. J. and Ritters, L. V. (2006). Lesions to the medial preoptic nucleus differentially affect singing and nest box-directed behaviors within and outside of the breeding season in European starlings (*Sturnus vulgaris*). *Behavioral Neuroscience*, 120(6):1326-1336.
- Heimovics, S. A. and Ritters, L. V. (2006). Breeding context-dependent relationships between song and cFOS labeling within social brain regions in male European starlings (*Sturnus vulgaris*). *Hormones and Behavior*, 50(5):726-35.
- Schroeder, M. B. and Ritters, L. V. (2006). Pharmacological manipulations of dopamine and opioids have differential effects on sexually motivated song production in male European starlings. *Physiology and Behavior*, 88, 575-584.
- Heimovics, S. A. and Ritters, L. V. (2005). Immediate early gene activity in song control nuclei and brain areas regulating motivation relates positively to singing behavior during, but not outside of, a breeding context. *Journal of Neurobiology*, 65(3), 207-224.
- Kurt, T. D. and Ritters, L. V. (2005). Differences in badge sizes of male house sparrows at food sources of high and low risk. *Journal of Young Investigators*. May, 2005; Vol. 12., No. 6 <http://www.jyi.org/research/re.php?id=234> [Link current as of June 1, 2005].
- Ritters, L. V., Schroeder, M. B., Auger, C. J., Eens, M., Pinxten, R., and Ball, G. F. (2005). Evidence for opioid involvement in the regulation of song production in male European starlings. *Behavioral Neuroscience*, 119 (1), 245-255.

- Riters, L. V., Teague, D. P., Schroeder, M. B., and Cummings, S. E. (2004). Vocal production in different social contexts relates to variation in immediate early gene immunoreactivity within and outside of the song control system. *Behavioural Brain Research*, 155 (2), 307-318.
- Riters, L. V. and Alger, S. J. (2004). Neuroanatomical evidence for indirect connections between the medial preoptic nucleus and the song control system: Possible neural substrates for sexually motivated song. *Cell and Tissue Research*, 316(1), 35-44.
- Riters, L. V., Teague, D. P., and Schroeder, M. B. (2004). Social status interacts with badge size and neuroendocrine physiology to influence sexual behavior in male house sparrows (*Passer domesticus*). *Brain, Behavior and Evolution*, 63(3), 141-150.
- Riters, L.V. and Teague, D.P. (2003). The volumes of song control nuclei, HVC and IMAN, relate to differential behavioral responses of female European starlings to male songs produced within and outside of the breeding season. *Brain Research*, 978, 91-98.
- Riters, L. V. and Ball, G. F. (2002). Sex differences in the densities of α_2 -adrenergic receptors in the song control system, but not the medial preoptic nucleus in zebra finches. *Journal of Chemical Neuroanatomy*, 23(4), 269-277.
- Riters, L. V., Eens, M., Pinxten, R., and Ball, G. F. (2002). Seasonal changes in the densities of α_2 -noradrenergic receptors are inversely related to changes in testosterone and the volumes of song control nuclei in male European starlings. *Journal of Comparative Neurology*, 444, 63-74.
- Absil, P., Riters, L.V., and Balthazart, J. (2001). Preoptic aromatase cells project to the mesencephalic central gray in the male Japanese quail (*Coturnix japonica*). *Hormones & Behavior*, 40, 369-383.
- Riters, L. V., Baillien, M., Eens, M., Pinxten, R., Foidart, A., Ball, G. F., and Balthazart, J. (2001). Seasonal variation in androgen-metabolizing enzymes within the diencephalon and telencephalon of the male European starling (*Sturnus vulgaris*). *Journal of Neuroendocrinology*, 13, 985-997.
- Riters, L. V., Eens, M., Pinxten, R., Duffy, D. L., Balthazart, J., and Ball, G. F. (2000). Seasonal changes in courtship song and the medial preoptic area in male European starlings (*Sturnus vulgaris*). *Hormones & Behavior*, 38, 250-261.
- Riters, L.V. and Ball, G.F. (1999). Lesions to the medial preoptic area affect singing in the male European starling (*Sturnus vulgaris*). *Hormones & Behavior*, 36, 276-286.

- Riters, L. V., Erichsen, J. T., Krebs, J. R., and Bingman, V. P. (1999). Neurochemical evidence for at least two regional subdivisions within the homing pigeon (*Columba livia*) caudolateral neostriatum. *The Journal of Comparative Neurology*, 412, 469-487.
- Riters, L. V., Absil, P., and Balthazart, J. (1999). Effects of naloxone on appetitive and consummatory sexual behavior in male Japanese quail. *Physiology and Behavior*, 66, 763-773.
- Riters, L. V. and Bingman, V. P. (1999). The effects of lesions to the caudolateral neostriatum on sun compass based spatial learning in homing pigeons. *Behavioural Brain Research*, 98(1), 1-15.
- Riters, L. V., Absil, P. and Balthazart, J. (1998). Effects of brain testosterone on appetitive and consummatory components of male sexual behavior in the Japanese quail. *Brain Research Bulletin*, 47(1), 69-79.
- Riters, L. V. and Balthazart, J. (1998). Behavioral evidence for individual recognition in Japanese quail. *Behaviour*, 135, 1-28.
- Bingman, V. P., Strasser, R., Baker, C., and Riters, L. V. (1998). Paired-associate learning is unaffected by combined hippocampal and parahippocampal lesions in homing pigeons. *Behavioral Neuroscience*, 112(3), 1-8.
- Riters, L.V. and Panksepp, J. (1997). Effects of vasotocin on aggressive behavior in male Japanese quail. *Annals of the New York Academy of Sciences*, 807, 478-480.
- Kohler, E. C., Riters, L. V., Chaves, L., and Bingman, V. P. (1996). The muscarinic acetylcholine antagonist scopolamine impairs short-distance homing pigeon navigation. *Physiology & Behavior*, 60, 1057-1061.
- Leutgeb, S., Husband, S., Riters, L. V., Bingman, V. P., and Shimizu, T. (1996). Telencephalic afferents to the caudolateral neostriatum of the pigeon. *Brain Research*, 730, 173-181.
- Riters, L.V. and Bingman, V.P. (1994). The NMDA-receptor antagonist MK-801 impairs navigational learning in homing pigeons. *Behavioral and Neural Biology*, 62, 50-59.

Under Review or Revision

- Kelm-Nelson, C.A. and Riters, L.V. (in revision). Curvilinear relationships between mu-opioid receptor densities and undirected song in male European starlings (*Sturnus vulgaris*).
- Riters, L. V., Ellis, J. M. S., Angyal, C. S., Borkowski, V. and Stevenson, S. A. (revised and resubmitted). Breeding readiness predicts conditioned place preference for male courtship song in female European starlings (*Sturnus vulgaris*).

Cordes, M. A., Stevenson, S. A., Ritters, L.V. (in revision). Links between social status-dependent behaviors and androgen receptors in male European starlings (*Sturnus vulgaris*).

Reviews and Invited Chapters

Ritters, L. V. (2012). Invited review: The role of motivation and reward neural systems in vocal communication in songbirds. *Frontiers in Neuroendocrinology*. 33, 194-209.

Ritters, L. V. (2011). Pleasure seeking and birdsong. *Neuroscience and Biobehavioral Reviews*. Special Issue: Proceedings from the Festschrift for Dr. Jaak Panksepp: A celebration of pioneering research in affective neuroscience. 35, 1837-1845.

Ritters, L.V. and Alger, S.J. (2011). Hormonal regulation of avian courtship and mating behaviors. In: *Hormones and Reproduction of Vertebrates (vol. 4)*, David O. Norris and Kristin H. Lopez (eds), Academic Press, San Diego, CA.

Ritters, L. V. (2010). Evidence for opioid involvement in the motivation to sing. Invited review, special issue on the Chemical Neuroanatomy of Birdsong. *Journal of Chemical Neuroanatomy*. 39(2), 141-150. [Epub 2009].

Ball, G.F., Ritters, L.V., MacDougall-Shackleton, S. A., and Balthazart, J. (2008). Sex Differences in Brain and Behavior and the Neuroendocrine Control of the Motivation to Sing. In: *The Neuroscience of Birdsong*, H.P. Zeigler and P.R. Marler (eds) Cambridge University Press, Cambridge, UK. pp. 320-331.

Ball, G. F., Auger, C.J., Bernard, D. J., Charlier, T., Sartor, J. J., Ritters, L. V., and Balthazart, J. (2004). Seasonal plasticity in the song control system: Multiple brain sites of steroid hormone action the importance of variation in singing behavior. In: H.P. Ziegler and P. Marler (eds.). *Behavioral Neurobiology of Birdsong, Annals of the New York Academy of Sciences*, 1016, 586-610.

Ball, G. F., Ritters, L. V. and Balthazart, J. (2002). Neuroendocrinology of song behavior and avian brain plasticity: Multiple sites of action of sex steroid hormones. *Frontiers in Neuroendocrinology*, 23, 137-178.

Balthazart, J. and Ritters, L. V. (1999; English version 2001). Hormones and Behavior. In Bateson, P. and Alleva, E. (eds.). *The Encyclopedia Italiana: The Biology of Behaviour*, 4, 85-97.

Bingman, V. P., Ritters, L. V., Strasser, R., and Gagliardo, A. (1998). Neuroethology of Avian Navigation. In: R. P. Balda, I. M. Pepperberg, and A. C. Kamil (eds.). *Animal Cognition in Nature*, Academic Press, San Diego, CA , pp. 201-226.

Invited Talks and Invited Participation at National Meetings

Riters, L.V. (2013). Social status and the motivation to communicate in songbirds. Steamboat Springs, Colorado, Winter Animal Behavior Conference (WABC) XXXV.

Riters, L.V. (2012). Social status and the motivation to communicate in songbirds. Steamboat Springs, Colorado, Winter Animal Behavior Conference (WABC) XXXIV.

Riters, L.V. (2011). Social-context and the motivation to sing in European starlings. Steamboat Springs, Colorado, Winter Animal Behavior Conference (WABC) XXXIII.

Riters, L.V. (2010). Vocal Communication and Reward: Why birds sing. Steamboat Springs, Colorado, Winter Animal Behavior Conference (WABC) XXXII.

Riters, L.V. (2006). Keynote Address. Why does the caged bird sing? Social and Neuroendocrine regulation of birdsong. Indiana University Animal Behavior Conference, Center for the Integrative Study of Animal Behavior, Bloomington, Indiana.

Riters, L.V. (2002). Neuroanatomical evidence for indirect connections between the medial preoptic nucleus and the song control system: Possible neural substrates for sexually motivated song. *Singing in the Brain, Birdsong Conference*, Hunter College.

Invited Lectures

Motivation, reward, and vocal communication in songbirds. Interdisciplinary Behavior Seminar. University of Wisconsin, Madison, WI 2013.

Vocal Communication and Reward: Why birds sing. Psychology Departmental Colloquium. Cornell University Distinguished Speakers in Behavioral and Brain Sciences series, Ithaca, NY, 2012.

Why do birds sing? Neuroendocrine regulation of socially-appropriate vocal communication. Behavioral and Brain Sciences seminar. Cornell University Distinguished Speakers in Behavioral and Brain Sciences series, Ithaca, NY, 2012.

Vocal Communication and Reward: Why do birds sing? University of Wisconsin Biology Colloquium Series, Madison, WI, 2011.

Why birds sing: Neuroendocrine regulation of socially appropriate communication. University of Antwerp, Belgium, 2010.

Affective Communication: Pleasure seeking and birdsong. Jaak Panksepp Career Recognition Symposium Speaker. Bowling Green State University, Bowling Green, OH, 2010.

Why birds sing: Neuroendocrine regulation of socially appropriate communication. Biology Colloquium Series, University of Wisconsin, Whitewater, 2010.

Why do birds sing? Neuroendocrine regulation of socially-appropriate communication. Department of Psychology Seminar Series, University of Western Ontario, 2008.

Neuroendocrine regulation of vocal communication: Why does the caged bird sing? Biology Department Seminar Series, California State University, Long Beach, 2006.

Will sing for sex! Environmental and neuroendocrine explanations for why birds sing. Animal Behavior Seminar Series, University of Chicago, 2006.

Neuroendocrine regulation of sexually motivated bird song: *Why does the caged bird sing?* Oberlin College Neuroscience Lecture Series, Oberlin College, Oberlin, Ohio, 2002.

Neuroendocrine regulation of sexually motivated bird song: *Why does the caged bird sing?* Biology Colloquium Series, University of Wisconsin, Whitewater, 2002.

Neuroendocrine regulation of sexually motivated bird song: *Why does the caged bird sing?* Zoology Department Colloquium, University of Wisconsin, Madison, 2002.

Neuroendocrine Control of Song and Courtship in the European Starling (*Sturnus vulgaris*). Pharmacology Colloquium Series, University of Nebraska Medical School, 2001.

Neuroendocrine Regulation of Song and Courtship in the Male European Starling (*Sturnus vulgaris*). Biology Seminar Program, University of Nebraska, Omaha, 2000.

Neuroendocrine Regulation of Male Sexual Behavior in the Japanese Quail and European Starling. Physiology Seminar, University of Nebraska, Lincoln, 2000.

Neuroendocrine Regulation of Male Sexual Behavior in the Japanese Quail and European Starling. Integrative Neuroscience Group, University of Maryland, 1999.

Behavioral and Neurochemical Evidence for Regional Subdivisions of the Caudolateral Neostriatum in the Homing Pigeon. University of Bochum, Bochum, Germany, 1997.

Conferences and Presentations

Kelm-Nelson, C.A. and Riters, L.V. (2012). Effects of opioid receptor blockade on sexually-motivated male starling song depend on whether individuals naturally sing at low or high rates. *Society for Neuroscience Abstracts*.

Kelm-Nelson, C.A. and Riters, L.V. (2012). Mu-opioid densities in the periaqueductal gray and paraventricular nucleus correlate positively with undirected song in male European starlings. *Society for Behavioral Neuroendocrinology*.

- Ellis, J. M. S. and Riters, L.V. (2012). FOS immunoreactivity in social, motivation and song-control regions correlates with song output in starlings singing directed song in two motivational contexts. *Society for Behavioral Neuroendocrinology*.
- Stevenson, S.A., Ellis, J.M.S., Borkowski, V.J. and Riters, L.V. (2012). Exposure to male courtship song is rewarding in sexually-motivated but not non-sexually-motivated female European starlings. *Society for Behavioral Neuroendocrinology*.
- Cordes, M.A. and Riters, L.V. (2012). Links between social status-dependent behaviors and androgen receptors in vocal control regions and the medial preoptic nucleus in male European starlings. *Society for Behavioral Neuroendocrinology*.
- Ellis, J. M. S. and Riters, L.V. (2011). Sex differences in the motivation to communicate predict relationships between song and phosphorylated tyrosine hydroxylase in social brain regions. *Society for Neuroscience Abstracts*.
- Pawlish, B. A. and Riters, L. V. (2011). Individual differences in behavioral responses to male song relate to catecholamine activity in sexual and social brain areas in female European starlings. *Society for Neuroscience Abstracts*.
- Kelm-Nelson, C. A., Stevenson, S. A., and Riters, L.V. (2011). Correlations between measures of analgesia and song production suggest distinct patterns of opioid release in male European Starlings (*Sturnus vulgaris*) singing within different social contexts. *Society for Neuroscience Abstracts*.
- Alger, S.J., Juang, C., and Riters, L.V. (2011). Relationships between affiliation and tyrosine hydroxylase in social brain areas in zebra finches. *Animal Behavior Society*.
- Ellis, J. M. S. and Riters, L.V. (2011). Neural correlates of threat signaling in black-capped chickadees. *Animal Behavior Society*.
- Ellis, J. M. S. and Riters, L.V. (2010). Neural activity associated with alarm calling in predator encounters in chickadees. *Society for Behavioral Neuroendocrinology*.
- Kelm, C. A., and Riters, L.V. (2010). Song and dominance status relate to dopamine activity in the lateral septum and bed nucleus of the stria terminalis in male European starlings. *Society for Behavioral Neuroendocrinology*.
- Alger, S. J. and Riters, L.V. (2010). The medial preoptic nucleus regulates song structure in male starlings. *Society for Behavioral Neuroendocrinology*.
- Kelm, C. A., Forbes-Lorman, R. M., Stevenson, S. A., Auger, C. J., and Riters, L.V. (2009). High rates of male song production are associated with low densities of mu opioid receptors in

- the ventral tegmental area and medial preoptic nucleus in male European starlings (*Sturnus vulgaris*). *Society for Neuroscience Abstracts*.
- Pawlisch, B. A., Stevenson, S. A., and Ritters, L. V. (2009). Central alpha 1-noradrenergic receptor antagonist effects on female responses to song depend on dose and song stimulus in European starlings. *Society for Neuroscience Abstracts*.
- Ellis, J. M. S., Heimovics, S.A., Cornil, C.A., Ball, G.F., and Ritters, L.V. (2009). Alpha 2-noradrenergic receptor densities in brain regions involved in song control and sexual motivation relate context-dependently to male song production in European starlings (*Sturnus vulgaris*). *Society for Neuroscience Abstracts*.
- Pawlisch, B.A. and Ritters, L.V. (2009). Stimulation of dopamine receptors disrupts female discrimination between conspecific and heterospecific song. *Society for Behavioral Neuroendocrinology*.
- Alger, S.J., Juang, C., and Ritters, L.V. (2009). Social affiliation affects catecholamines sex- and region-dependently in zebra finches (*Taeniopygia guttata*). *Society for Behavioral Neuroendocrinology*.
- Alger, S.J., Pawlisch, B.A., and Ritters, L.V. (2007). D1 dopamine receptor activation within the medial preoptic nucleus stimulates sexually motivated song in male European starlings. *Society for Neuroscience Abstracts*.
- Heimovics, S.A., Cornil, C.A., Ball, G.F., and Ritters, L.V. (2007). D1 and D2 dopamine receptor densities in male European starlings (*Sturnus vulgaris*) in different reproductive states. *Society for Neuroscience Abstracts*.
- Ritters, L.V., Olesen, K.M., and Auger, C.J. (2007). Evidence that female endocrine state influences catecholamine responses to male courtship song in European starlings. *Society for Neuroscience Abstracts*.
- Alger, S. J. and Ritters, L. V. (2007). Lesions to the medial preoptic nucleus affect cFOS and ZENK labeling during song within song control and social behavior brain regions in male European starlings (*Sturnus vulgaris*). *Society for Behavioral Neuroendocrinology*.
- Heimovics, S. A. and Ritters, L. V. (2007). Breeding context-dependent relationships between song and dopaminergic markers in song control and social behavior nuclei in male European starlings (*Sturnus vulgaris*). *Society for Behavioral Neuroendocrinology*.
- Ritters, L. V., Alger, S. J., Pawlisch, B. A. and Auger, C. J. (2005). Testosterone implants in the medial preoptic nucleus stimulate interest in nest sites, and possibly song, in male European starlings (*Sturnus vulgaris*). *Society for Neuroscience Abstracts*.

- Alger, S. J., Maasch, S. N., and Riters, L. V. (2005). Lesions to the medial preoptic nucleus affect song qualities in male European starlings (*Sturnus vulgaris*) and responses of female conspecifics to lesioned males. *Society for Neuroscience Abstracts*.
- Heimovics, S. A. and Riters, L. V. (2005). The effect of breeding condition on the relationships between song and the number of ZENK-labeled cells in regions within and outside of the song control system in male European starlings. *Society for Neuroscience Abstracts*.
- Sartor, J. J., Riters, L. V., Alger, S. J., and Ball, G. F. (2005). Activity-dependent BDNF expression in HVC is markedly reduced by song suppression and is implicated in seasonal volume changes in European starlings. *Society for Neuroscience Abstracts*.
- Riters, L. V. (2004). Neural regulation of the motivation to communicate: *Why does the caged bird sing?* *Neuroscience Research Symposium*. Neuroscience Training Program, University of Wisconsin – Madison.
- Alger, S. J. and Riters, L. V. (2004). Lesions to the medial preoptic nucleus disrupt song during, but not outside of a breeding context in male European starlings (*Sturnus vulgaris*). *Society for Neuroscience Abstracts*.
- Heimovics, S. A. and Riters, L. V. (2004). Song relates positively to immediate early gene activity within the POM and VTA in spring, but not fall, in male European starlings. *Society for Neuroscience Abstracts*.
- Schroeder, M. B. and Riters, L. V. (2004). Effects of dopamine and opioid pharmacological manipulations on sexually motivated song production in male European starlings. *Society for Neuroscience Abstracts*.
- Sartor, J. J., Riters, L. V., Alger, S. J., and Ball, G. F. (2004). Song suppression via POM lesion decreases the volume of song nucleus HVC in European starlings. *Society for Neuroscience Abstracts*.
- Sartor, J. J., Balthazart, J., Riters, L. V., and Ball, G. F. (2004). The roles of testosterone and singing in the regulation of seasonal neuroplasticity in songbirds. *Society for Behavioral Neuroendocrinology*, 8th annual meeting.
- Riters, L. V., Teague, D. P., and Schroeder, M. B. (2003). Sexually motivated male song expression relates positively to immediate early gene activity in the medial preoptic area. *Society for Neuroscience Abstracts*.
- Riters, L.V. (2002). Neuroanatomical evidence for indirect connections between the medial preoptic nucleus and the song control system: Possible neural substrates for sexually motivated song. *Singing in the Brain, Birdsong Conference*, Hunter College.

Riters, L.V. (2002). Female European starlings discriminate between male songs produced within and outside of the breeding season. *Animal Behavior Society*.

Riters, L. V. (2000). Neuroendocrine Regulation of Courtship and Song Expression in European Starlings (*Sturnus vulgaris*). *AAAS Conference/Southwestern and Rocky Mountain Division*. Animal Behavior Symposium.

Riters, L. V., Eens, M., Pinxten, R., Duffy, D., Balthazart, J., and Ball, G. F. (2000). Seasonal variation in singing and the medial preoptic area in male European starlings. *Society for Neuroscience Abstracts*, Vol. 26.

Ball, G.F. and Riters, L.V. (2000). Seasonal variation in alpha-two adrenergic receptor densities in the song control system of European starlings. *Society for Neuroscience Abstracts*, Vol. 26.

Petersen, B. R., Ball, G. F., and Riters, L.V. (2000). Met-enkephalin immunoreactive fiber density within the medial preoptic area is positively correlated with song expression in the male European starling. *Society for Neuroscience Abstracts*, Vol. 26.

Riters, L. V. (1999). Environmental context and lesions to the medial preoptic area affect singing in the male European starling (*Sturnus vulgaris*). *Birdsong Workshop*, Rockefeller University.

Riters, L. V. and Ball, G. F. (1999). Lesions to the medial preoptic nucleus interfere with singing in the male European starling. *Society for Neuroscience Abstracts*, Vol. 25, Part 2, p.1368.

Riters, L. V., Eens, M., Pinxten, R., Balthazart, J., and Ball, G. F. (1999). Seasonal variation in the social context that elicits singing in male European starlings. *Society for Behavioral Neuroendocrinology*, 3rd annual meeting.

Ball, G. F., Bentley, G. E., Riters, L. V., and Bernard, D. J. (1999). Seasonal changes in brain and behavior in songbirds: Steroid-dependent and -independent effects. *Society for Behavioral Neuroendocrinology*, 3rd annual meeting.

Riters, L. V., Absil, P., Foidart, A., and Balthazart, J. (1998). The effects of naloxone on appetitive and consummatory sexual behavior in male Japanese quail. *Society for Neuroscience Abstracts*, Vol. 24, Part 2, p. 1439.

Riters, L. V. and Balthazart, J. (1998). Endocrine and environmental control of appetitive and consummatory male sexual behavior in the Japanese quail. *Society for Behavioral Neuroendocrinology*, 2nd annual meeting.

- Riters, L. V., Absil, P. and Balthazart, J. (1997). Differential effects of testosterone stereotaxic implants on appetitive and consummatory components of male sexual behavior in Japanese quail. *Belgian Society for Neuroscience Conference*.
- Riters, L. V., Aste, N., Panzica, G.C., Harada, N., and Balthazart, J. (1997). Additional markers for the sexually dimorphic nucleus of the quail preoptic area: Aromatase mRNA as detected by in situ hybridization and projections to the central gray identified by retrograde tracing. *Society for Neuroscience Abstracts*, Vol. 23, Part 1, p. 773.
- Absil, P., Riters, L. V., Gérard, M., Ball, G. F., and Balthazart, J. (1997). The medial preoptic nucleus and nucleus striae terminalis differentially regulate appetitive and consummatory aspects of male sexual behavior in quail. *Society for Neuroscience Abstracts*, Vol. 23, Part 2, p. 1357.
- Riters, L. V., Absil, P. and Balthazart, J. (1997). Effects of testosterone implanted directly into the POM, Ac-nST, or BNST on appetitive and consummatory components of male sexual behavior in the Japanese quail. *Society for Behavioral Neuroendocrinology*, 1st annual meeting.
- Riters, L. V., Erichsen, J. T., Krebs, J. R., and Bingman, V. P. (1996). Distribution of neurotransmitters, related enzymes, and neuropeptides within the pigeon caudolateral neostriatum. *Society for Neuroscience Abstracts*, Vol. 22, Part 1, p.674.
- Bingman, V. P., Baker, C., Riters, L. V., and Strasser, R. (1996). Homing pigeon visual relational learning is unaffected by hippocampal lesions. *Society for Neuroscience Abstracts*, Vol. 22, Part 2, p.1121.
- Nagy, Z. M. and Riters, L. V. (1996). Effects of phase-shifting circadian rhythms upon active-avoidance learning and locomotor activity in mice. *Midwestern Psychological Association*, 68th Annual Meeting, 28.
- Riters, L. V. and Panksepp, J. (1996). Effects of vasotocin on aggressive behavior in male Japanese quail. *Integrative Neurobiology of Affiliation Conference of the New York Academy of Sciences*.
- Leutgeb, S., Husband, S., Riters, L. V., Bingman, V. P., and Shimizu, T. (1995). Afferent connections and cognitive function of the pigeon neostriatum caudolaterale. *Society for Neuroscience Abstracts*, Vol. 21, Part 1, p.431.
- Riters, L. V. and Bingman, V.P. (1993). The NMDA-Receptor antagonist MK-801 blocks navigational learning in homing pigeons. *Society for Neuroscience Abstracts*, Vol. 19, Part 2, p.1007.

Teaching Experience

Behavioral Neuroendocrinology Graduate Seminar	Fall 2007 – present
Ethology Graduate Seminar	2007-2010
Introduction to Animal Biology University of Wisconsin	Spring 2002 - present
Behavior, Brain, and Evolution Seminar University of Wisconsin	Fall 2005
Endocrinology University of Wisconsin	Fall 2004 - present
Ethology University of Wisconsin	Fall 2001
Behavioral Neuroscience Graduate Proseminar University of Nebraska at Omaha	2001
Methods of Psychological Inquiry University of Nebraska at Omaha	2000-2001
Teaching Assistant, Bowling Green State University Laboratory courses in Biopsychology and the Neurobiology of Learning and Memory	1995-1996
Teaching Assistant, Bowling Green State University Discussion sections for Introductory Psychology	1992-1994

Graduate Students Mentored

Melissa Cordes The role of steroid hormones and methylation in male song production	2010 - present
Cynthia A. Kelm-Nelson (Ph.D. 2012) Social context-appropriate vocal communication and opioids in male European starlings (<i>Sturnus vulgaris</i>) Currently a postdoctoral fellow at University of Wisconsin, Madison	2008 - 2012
Benjamin A. Pawlisch (Ph.D. 2012) The role of catecholamines in female responses to male song in European starlings (<i>Sturnus vulgaris</i>) Currently a postdoctoral fellow at the University of Massachusetts, Amherst	2005 - 2012

Sarah A. Heimovics (Ph.D. 2008) 2002 - 2008
Dopamine and neuroendocrine regulation of context-appropriate communication
Recipient of National Science Foundation Fellowship (2003-2006)
Currently Assistant professor at the University of St. Thomas, Minnesota (2012)

Sarah Jane Alger (Ph.D. 2010) 2002 - 2010
Role of the medial preoptic nucleus in context-appropriate communication
Recipient of National Science Foundation Fellowship (2002 - 2005)
After graduation, Postdoctoral fellow at the University of Texas – Austin
Currently interviewing for faculty positions (2013)

Stephen R. Bowman (M.S. 2009) 2007 – 2009
Neuroendocrine regulation of communication in songbirds

Molly B. Schroeder (M.S. 2004) 2002 - 2004
Dopamine and opioid regulation of male song production

Postdoctoral Fellows Mentored

Dr. Catherine J. Auger, Assistant Scientist 2004 – 2006
Currently Assistant Professor in Psychology
University of Wisconsin – Madison

Dr. Jesse M.S. Ellis, Postdoctoral Fellow 2009 –
2012

Service on Graduate Committees at the University of Wisconsin

Anita Ginther, Zoology, advisor: Charles Snowdon (PhD 2007)
Sofia Zahed, Zoology, advisor: Charles Snowdon (PhD 2012)
Tayo Oyegbile, MD, PhD in Psychology, advisor: Cathy Marler (PhD 2006)
Anneke Lisberg, Zoology, advisor: Jeffrey Baylis (PhD 2009)
Kimberly D’Anna, Zoology, advisor: Stephen Gammie (PhD 2009)
Grace Lee, Zoology, advisor: Stephen Gammie (PhD 2009)
Stephany Jones, Neuroscience Training Program, advisor: Ruth Benca (PhD 2009)
Katie Cronin, Psychology, advisor: Chuck Snowdon (PhD 2009)
Kenneth Howard, Zoology, advisor: Robert Jeanne (PhD 2007)
Benjamin Taylor, Entomology, advisor: Robert Jeanne (PhD 2012)
Michelle Edelmann, Neuroscience Training Program, advisor: Anthony Auger (PhD 2010)
Mira Kolodkin, Neuroscience Training Program, advisor: Anthony Auger (PhD 2012)
Sainath Suryanarayanan, Zoology, advisor: Robert Jeanne (PhD 2009)
Matthew Fuxjager, Zoology, advisor: Cathy Marler (PhD 2011)
Erin Gleason, Psychology, advisor: Cathy Marler (PhD 2010)
Elizabeth Florek, Psychology, advisor: Cathy Marler (PhD 2012)
Meaghan Bychowski, Neuroscience Training Program, advisor: Cathy Auger (PhD 2012)
Sharee Light, Clinical Psychology, advisor: Richard Davidson (PhD 2012)

Jennifer Tennessen, Wildlife Ecology, advisor: Stanley Temple (MS 2009)
Teresa Schueller, Entomology, advisor: Robert Jeanne (PhD 2012)
Meghan Fitzpatrick, Zoology, advisor: Tony Ives
Joshua Pultorek, Zoology, advisor: Cathy Marler
Terri Driessen, Zoology, advisor: Stephen Gammie
Maia Pujara, Neuroscience Training Program, advisor: Michael Koenigs
Michael Saul, Zoology, advisor: Stephen Gammie

International Service on Graduate Committees

External dissertation reviewer for Nazia Khurshid, Neuroscience, advisor: Soumya Iyengar (PhD 2010)

External committee member present at defense of Geert De Groof, Biology, advisor: Annemie Van der Linden (PhD 2010)

Undergraduate Honors and Senior Thesis Students

Elizabeth Abbs, The role of opioids in song-associated reward in male zebra finches (received Hilldale award for this work) 2010

Megan Seidl, Effects of norepinephrine depletion on female starling responses to male song (received Zoology Department Fellowship for this work) 2010

Jenna Buley, Mind the muzzle: Using facial expression as a correlate of stress level in domestic canines (published in *The Journal of Young Investigators*, 2008) 2007

Nicole Allen, Effects of aromatase on sexual behavior in male house sparrows (*Passer domesticus*) 2006

Sydney Cummings, Post-consummatory sexual behavior is inhibited by naloxone in male house sparrows (*Passer domesticus*), (received Hilldale award for this work) 2004

Timothy Kurt, Differences in badge sizes of male house sparrows at food sources of high and low risk (published in *The Journal of Young Investigators*, 2005, received Hilldale award for this work and best Zoology thesis award) 2004

Molly Schroeder, Effects of badge size manipulation on behavior and brain in male house sparrows (received Zoology Department Fellowship for this work) 2004

Professional Affiliations and Activities

Animal Behavior Society student grant reviewer 2013

Member of local organizing committee for the Society for Behavioral Neuroendocrinology Annual meeting 2011-2012

Society for Behavioral Neuroendocrinology Program Committee	2009-2011
Society for Behavioral Neuroendocrinology Young Investigator Awards Committee	2009
Member, Animal Behavior Society	2000-present
Member, J.B. Johnston Club	1998-present
Member, Society for Neuroscience	1991-present
Member, Society for Behavioral Neuroendocrinology	1997-present
Belgian Society for Neuroscience	1997-1998
Sigma Xi	1994-1996
Northwest Ohio Society for Neuroscience	1994-1996

Ad hoc Reviewer – National Science Foundation Grant Proposals, Sigma Delta Epsilon – Graduate Women in Science Predoctoral Fellowship Program, The Lottery Health Research Funds committee of New Zealand, Behavioral Neuroscience, Transactions of the Nebraska Academy of Sciences, Hormones & Behavior, Journal of Neurobiology, Behavioral Ecology and Sociobiology, Naturwissenschaften, Neuroscience Letters, Behavioural Brain Research, European Journal of Neuroscience, Behaviour, Brain Behavior and Evolution, Proceedings of the Royal Society B, Frontiers in Neuroendocrinology, Neuroscience

Grant Review Panel Member for the National Science Foundation (service on multiple panels)

Reviewer for National Institutes of Health panel: Biobehavioral regulation, learning and ethology study section (2008)

External reviewer for le Fonds de la Recherche Scientifique (Belgian scientific research foundation; 2011 – present)

External reviewer for faculty promotion and tenure for multiple candidates

Ad Hoc reviewer for multiple M.J. Murdock Charitable Trust proposals

Selected Departmental and University Service Activities

Neuroscience Training Program graduate student admissions committee	2011-present
Zoology Department new faculty mentor	2010-present
Zoology Department director of graduate studies	2009 - present
Co-Chair, Zoology Botany alignment committee	2009 – present

Birge Hall Space Committee	2009 – present
Zoology Department chair of graduate admissions	2008-2009
Faculty Senate Alternate	Fall 2004 – present
Institutional Animal Care and Use Committee (IACUC)	2006-2007; 2012 - present
Emlen speaker selection committee, Co-chair	2006-2009
Zoology Department new ecology faculty search committee	2008-2009
Reviewer, Letters and Sciences graduate student grant competition	2008-2009
Reviewer, Letters and Sciences undergraduate need based scholarships	2008-2009
Letters and Sciences faculty appeals committee	2008-present
Presenter, Women in Science and Engineering panel	2007
Presenter, Zoology undergraduate society	2007
Departmental staff search committees	2007-2010
Neuroscience Training Program Recruitment Committee	2007-2008
Summer presentations to minority students participating in the PEOPLE program	2007
Focus group for the revision of Research Animal Resource Center animal protocols	2004-2007
Zoology Department <i>Ad hoc</i> Animal Care Funding Committee	2004
Hiring Committee for Chief Campus Veterinarian	2006
Organizer, Zoology Colloquium series	2004
Neuroscience Training Program Ethics Training	2003-2004
Shadowing experience for rural high school student	
2010	
Trainee for undergraduate summer apprentice	2003, 2010
Mentor for multiple Zoology 152 student projects	2001-present
Advisor for Zoology Undergraduate Majors	2003-
present	
Animal Behavior Panel for Undergraduate Zoology Society career panels series	2003
Zoology Department Graduate Student Professional Development Seminar	2003

Selected Public Outreach Activities

Public lecture, Arboretum Naturalists' Enrichment: Why do birds sing? UW Arboretum	2013
Neuroscience display at John Muir Elementary School science fair	2010,
2012	
Interviewed for <i>An Unwelcome Success: The European Starling in America</i> Barely B Films	
2010	
Madison Science Pub participant	2010
Discussed "Why birds sing" on local Madison radio program WORT	
2008	
Featured in Wisconsin State Journal <i>This bird sings when looking for love</i>	
2007	
Featured in Whyfiles.org <i>A reason to sing</i> http://whyfiles.org/shorties/114bird_song/	2002