

SCOTT ROBERT MCWILLIAMS

Program in Wildlife & Conservation Biology
Dept. Natural Resources Science, 105 Coastal Institute in Kingston
College of the Environment and Life Sciences
University of Rhode Island, Kingston, RI 02881
(401) 874-7531
email: srmcwilliams@uri.edu

EDUCATION

- PhD Department of Wildlife and Fisheries Biology, University of California, Davis. December 1993.
Major: Ecology; Areas of Specialization: Behavioral, Avian, Quantitative, and Physiological Ecology.
Dissertation: Behavior and ecology of Cackling Canada and Ross' geese during spring.
Advisors: Dennis G. Raveling (deceased), Catherine A. Toft (deceased).
- MSc Department of Animal Ecology, Iowa State University, Ames. December 1986.
Major: Animal Ecology; Minor: Statistics
Thesis: Foraging behavior and ecology of larval small-mouthed salamanders (*Ambystoma texanum*).
Advisor: Marilyn D. Bachmann.
- BA Department of Biology, Hiram College, Ohio. June 1980 (with honors).
Majors: Biology and Psychology, Minors: Environmental Studies and Secondary School Science Education.
Undergraduate research: (1) evolutionary ecology of Cichlid fish in Mexico, (2) behavioral ecology of horned screamers in the Amazon Basin, Colombia, (3) ecological diversity and distribution of avifauna in India.
Advisor: James Barrow.

PROFESSIONAL EXPERIENCE

Postdoctoral Fellow: Department of Wildlife Ecology, University of Wisconsin, Madison (Advisor: W.H. Karasov)
NSF project: Digestive responses of passerine birds to increased demand for food (May 1994 - Dec. 1997).
Wildlife Management Institute project: Nutritional ecology and physiology of goslings (May 1995 - 1998).

Postdoctoral Associate: Section of Evolution and Ecology and Center for Population Biology, UC Davis. (Advisor: C. Toft)
State of California project: Effects of goose grazing on species composition and nutrient quality of wet meadow and pasture plants (January-May 1994).

UNIVERSITY TEACHING (since 1990):

Chair and Professor, Department of Natural Resources Science, University of Rhode Island, 2011-present.

Professor, Department of Natural Resources Science, University of Rhode Island, 2008-2011. Instructor for
Wildlife Field Techniques, Senior Colloquium, and Physiological Ecology of Wild Vertebrates

Associate Professor, Department of Natural Resources Science, University of Rhode Island, 2003-2008.

Assistant Professor, Department of Natural Resources Science, University of Rhode Island, 1998-2003.

Faculty Associate, Dept Wildlife Ecology, University of Wisconsin, Madison, 1997. Advising of undergraduates, curriculum development, sabbatical- and research-leave replacement for professors (taught Principles of Wildlife Management, Wildlife Ecology, Field Research Techniques, Physiological Ecology, Terrestrial Vertebrates).

Associate Instructor, Department of Wildlife and Fisheries Biology, University of California, Davis. Instructor for Field Methods in Wildlife Ecology (spring 1992), and Ornithology (fall 1990).

University Teaching Certification, University of California, Davis, fall 1991 - spring 1992.

AWARDS AND FELLOWSHIPS:

- 2009 Visiting Scholar, Advanced Facility for Avian Research, University of Western Ontario, Canada
- 2008 Research Fellow, Max-Planck Institute for Ornithology, Seewiesen, Germany
- 2008 Visiting Scholar, Blaustein Institutes for Desert Research, Ben-Gurion University of the Negev, Israel
- 2006 Metcalf Diversity Fellows mentor
- 2005 Research Fellow, Max-Planck Institute for Ornithology, Seewiesen, Germany
- 2004 Research Scientist Excellence Award (College Award), University of Rhode Island
- 2003 Elective Member (for significant contributions to Ornithology), American Ornithologist's Union
- 2002 Outstanding Contribution to Research (University Award), University of Rhode Island
- 2001 Senior Fellow, Coastal Institute, University of Rhode Island
- 2000 Science, Math, Engineering Teaching Fellow at University of Rhode Island
- 1994-97 Postdoctoral Fellowship at University of Wisconsin at Madison
- 1993 Dennis G. Raveling Scholarship, California Waterfowl Association

- 1992 Outstanding Graduate Student Teaching Award, UC Davis
- 1989-93 Jastro-Shields Research Scholarships
- 1989 Earle C. Anthony Ecology Fellowship, UC Davis
- 1989 Graduate Research Award, UC Davis
- 1985 Ding Darling Scholastic Scholarship, Iowa State University
- 1980 Eastman Kodak Award (Outstanding Biology Student), Hiram College

GRANTS (> \$10,000,000 since joining URI in 1998):

- 2010-2012 Mineral Management Service (BOEMRE) "Developing Environmental Protocols and Modeling Tools to Support Ocean Renewable Energy and Stewardship" PI: J. McCann et al.
- 2010-2015 USFWS "Acoustic monitoring of migrating bats and birds in RI NWR" PI: McWilliams
- 2010-2015 RI DEM "Population ecology of seaducks" PI: McWilliams & Paton
- 2009-2012 RI SWIG "Atlantic seaduck mapping project" PIs: McWilliams & Paton
- 2009-2011 USFWS CI "Atlantic seaduck radiotelemetry" PIs: McWilliams & Paton
- 2009-2012 U.S.D.A. Agricultural Experiment Station (McStennis) "Management of RI forests for wildlife" PI: McWilliams, August, Buffum, Husband
- 2008-2012 National Science Foundation "Nutritional ecology of seasonal fattening in migratory birds" PI: McWilliams & Pierce
- 2011 URI Research Office Research Infrastructure Grant, "Consortium for Environmental Molecular and Analytic Ecology" PIs: L. Meyerson (PI), G. Forrester, A. Gold, J. Amador, M. Stolt, and S.R. McWilliams
- 2011 Champlin Foundation Grant, "Bringing global climate change to the classroom" PIs: L. Meyerson, J. Amador, R. Brown, S. McWilliams, B. Maynard
- 2008-2010 Rhode Island Renewable Energy Fund "Effect of wind energy development in coastal Rhode Island on birds" PIs: Paton & McWilliams
Note: Paton only puts \$300K for ARRA "Avian use of RI's offshore waters"
- 2008-2011 U.S.D.A. Agricultural Experiment Station (Hatch) "Importance of coastal environments for migrating songbirds." PI: McWilliams
- 2006-2010 Canadian Foundation for Innovation "Advanced facilities for avian research" Co-PIs: S. MacDougall-Shackleton, C. Guglielmo, K. Hobson, G. Kopp, E. MacDougall-Shackleton, D. Sherry, K. Soma, T. Williams, L. Zanette.
- 2006-2011 U.S.-Israel Binational Science Foundation "Thermoregulation during fattening at stopover sites in migrating passerine birds: diet, body composition and the use of facultative hypothermia." Co-PIs: B. Pinshow, Z. Cohen, I. Khozin-Goldberg
- 2006-2010 Atlantic Flyway "Ecology of Atlantic Brant during winter" Co-PIs: C. Williams, J. Osenkowski, P. Castelli
- 2000-6 National Science Foundation CAREER grant (Ecological & Evolutionary Physiology) "Phenotypic plasticity in physiological traits and environmental change."
- 2000-07 The Champlin Foundation "Nutritional ecology of ruffed grouse in southern New England." Co-PI: B. Tefft
- 2004-07 U.S.D.A. Agricultural Experiment Station "Management of southern New England forests for Ruffed Grouse and associated wildlife."
- 2003-07 U.S.D.A. Agricultural Experiment Station "Importance of coastal environments for migrating songbirds."
- 2002-05 U.S. National Park Service "Effects of disturbance on nesting shorebirds at Cape Cod NS."
- 2001-06 National Science Foundation, Research Experiences for Undergraduates (4 REU Supplements)
- 2002 National Science Foundation, Symposium: Physiological Ecology of Migration in Birds
- 2001-03 U.S. Environmental Protection Agency "Ecology of wintering seaducks in Narragansett Bay"
- 2000-12 RI Audubon Society "Population ecology of migrating songbirds in southern RI." Co-PI: P. Paton
- 1998-2002 URI Foundation Competitive Grants (4 grants)
- 1999 U.S.D.A. NRI Grant "Nutritional ecology of birds in relation to environmental change."
- 1998-2005 U.S.D.A. Agricultural Experiment Station "Land management and the population dynamics, ecology, and physiology of migratory songbirds in coastal southern New England."
- 1995-1998 Wildlife Management Institute, and Ministry of Ontario. "Nutritional ecology and physiology of goslings growing up in the arctic."

RESEARCH INTERESTS:

Nutrition, physiology, ecology, and behavior of wild vertebrates, especially amphibians, waterfowl, and neotropical songbird migrants; how natural or anthropogenic environmental change impacts the physiological and behavioral ecology of migratory birds; physiological and ecological implications of body size, especially in herbivorous gamebirds.

REFEREED PUBLICATIONS:

1. McWilliams, S. R. and M. D. Bachmann. 1988. Using life history and ecology as tools to manage a threatened salamander species. *JOURNAL OF IOWA ACADEMY OF SCIENCES* 95:66-71.
2. McWilliams, S. R. and M. D. Bachmann. 1989. Foraging ecology and prey preference of pond-form larval small-mouthed salamanders, *Ambystoma texanum*. *COPEIA* 1989:948-961.
3. McWilliams, S. R. and M. D. Bachmann. 1989. Predatory behavior of larval small-mouthed salamanders, *Ambystoma texanum*. *HERPETOLOGICA* 45:459-464.
4. McWilliams, S. R. 1992. Courtship behavior of the small-mouthed salamander (*Ambystoma texanum*): the effects of conspecific males on male mating tactics. *BEHAVIOUR* 121:1-19.
5. McWilliams, S. R., J. P. Dunn, D. G. Raveling. 1994. Predator-prey interactions between eagles and cackling Canada and Ross' geese during winter in California. *WILSON BULLETIN* 106:272-288.
6. Afik, D., S. R. McWilliams, and W. H. Karasov. 1997. Test for passive absorption of glucose in the yellow-rumped warbler and its ecological implications. *PHYSIOLOGICAL ZOOLOGY* 70:370-377.
7. McWilliams, S. R., D. Afik, and S. Secor. 1997. Patterns and processes in the vertebrate digestive system: implications for the study of ecology and evolution. *TRENDS IN ECOLOGY AND EVOLUTION* 12:420-422.
8. McWilliams, S. R. and W. H. Karasov. 1998. Test of a digestion optimization model: effects of costs of feeding on digestive parameters. *PHYSIOLOGICAL ZOOLOGY* 71(2): 168-178.
9. McWilliams, S. R. and D. G. Raveling. 1998. Habitat use and foraging behavior of cackling Canada and Ross' geese during spring: implications for the analysis of ecological determinants of goose social behavior. Pp. 167-178 in D.H. Rusch, M.D. Samuel, D.D. Humberg, and B.D. Sullivan, eds. *BIOLOGY AND MANAGEMENT OF CANADA GEESE*. Proceedings of the International Canada Goose Symposium, Milwaukee, Wisconsin.
10. McWilliams, S. R. and W. H. Karasov. 1998. Test of a digestion optimization model: effect of variable-reward feeding schedules on digestive performance of a migratory bird. *OECOLOGIA* 114:160-169.
11. McWilliams, S.R., E. Caviedes-Vidal, and W.H. Karasov. 1999. Digestive adjustments in cedar waxwings to high feeding rates. *JOURNAL OF EXPERIMENTAL ZOOLOGY* 283:394-407.
12. McWilliams, S.R. 1999. Digestive strategies of avian herbivores. Pp. 2198-2207 in N.J. Adams and R.H. Slotow, eds. Proceedings of the XXII International Ornithological Congress, Durban, South Africa.
13. McWilliams, S.R. 2000. Ecology of vertebrate nutrition. *Encyclopedia of Life Sciences*, United Kingdom.
14. McWilliams, S.R. 2000. Avoiding extreme environments: migratory birds. *MARITIMES* Summer '00:22-24.
15. McWilliams, S.R. and W.H. Karasov. 2001. Phenotypic flexibility in digestive system structure and function in migratory birds and its ecological implications. *COMPARATIVE BIOCHEMISTRY AND PHYSIOLOGY* 128A:579-593.
16. McWilliams, S. R., S. Kearney, and W. H. Karasov. 2002. Dietary preferences of warblers for specific fatty acids in relation to nutritional requirements and digestive capabilities. *JOURNAL OF AVIAN BIOLOGY* 33:167-174.
17. Frazer, K.I. and S.R. McWilliams. 2002. Determinants of dietary preference in yellow-rumped warblers. *WILSON BULLETIN* 114:243-248.
18. Pierce, B.J. and S.R. McWilliams. 2004. Diet quality and food limitation affect the dynamics of body composition and digestive organs in a migratory songbird (*Zonotrichia albicollis*). *PHYSIOLOGICAL AND BIOCHEMICAL ZOOLOGY* 77(3):471-483.
19. McWilliams, S.R. and D.G. Raveling. 2004. Energetics and time allocation of cackling Canada geese during spring. Pages 97-108 in T.J. Moser, R.D. Lien, K.C. VerCauteren, K.F. Abraham, D.E. Andersen, J.G. Bruggink, J.M. Coluccy, D.A. Graber, J.O. Leafloor, D.R. Luukkonen, and R.E. Trost, editors. *PROCEEDINGS OF THE 2003 INTERNATIONAL CANADA GOOSE SYMPOSIUM*, Madison, Wisconsin, USA.
20. McKinney, R.A., S.M. Glatt, and S.R. McWilliams. 2004. Allometric length-weight relationships for benthic prey of aquatic wildlife in coastal marine habitats. *WILDLIFE BIOLOGY* 10:241-249.
21. Pierce, B.J., S.R. McWilliams, A.R. Place, M.A. Huguenin. 2004. Diet preferences for specific fatty acids and their effect on composition of fat reserves in migratory Red-eyed Vireos (*Vireo olivaceus*). *COMPARATIVE BIOCHEMISTRY AND PHYSIOLOGY* 138:503-514.
22. McWilliams, S.R., B.J. Pierce, C. Guglielmo, M. Klaassen. 2004. Flying, fasting, and feeding in birds during migration: a physiological ecology perspective. *JOURNAL OF AVIAN BIOLOGY* 35:377-393.
23. Podlesak, D., S.R. McWilliams, K. Hatch. 2005. Stable isotopes in breath, blood, feces and feathers can indicate intra-individual changes in diet of migratory songbirds. *OECOLOGIA* 142:501-510.
24. McWilliams, S.R. and J.O. Leafloor. 2005. Effects of elevated CO₂ on keystone herbivores in Arctic ecosystems. Pp. 369-393, In: J. Ehleringer, T. Cerling, and D. Dearing (eds) *A history of atmospheric CO₂ and its effects on plants, animals, and ecosystems*. Springer-Verlag.
25. McWilliams, S.R. and W.H. Karasov. 2005. Migration takes guts: digestive physiology of migratory birds and its ecological significance. Pp. 67-78, In: P. Marra and R. Greenberg (eds) *BIRDS OF TWO WORLDS*. Smithsonian Institution Press, Washington, D.C.
26. Karasov, W.H. and S. R. McWilliams. 2005. Digestive constraints in mammalian and avian ecology. Pp. 87-112, In: J.M. Starck and T. Wang (eds). *Physiological and ecological adaptations to feeding in vertebrates*. Science Publishers Inc., Enfield, New Hampshire.
27. Servello, F.A., E. C. Hellgren, and S. R. McWilliams. 2005. Techniques for wildlife nutritional ecology. Pp. 554-

- 590, In C.E. Braun, ed. Techniques for Wildlife Investigations and Management. Sixth Edition. The Wildlife Society, Bethesda, Maryland
28. Pierce, B.J., S.R. McWilliams, T. O'Connor, A.R. Place, C. Guglielmo. 2005. Effect of dietary fatty acid composition on depot fat and exercise performance in a migrating songbird, the red-eyed vireos. JOURNAL OF EXPERIMENTAL BIOLOGY 208:1277-1285.
 29. Pierce, B.J. and S.R. McWilliams. 2005. Seasonal changes in composition of lipid stores in migratory birds: causes and consequences. CONDOR 107:271-281.
 30. McKinney, R.A. and S.R. McWilliams. 2005. A new model to estimate daily energy expenditure for wintering waterfowl. WILSON BULLETIN 117:44-55.
 31. Endrulat, E.G., S.R. McWilliams, and B.C. Tefft. 2005. Habitat selection and home range size of ruffed grouse in Rhode Island. NORTHEASTERN NATURALIST. 12:411-424.
 32. Podlesak, D. and S.R. McWilliams. 2006. Metabolic routing of dietary nutrients in birds: effects of diet quality and macronutrient composition revealed using stable isotopes. PHYSIOLOGICAL AND BIOCHEMICAL ZOOLOGY 79:534-549.
 33. Muller, M., S.R. McWilliams, D. Podlesak, J. Donaldson, and R. Lindroth. 2006. Tri-trophic direct and indirect effects of plant defenses: Black-capped chickadees choose to eat gypsy moth caterpillars based on host leaf chemistry. OIKOS 114:507-517.
 34. McKinney, R.A., S.R. McWilliams, and M.A. Charpentier. 2006. Waterfowl-habitat associations during winter in an urban eastern North Atlantic estuary. BIOLOGICAL CONSERVATION 132:239-249.
 35. Smith, S.B., S.R. McWilliams, and C. Guglielmo. 2007. Effect of diet composition on plasma metabolite profiles in a migratory songbird. CONDOR 109:48-58.
 36. McKinney, R.A., S.R. McWilliams, M.A. Charpentier. 2007. Habitat characteristics associated with the distribution and abundance of *Histrionicus histrionicus* (Harlequin Ducks) wintering in southern New England. NORTHEASTERN NATURALIST 14:159-170.
 37. McWilliams, S.R., T. Sloat, C.A. Toft, and D. Hatch. 2007. Effects of prescribed fall burning on a wetland plant community with implications for management of plants and herbivores. WESTERN NORTH AMERICAN NATURALIST 67:299-317.
 38. Podlesak, D. and S.R. McWilliams. 2007. Metabolic routing of dietary nutrients in birds: effects of dietary lipid composition on $\delta^{13}C$ of depot fat and its ecological implications. AUK 124:916-925.
 39. Schneider, E. G., and S. R. McWilliams. 2007. Using nest temperature to estimate nest attendance of piping plovers. JOURNAL OF WILDLIFE MANAGEMENT 71:1998-2006.
 40. Smith, S.B., K.H. McPherson, J. Backer, B.J. Pierce, D. Podlesak, S.R. McWilliams. 2007. Fruit quality and consumption by songbirds during autumn migration. WILSON JOURNAL OF ORNITHOLOGY 119:419-428.
 41. Kurvers, Ralf, Mark Roberts, Scott McWilliams, Anne Peters. 2008. Experimental manipulation of testosterone and condition during molt affects activity and vocalizations of male blue tits. HORMONES AND BEHAVIOR 54:263-269.
 42. Smith, S.A. and S.R. McWilliams. 2009. Dietary macronutrients affect lipid metabolites and body composition of a migratory passerine, the White-throated Sparrow (*Zonotrichia albicollis*). PHYSIOLOGICAL AND BIOCHEMICAL ZOOLOGY 82:258-269.
 43. DesRochers, D.W., S.R. McWilliams, M.D. Silbernagle, and J.M. Reed. 2009. Macronutrient profiles of wetland plants consumed by the Hawaiian Moorhen (*Gallinula chloropus sandvicensis*). WETLANDS 29: 845-853.
 44. McCue, M. D., O. Amitai, I. Khozin-Goldberg, S. R. McWilliams, and B. Pinshow. 2009. Effect of dietary fatty acid composition on fatty acid profiles of polar and neutral lipid tissue fractions in zebra finches, *Taeniopygia guttata*. COMPARATIVE BIOCHEMISTRY AND PHYSIOLOGY 154A:165-172.
 45. Bauchinger, U. and S.R. McWilliams. 2009. Carbon turnover in tissues of a passerine bird: allometry, isotopic clocks, and phenotypic flexibility in organ size. PHYSIOLOGICAL AND BIOCHEMICAL ZOOLOGY 82:787-797.
 46. Blomberg, E., S.R. McWilliams, B. Tefft, E. Endrulat. 2009. Predicting landscape-scale habitat distribution for ruffed grouse using presence-only data. JOURNAL OF WILDLIFE BIOLOGY 15:380-394.
 47. Bauchinger, U., J. Keil, R. McKinney, J. M. Starck, and S.R. McWilliams. 2010. Exposure to cold but not exercise increases carbon turnover rates in specific tissues of a passerine. JOURNAL OF EXPERIMENTAL BIOLOGY 213:526-534.
 48. Smith, S.B. and S.R. McWilliams. 2010. Patterns of fuel use and storage in migrating passerines in relation to fruit resources at autumn stopover sites. AUK 127:108-118.
 49. DesRochers, D.W., S.R. McWilliams, and J.M. Reed. 2010. Evaluating if energy and protein limit abundance of Hawaiian Moorhen. JOURNAL OF WILDLIFE MANAGEMENT 74:788-795.
 50. McCue, M. D., O. Sivan, S.R. McWilliams, and B. Pinshow. 2010. Tracking the oxidative kinetics of carbohydrates, amino acids, and fatty acids in the house sparrow using exhaled $^{13}CO_2$. JOURNAL OF EXPERIMENTAL BIOLOGY 213:782-789.
 51. McWilliams, S.R. and M. Whitman. 2010. Non-destructive techniques to assess body composition of birds: TOBEC, D_2O , FAT, DEXA, MRI, and other options. JOURNAL OF ORNITHOLOGY, in press.
 52. Ben-Hamo, M., B. Pinshow, M. McCue, S. McWilliams, U. Bauchinger. 2010. Fasting triggers hypothermia, and ambient temperature modulates its depth in Japanese Quail *Coturnix japonica*. COMPARATIVE BIOCHEMISTRY AND PHYSIOLOGY 156A:84-91.

53. Ladin, Z.S., P.M. Castelli, C.K. Williams, S.R. McWilliams. 2011. Time energy budgets and food use of Atlantic Brant across their wintering range. *JOURNAL OF WILDLIFE MANAGEMENT*, in press.
54. Bauchinger, U. and S.R. McWilliams. 2010. Extent of phenotypic flexibility during long-distance flight is determined by tissue-specific turnover rates: a new hypothesis. *JOURNAL OF AVIAN BIOLOGY* 41:1-7.
55. Langlois, L. and S.R. McWilliams. 2010. Protein requirements of an omnivorous and granivorous songbird decrease during migration. *AUK* 127:850-862.
56. Bauchinger, U, S.R. McWilliams, H. Kolb, V.M. Popenko, E.R. Price, H. Biebach. 2011. Flight muscle shape reliably predicts flight muscle mass of migratory songbirds: a new tool for field ornithologists. *JOURNAL OF ORNITHOLOGY* 152: 507-510.
57. Bauchinger, U., S.R. McWilliams, B. Pinshow. 2011. Reduced body mass gain during migratory stopover under simulated heat wave. *COMPARATIVE BIOCHEMISTRY AND PHYSIOLOGY* 158A:374-381.
58. McCue, M.D., S.R. McWilliams, B. Pinshow. 2011. Ontogeny and nutritional status influence oxidative kinetics of nutrients and whole-animal bioenergetics in Zebra Finches, *Taeniopygia guttata*: new applications for ^{13}C breath testing. *PHYSIOLOGICAL AND BIOCHEMICAL ZOOLOGY* 84, in press.
59. Ben-Hamo, M., M. McCue, S. McWilliams, B. Pinshow. 2011. Dietary fatty acid composition influences tissue lipid profiles and regulation of body temperature in Japanese quail. *JOURNAL OF COMPARATIVE PHYSIOLOGY B*, in press.
60. Mizrahy, O., U. Bauchinger, S. Aamidor, S. McWilliams, B. Pinshow. 2011. Availability of water affects renewal of tissues in migratory blackcaps during stopover. *Integrative and Comparative Biology*, in press.
61. Price, E.R., U. Bauchinger, D.M. Zajac, D.J. Cerasale, J.T. McFarlan, A.R. Gerson, S.R. McWilliams, C.G. Guglielmo. 2011. Migration- and exercise-induced changes to flight muscle size in migratory birds and association with IGF1 and myostatin mRNA expression. *JOURNAL OF EXPERIMENTAL BIOLOGY*, in press.
62. McWilliams, S.R., E. Adkins-Regan, C. Vleck. 2012. How birds work: avian physiology within an ecological context. Chapter 7 in Cornell Ornithology Laboratory, *Handbook of Bird Biology*. Cornell University Press, Ithaca.
63. Blomberg, E., B.C Tefft, J.M. Reed, S.R. McWilliams. 2011. Evaluating spatially explicit viability of a declining ruffed grouse population. *JOURNAL OF WILDLIFE MANAGEMENT*, in press.
64. McCue, M.D., A. Smith, R. McKinney, B. Rewald, B. Pinshow, S.R. McWilliams. 2012. A mass balance approach to identify and compare differential routing of ^{13}C -labeled carbohydrates, lipids, and proteins in vivo. *PHYSIOLOGICAL AND BIOCHEMICAL ZOOLOGY* 84: in press.
65. Aamidor, S., U. Bauchinger, O. Mizrahy, S.R. McWilliams, B. Pinshow. 2011. Blackcap (*Sylvia atricapilla*) re-fuelling when dietary protein may be limiting: seasonal differences and behavioral compensation. *INTEGRATIVE AND COMPARATIVE BIOLOGY*, in press.
66. Buffum, W., S. McWilliams, P.V. August. 2011. A spatial analysis of forest management and its contribution to maintaining the extent of shrubland habitat in southern New England, United States. *JOURNAL OF FOREST ECOLOGY AND MANAGEMENT* 262:1775-1785.
67. McWilliams, S.R. 2011. Ecology of Vertebrate Nutrition, 2nd edition. *ENCYCLOPEDIA OF LIFE SCIENCES*, John Wiley & Sons, Ltd, United Kingdom. DOI: 10.1002/9780470015902.a0003211.pub2
68. Munoz-Garcia, A., S. Aamidor, M.D. McCue, S.R. McWilliams, B. Pinshow. 2012. Allocation of endogenous and dietary protein in the reconstitution of the gastrointestinal tract in migratory blackcaps at stopover sites. *JOURNAL OF EXPERIMENTAL BIOLOGY*, in press.
69. Mizrahy, O., U. Bauchinger, S. Aamidor, S.R. McWilliams, B. Pinshow. 2012. Water availability affects tissue renewal in migratory blackcaps during stopover. *INTEGRATIVE AND COMPARATIVE BIOLOGY*, in press.
70. Nebel, S., U. Bauchinger, D.M. Buehler, L.A. Langlois, M. Boyles, A.R. Gerson, E.R. Price, S.R. McWilliams, and C.G. Guglielmo. 2012. Constitutive immune function in European starlings *Sturnus vulgaris* is decreased in response to endurance flight in a wind tunnel. *JOURNAL OF EXPERIMENTAL BIOLOGY*, in press.
71. Winiarski, K., S.R. McWilliams, R. Rockwell. 2012. Rapid environmental degradation in a subarctic ecosystem influences resource use of a keystone avian herbivore. *JOURNAL OF ANIMAL ECOLOGY*, in press.
72. Bauchinger, U., M. Boyles, E.R. Price, L.A. Langlois, A.R. Gerson, C.G. Guglielmo, B.J. Pierce, S.R. McWilliams. 2012. Phenotypic flexibility of songbird organ and muscles in response to flight training, dietary fatty acids, and vitamin E supplementation. *JOURNAL OF EXPERIMENTAL BIOLOGY*, in review.

Submitted

- Bauchinger, U. and S.R. McWilliams. Tissue-specific changes during fasting in migratory birds: the protein turnover hypothesis. Chapter in M. McCue (ed) *The Comparative Physiology of Fasting and Starvation*. Springer-Verlag, Berlin.
- Podlesak, D., S.R. McWilliams, and T. Cerling (in review, *PROC NATIONAL ACADEMY SCIENCES*) Estimating turnover of carbon and nitrogen stable isotopes in the red-blood cells of birds and its implications for diet reconstruction.
- Ladin, Z.S., P.M. Castelli, C.K. Williams, K.J. Winiarski, J. Osenkowski, S.R. McWilliams. (in review, *THE AUK*) Spatial and temporal variation in diet of wintering and staging Atlantic Brant determined using stable isotopes.
- Boyles, M.L., B. Pierce, and S.R. McWilliams (in review, *BEHAVIORAL ECOLOGY AND SOCIOBIOLOGY*) Birds are picky eaters: songbirds prefer certain ratios of dietary fatty acids regardless of dietary antioxidant level and

these preferences relate to wild fruits selected during migration.

- Winiarski, K., P.W.C. Paton, C.L. Trocki, and S.R. McWilliams. (in review, THE CONDOR) Estimating distribution and abundance of Alcids wintering in southern New England using density surface models.
- McKinney, R.A. and S.R. McWilliams (in review, JOURNAL OF WILDLIFE BIOLOGY). Energy-based carrying capacities of waterfowl wintering habitats.
- Schneider, E. G., and S. R. McWilliams. (in review, AUK). Effects of environmental temperature and visitor use on nest attendance patterns of incubating piping plover (*Charadrius melodus*).
- Podlesak, D. and S.R. McWilliams. (in review, JOURNAL OF EXPERIMENTAL BIOLOGY). Birds metabolically route exogenous nutrients to rebuild digestive organs after fasting.
- Pearson, S.F., A.D. Smith, S.R. McWilliams, D.J. Levey (in review, ECOLOGICAL MONOGRAPHS) A model stable isotope approach for assessing seasonal bird community diet shifts.

PUBLISHED ABSTRACTS

- McWilliams, S.R., U. Bauchinger, D. Podlesak. 2010. Back to the basics: how understanding the dynamics of isotope incorporation into tissues reveals much about the ecology of migratory birds. (Abstract 14.3) *The Physiologist* 53(6): 36
- Gerson, A., S.R. McWilliams, U. Bauchinger, J.F. Staples, M.L. Boyles, L.A. Langlois, E.R. Price, B. Pierce, C.G. Guglielmo. 2010. Dietary polyunsaturated fatty acids, endurance flight, and mitochondrial function in European Starlings (*Sturnus vulgaris*). (Abstract 12.26) *The Physiologist* 53(6): 33
- McCue, M., S.R. McWilliams, B. Pinshow. 2010. Ontogeny and nutritional status influence oxidative kinetics of exogenous nutrients and whole-animal bioenergetics in Zebra Finches. (Abstract 12.21) *The Physiologist* 53(6): 32
- McCue, M., B. Pinshow, S.R. McWilliams. 2010. Using stable isotopes to track exogenous nutrient allocation and routing in postprandial House Sparrows. (Abstract 12.20) *The Physiologist* 53(6): 32
- Langlois, L., S. McWilliams. 2009. Protein requirements of seasonally frugivorous songbirds decrease during migration. (Abstract 54.9) *Integrative & Comparative Biology* 49 (S1): e97
- McWilliams, S.R., B.J. Pierce, A. Witzellner, J. Speakman, L. Langlois, S. Engel, S.B. Smith, C. Guglielmo. 2007. Dietary fat and exercise performance in migratory birds. (Abstract 47.2) *Integrative & Comparative Biology* 47 (S1): e81
- McWilliams, S.R., U. Bauchinger, J. Keil, J.M. Starck. 2006. Faster with use: exercise affects turnover rate of carbon isotopes in some but not all organs. (Abstract 38.1) *Integrative & Comparative Biology* 46 (S1): e95
- McWilliams, S.R. and B.J. Pierce. 2006. Diet, body composition, and exercise performance: why birds during migration should be careful about what they eat. (Abstract 40.6) *The Physiologist* 49(6): C1-57

RECENT INVITED SEMINARS AND CONFERENCE PRESENTATIONS (since 2003):

- October 2011 - Hawaiian Wetlands and Waterbird Workshop (Hawaii) "Evaluating the potential for energy and protein to limit abundance of the endangered Hawaiian Moorhen." (w/ D. DesRochers, J.M. Reed)
- August 2011 - 4th International Seaduck Conference (Seward, AK) "Using density surface models to assess the spatial distribution and abundance of seaducks using Rhode Island's offshore waters." (w/ P. Paton, C. Trocki, P. Loring, J. Osenkowski)
- August 2011 - 4th International Seaduck Conference (Seward, AK) "Winter habitat use and movement patterns of scoters in Rhode Island." (w/ P. Loring, P. Paton, R. McKinney, J. Osenkowski)
- April 2011 - Invited talk entitled "The fat of the matter: how dietary fatty acid composition affects energy expenditure of birds during migration." at Arkansas State University
- February 2011 - Invited talk entitled "Assessing the impact of offshore wind energy development on birds: the RI Ocean SAMP approach" at USGS Patuxent Wildlife Research Center (w/ P. Paton, K. Winiarski)
- January 2011 - 12th meeting of the North America Arctic Goose conference (Portland, OR) "Takes guts to be a goose: the nutritional physiology and ecology of avian herbivores." (w/ J.O. Leafloor)
- January 2011 - 12th meeting of the North America Arctic Goose conference (Portland, OR) "Rapid Environmental Degradation Influences Resource Use of Lesser Snow Geese" (w/ K.J. Winiarski and R.F. Rockwell)
- January 2011 - 12th meeting of the North America Arctic Goose conference (Portland, OR) "Spatial and Temporal Variation in Diet of Wintering and Staging Atlantic Brant Determined Using Stable Isotopes" (w/ Z.S. Ladin, P.M. Castelli, C.K. Williams, K. Winiarski, and J. Osenkowski)
- January 2011 - Invited talk in "Frontiers in Physiology" lecture series entitled "The fat of the matter: how dietary fatty acid composition affects energy expenditure of birds during migration." at University of California at Davis
- January 2011 - Annual meeting of the Society of Integrative and Comparative Biology (Salt Lake City, UT) "Effect of dietary fatty acids, dietary antioxidants, and training on exercise performance of migratory birds." (w/ U. Bauchinger, B. Pierce, M. Boyles, L. Langlois, A. Gerson, E. Price, C. Guglielmo)

- January 2011 - Annual meeting of the Society of Integrative and Comparative Biology (Salt Lake City, UT) "Allocation of endogenous and dietary protein in the reconstitution of the gastrointestinal tract in migratory blackcaps, *Sylvia atricapilla*, at stopover sites." (w/ A. Munoz-Garcia, S. Aamidor, M. McCue, S. Pilosof, B. Pinshow)
- January 2011 - Annual meeting of the Society of Integrative and Comparative Biology (Salt Lake City, UT) "Seasonal myostatin expression patterns in migratory birds." (w/ E. Price, U. Bauchinger, D. Zajac, D. Cerasale, J. McFarlan, A. Gerson, C. Guglielmo)
- January 2011 - Annual meeting of the Society of Integrative and Comparative Biology (Salt Lake City, UT) "Dietary fatty acid composition influences tissue lipid profiles and regulation of body temperature of Japanese quail." (w/ M. Ben-Hamo, M. McCue, B. Pinshow)
- January 2011 - Annual meeting of the Society of Integrative and Comparative Biology (Salt Lake City, UT) "Effect of diet and training on ketone body metabolism in Starlings." (w/ J. Olson, K. Allport, P. Kealey, E. Price, U. Bauchinger, D. Zajac, D. Cerasale, J. McFarlan, A. Gerson, C. Guglielmo)
- September 2010 – Invited talk entitled “Fat of the matter: how dietary fatty acid composition affects energy expenditure of birds during migration” at University of Connecticut (w/ Barbara Pierce).
- August 2010 – Invited speaker at the symposium entitled “PUTTING COMPARATIVE PHYSIOLOGY TO WORK IN THE FIELD: STABLE ISOTOPES AS TRACER OF ECOLOGICAL PROCESSES” at the American Physiological Society Intersociety meeting (Denver, Colorado) on Global Change & Global Science: Comparative Physiology in a Changing World. Talk title: “Back to the basics: how understanding the dynamics of isotope incorporation into tissues reveals much about the ecology of migratory birds” (w/ Ulf Bauchinger, David Podlesak)
- August 2010 – Poster presentation entitled “Ontogeny and nutritional status influence oxidative kinetics of exogenous nutrients and whole-animal bioenergetics in zebra finches” at the American Physiological Society Intersociety meeting (Denver, Colorado) on Global Change & Global Science: Comparative Physiology in a Changing World (w/ M. McCue, B. Pinshow).
- August 2010 – Poster presentation entitled “Using stable isotopes to track exogenous nutrient allocation and routing in postprandial house sparrows” at the American Physiological Society Intersociety meeting (Denver, Colorado) on Global Change & Global Science: Comparative Physiology in a Changing World (w/ M. McCue, B. Pinshow).
- August 2010 – Poster presentation entitled “Dietary polyunsaturated fatty acids, endurance flight, and mitochondrial function in European Starlings” at the American Physiological Society Intersociety meeting (Denver, Colorado) on Global Change & Global Science: Comparative Physiology in a Changing World (w/ A. Gerson, U. Bauchinger, M. Boyles, L. Langlois, E. Price, J. Staples, B. Pierce, C. Guglielmo).
- August 2010 – Invited speaker at the symposium entitled “Across the great divides: how ecological barriers affect the biogeography and ecology of long-distance passerine migration” at the International Ornithological Congress (Brazil). Talk title: “A cross-hemisphere perspective on bird migration” (w/ Ulf Bauchinger)
- May 2010 – Invited speaker at the symposium entitled “New perspectives in migratory physiology and energetics” at the annual meeting of the Wilson Ornithological Society (Geneva, New York). Talk title: “Fat of the matter: how dietary fatty acid composition affects energy expenditure of birds during migration” (w/ Barbara Pierce)
- May 2010 – Invited speaker at the symposium entitled “New perspectives in migratory physiology and energetics” at the annual meeting of the Wilson Ornithological Society (Geneva, New York). Talk title: “Tissue turnover rate determines extent of phenotypic flexibility in organ size of migrating birds” (w/ Ulf Bauchinger)
- April 2010 – Annual meeting of Northeast Fish and Wildlife Society (Newton, MA) “A baseline assessment of avian use of Rhode Island’s nearshore and offshore waters. (presented by P. Paton, with K. Winiarski, C. Trocki)
- January 2010 – Invited talk entitled “Assessing bird use of Rhode Island’s offshore waters” at Long Island University (w/ Peter Paton, Kris Winiarski, Brian Harris, Carol Trocki).
- January 2010 - Annual meeting of the Society of Integrative and Comparative Biology (Seattle, WA) "Fasting triggers hypothermia, and ambient temperature modulates its depth in Japanese quail *Coturnix japonica*." (w/ M. Ben-Hamo, U. Bauchinger, B. Pinshow)
- December 2009 – Invited speaker at workshop entitled “” hosted by the National Park Service (Narragansett, RI). Talk title: “Climate change in NE Region Coastal Parks: challenges for migratory species.”
- August 2009 - Invited speaker at the symposium entitled “Physiology of birds during migration and stop-over” at the Annual meeting of the European Ornithologist’s Union (Zurich, Switzerland) “Tissue turnover rate determines extent of phenotypic flexibility in organ size of migrating birds” (w/ Ulf Bauchinger)
- August 2009 - Annual meeting of the American Ornithologist’s Union (Philadelphia, PA) “Evaluating the potential for energy and protein to limit abundance of the endangered Hawaiian Moorhen” (w/ D.W. DesRochers, J. M. Reed).
- January 2009 – Annual meeting of the Society of Integrative and Comparative Biology (Boston, MA) “Protein requirements of seasonally frugivorous songbirds decrease during migration.” (w/ L. Langlois)
- January 2009 – Annual meeting of the Society of Integrative and Comparative Biology (Boston, MA) “Do energy and nutritional value of food influence Hawaiian moorhen (*Gallinula chloropus sandvicensis*) abundance?” (w/ D. DesRochers, M.D. Silbernagle, and J.M. Reed)
- January 2009 – Annual meeting of the Society of Integrative and Comparative Biology (Boston, MA) “Carbon turnover in tissues of a passerine bird: allometry, isotopic clocks, and phenotypic flexibility in organ size” (w/ U. Bauchinger)

- August 2008 – Invited speaker at the symposium entitled “The physiological underpinnings of carry-over effects” at the joint meeting of the American Ornithologist’s Union, Cooper Ornithological Society, and Society of Canadian Ornithologists (Portland, Oregon) “Factors influencing the preparation and success for birds during migration” (w/ W. Karasov, B. Pierce)
- August 2008 – Invited speaker at the symposium entitled “Body condition of birds” at the joint meeting of the American Ornithologist’s Union, Cooper Ornithological Society, and Society of Canadian Ornithologists (Portland, Oregon) “Non-destructive techniques to assess body composition and condition”
- August 2008 – Annual meeting of the American Ornithologist’s Union, Cooper Ornithological Society, and Society of Canadian Ornithologists (Portland, Oregon) “Protein requirements of frugivorous and granivorous songbirds decrease during migration” (w/ L. Langlois)
- January 2008 - Annual meeting of the Society for Integrative and Comparative Biology (San Antonio, Texas) “Dietary fat and exercise performance of migratory birds.” (w/ B. Pierce, C. Guglielmo, A. Witzellner, T. O’Connor, J. Speakman, L. Langlois, S. Engel, S. Smith)
- September 2007 – Invited speaker at workshop entitled “Advanced Avian Research Facilities” at University of Western Ontario (London, Canada) “Bird physiology during flight in a wind tunnel.”
- September 2007 – Invited poster at workshop entitled “Advanced Avian Research Facilities” at University of Western Ontario (London, Canada) “Effects of diet composition on blood metabolites and body composition of a migratory bird.” (w/ S. Smith)
- September 2007 – 14th annual meeting of The Wildlife Society (Tucson, Arizona) “A GIS-based model of ruffed grouse habitat distribution in Rhode Island.” (w/ Erik Blomberg et al.)
- July 2007 – Annual meeting of the Society for American Field Ornithologist’s (Orono, Maine) “Quantifying body condition of songbirds: A comparison of intra- and inter-specific models that include TOBEC, D2O, or fat score.”
- July 2007 – 85th annual meeting of the Society for American Field Ornithologist’s (Orono, Maine) “Influence of diet and food availability on fuel use and storage in songbirds during autumn migration.” (w/ S. Smith)
- June 2007 – 77th annual meeting of the Cooper Ornithological Society (Moscow, Idaho). “Tissue-turnover, isotopic clocks, and migrating birds.” (w/ U. Bauchinger)
- June 2007 – Invited speaker at the workshop entitled “Use of stable isotope approaches to answer questions about avian movements, physiology, behavior, and ecology” at the 77th annual meeting of the Cooper Ornithological Society (Moscow, Idaho). “Stable isotopes and avian ecology and physiology.”
- June 2007 – Invited speaker at the symposium entitled “Stable isotopes in avian biology” at the 77th annual meeting of the Cooper Ornithological Society (Moscow, Idaho). “Routing of macronutrients in migratory songbirds: effects of fasting, diet quality and macronutrient composition revealed using stable isotopes.” (w/ D. Podlesak)
- June 2007 – Invited speaker at the symposium entitled “Stable isotopes in avian biology” at the 77th annual meeting of the Cooper Ornithological Society (Moscow, Idaho). “Response of an herbivore to severe habitat degradation revealed using natural abundances of stable isotopes.” (w/ K. Winiarski)
- March 2007 – Invited speaker at Ben Gurion University (Sede Boqer, Israel) “Diet, body composition, and exercise performance.”
- January 2007 - Annual meeting of the Society for Integrative and Comparative Biology (Orlando, FL). “Faster with use: exercise affects turnover rate of carbon isotopes in some but not all organs.” (w/ U. Bauchinger, J. Keil, J.M. Starck)
- November 2006 – Invited speaker at the workshop entitled “Final workshop in honor of Ebo Gwinner” (Andechs, Germany) “Diet, body composition, and exercise performance.”
- October 2006 – Invited speaker at symposium entitled “Comparative nutritional physiology” at the American Physiological Society conference “Comparative Physiology 2006: Integrating diversity.” (Virginia Beach, VA) “Effects of dietary lipids and antioxidants on exercise performance in birds.” (w/ B. J. Pierce)
- October 2006 – Invited speaker at symposium entitled “Avian ecological and evolutionary physiology in the new millennium” at the 4th North American Ornithological Congress (Veracruz, Mexico) “Diet quality and metabolic routing of dietary nutrients in migratory birds: novel applications of stable isotopes” (w/ D. Podlesak)
- September 2006 – Invited speaker at Fordham University (Bronx, NY) “Nutritional ecology of migratory birds: fats as fuels, stable isotopes as tools.”
- August 2006 – 24th International Ornithological Congress (Hamburg, Germany). “Seasonal changes in composition of lipid stores in migratory birds: causes and consequences” (w/ B. J. Pierce)
- August 2006 – 24th International Ornithological Congress (Hamburg, Germany). “Tri-trophic effects of plant defenses: Black-capped chickadees consume caterpillars based on host leaf chemistry” (w/ M. Muller et al.)
- March 2006 – 11th annual meeting of the Rhode Island Natural History Survey (Cranston, RI) “Fruit quality and consumption by songbirds during autumn migration” (w/ S.B. Smith et al.)
- January 2006 - Annual meeting of the Society for Integrative and Comparative Biology (Orlando, FL). “Birds metabolically route exogenous nutrients to rebuild digestive organs after fasting.” (w/ D. Podlesak)
- January 2006 Annual meeting of the Society of Integrative & Comparative Biology (Orlando, FL) “Effect of diet on plasma metabolites in a migratory songbird” (w/ S.B. Smith and C.G. Guglielmo)
- November 2005 – Invited speaker at Max Planck Institute for Ornithology at Radolfzell, “Nutritional ecology of migratory birds: fats as fuel, stable isotopes as tools”
- October 2005 – Invited speaker at Institute for Wildlife Ecology (Vienna, Austria), “Nutritional ecology of migratory birds: insights gained by integrating physiology and ecology”

October 2005 – Invited Colloquia speaker at Max Planck Institute for Ornithology at Seewiesen, “Nutritional ecology of birds during migration”

August 2005 - Science Thursday Seminar Series (Cape Cod National Seashore, Wellfleet, MA) (w/ E. G. Schneider) "Effects of ambient temperature and human disturbance on piping plover incubation patterns at Cape Cod National Seashore".

August 2005 - Annual meeting of Massachusetts coastal waterbird conservation cooperators (Hyannis, MA) (w/ E. G. Schneider) "Using nest temperature to estimate nest attendance of piping plovers".

February 2005 – Invited speaker at symposium entitled “Apoptosis in Vertebrates” at University of Munich (Germany) “Tissue turnover in migratory songbirds and its ecological significance: applications of stable isotopes.”

February 2005 – Invited speaker at Netherland Institute for Ecology, “Nutritional ecology of migratory birds: insights gained by integrating physiology and ecology.”

January 2005 – Invited speaker at European Science Foundation symposium entitled “Optimality in Bird Migration” (Wilhelmshaven, Germany) “Flying, fasting, and feeding in migratory birds: a nutritional and physiological perspective.” (w/ B.J. Pierce)

January 2005 – Invited speaker at Coastal Resources Management Council workshop entitled “Coastal Vegetative buffer policy: innovative approaches in urban/suburban environments” (Kingston, RI) “Scientific overview of buffer habitat functions.”

September 2004 – Invited speaker at European Science Foundation workshop entitled “Are there specific adaptations for long-distance migration in birds?” (Andechs, Germany) “Fueling flight: diet selection, fatty acid metabolism, and exercise performance of migrating birds.”

August 2004- Appalachian Cooperative Grouse Research Project Summary Workshop (Shepherdstown, WV) (w/ B. C. Tefft, E. G. Endrulat, and G. W. Norman) "Effects of forest management on ruffed grouse habitat selection and home range size in WV, VA, and RI, USA."

August 2004 – Invited speaker at symposium entitled “Intermittent Feeding in Vertebrates” at the 3rd International Conference of Comparative Physiology and Biochemistry (Ithala, South Africa) “Flying while fasting, feeding while stopping over: intermittent feeding in migratory birds.” (w/ W. H. Karasov) & “Diet quality affects metabolic routing of dietary nutrients in wild birds: applications of stable isotopes.” (w/ D. Podlesak)

May 2004 – Invited speaker at symposium entitled “Migration Stopover Ecology” at the annual meeting of the Cooper Ornithological Society (LaCrosse, WI) “Seasonal changes in composition of lipid stores in migratory birds: causes and consequences.” (w/ B.J. Pierce)

May 2004 – Invited speaker at symposium entitled “Physiological Ecology” at the annual meeting of the Cooper Ornithological Society (LaCrosse, WI) “Metabolic routing of dietary nutrients in migratory songbirds and its ecological significance: applications of stable isotopes.” (w/ D. Podlesak)

April 2004 – Invited speaker at URI’s Nutrition and Food Science department’s spring seminar series. “Nutritional ecology of birds during migration.”

March 2004 – Invited speaker at the Audubon Society of Rhode Island’s “Birding Day” (Bristol, RI) “Elevated atmospheric CO₂ and birds: what’s the connection?”

March 2004 – Annual meeting of Rhode Island Natural History Survey (w/ M. Muller) “Tri-trophic direct and indirect effects of plant secondary compounds.”

January 2004 – Annual meeting of the Society of Integrative & Comparative Biology (New Orleans, LA) (w/ B. J. Pierce) “Seasonal changes in the fatty acid composition of lipid stores in migratory birds: the relative importance of selective metabolism of fatty acids and behavioral preferences for certain dietary fatty acids.”

January 2004 – Annual meeting of the Society of Integrative & Comparative Biology (New Orleans, LA) (w/ D. Podlesak) “Using stable isotopes to investigate the effects of diet quality on metabolic routing of dietary nutrients in birds.”

September 2003 – Annual meeting of The Wildlife Society (Burlington, VT) “Effects of elevated CO₂ on keystone herbivores in Arctic ecosystems: the importance of geese.”

September 2003 – Annual meeting of The Wildlife Society (Burlington, VT) (w/ Erik Endrulat, URI graduate student) “Effects of forest management on habitat selection and home range size of Ruffed Grouse in eastern forests.”

September 2003 – Annual meeting of The Wildlife Society (Burlington, VT) (w/ Rick McKinney, URI graduate student) “Factors affecting time-activity budgets of bufflehead wintering in Narragansett Bay, RI.”

September 2003 – Annual meeting of The Wildlife Society (Burlington, VT) (w/ David Podlesak, URI graduate student) “Stable isotope analysis of tissues sampled non-destructively can indicate nutrient incorporation and utilization in migratory songbirds.”

April 2003 – Annual meeting of the Northeast Fish & Wildlife Conference (Newport, RI) “Effects of elevated CO₂ on keystone herbivores in Arctic ecosystems.”

April 2003 – Annual meeting of the Northeast Fish & Wildlife Conference (Newport, RI) (w/ Erik Endrulat, URI graduate student) “Effects of habitat management on Ruffed Grouse in Rhode Island and the central and southern Appalachians.”

April 2003 – Annual meeting of the Northeast Fish & Wildlife Conference (Newport, RI) (w/ Kathleen McPherson, URI undergraduate student) “Quality of fruit in relation to bird migration on Block Island, RI.”

April 2003 – Annual meeting of the Northeast Fish & Wildlife Conference (Newport, RI) (w/ Valerie Mitchell, URI undergraduate student) “Habitat selection of Ruffed Grouse in Arcadia Wildlife Management Area, RI.”

April 2003 - Univ. Florida (Gainesville) “Nutritional Ecology of Birds during Migration.”

March 2003 – 2nd International Canada Goose Symposium (Madison, WI) “Energetics and time allocation of cackling

Canada geese during spring.”

February 2003 - Univ. Montana (Missoula) “Nutritional Ecology of Birds during Migration.”

January 2003 - Annual meeting of the Society of Integrative & Comparative Biology (Toronto, Canada) “Spare capacity in the digestive system of a migratory bird and its ecological significance.”

January 2003 - Annual meeting of the Society of Integrative & Comparative Biology (Toronto, Canada) (with Barbara Pierce, URI graduate student) “Fatty acid composition of body fat and its effect on aerobic performance in red-eyed vireos.”

PUBLIC OUTREACH, PRESENTATIONS, AND POPULAR ARTICLES

Public Presentations:

August 2007 - Invited workshop leader for URI's Instructional Development Program. Topic: "Getting Students Involved."

March 2006 – 11th annual meeting of the Rhode Island Natural History Survey (Cranston, RI) “Fruit quality and consumption by songbirds during autumn migration” (w/ S.B. Smith et al.)

August 2005 - Science Thursday Seminar Series (Cape Cod National Seashore, Wellfleet, MA) (w/ E. G. Schneider) "Effects of ambient temperature and human disturbance on piping plover incubation patterns at Cape Cod National Seashore".

August 2005 - Annual meeting of Massachusetts coastal waterbird conservation cooperators (Hyannis, MA) (w/ E. G. Schneider) "Using nest temperature to estimate nest attendance of piping plovers".

January 2005 – Invited speaker at Coastal Resources Management Council workshop entitled “Coastal Vegetative buffer policy: innovative approaches in urban/suburban environments” (Kingston, RI) “Scientific overview of buffer habitat functions.”

March 2004 – Invited speaker at the Audubon Society of Rhode Island’s “Birding Day” (Bristol, RI) “Elevated atmospheric CO₂ and birds: what’s the connection?”

July 2004 - Invited speaker at three faculty development workshops that were part of URI's General Education curriculum reform efforts. Topic: "Writing Effectively"

June 2004 – Group leader during workshop on Rhode Island’s State Wildlife Comprehensive Conservation Plan.

April 2004 – One of three invited speakers at URI Research Office’s workshop on writing successful grant proposals.

July 2003 - Invited speaker at three faculty development workshops that were part of URI's General Education curriculum reform efforts. Topic: "Writing Effectively"

April 2003 – Annual meeting of the Northeast Fish & Wildlife Conference (Newport, RI) “Effects of elevated CO₂ on keystone herbivores in Arctic ecosystems.”

April 2003 – Annual meeting of the Northeast Fish & Wildlife Conference (Newport, RI) (w/ Erik Endrulat, URI graduate student) “Effects of habitat management on Ruffed Grouse in Rhode Island and the central and southern Appalachians.”

April 2003 – Annual meeting of the Northeast Fish & Wildlife Conference (Newport, RI) (w/ Kathleen McPherson, URI undergraduate student) “Quality of fruit in relation to bird migration on Block Island, RI.”

April 2003 – Annual meeting of the Northeast Fish & Wildlife Conference (Newport, RI) (w/ Valerie Mitchell, URI undergraduate student) “Habitat selection of Ruffed Grouse in Arcadia Wildlife Management Area, RI.”

August 2002 - Invited speaker at URI's New Faculty Orientation. Topic: "Secrets for Successfully Securing Grants."

August 2002 - Invited workshop leader for URI's Instructional Development Program. Topic: "Getting Students Involved."

July 2002 - Invited speaker at three faculty development workshops that were part of URI's General Education curriculum reform efforts. Topic: "Writing Effectively"

August 2001 - Invited speaker at URI's New Faculty Orientation. Topic: "Secrets for Successfully Securing Grants."

August 2001 - Invited workshop leader for URI's Instructional Development Program. Topic: "Getting Students Involved."

July 2001 - Invited speaker at three faculty development workshops that were part of URI's General Education curriculum reform efforts. Topic: "Writing Effectively"

July 2001 - Guest speaker in the "Wicked Cool Scientist" summer program at the Environmental Education Center, W. Alton Jones campus of URI.

October 2000 - Co-led birding field trip (w/ Dr. Paton) for the Friends of Oceanography.

July 2000 - Guest speaker in the "Wicked Cool Scientist" summer program at the Environmental Education Center, W. Alton Jones campus of URI.

June 2000 - Guest speaker at the annual Marine and Environmental Advisory Council (URI) meeting. "Migratory birds and coastal resource management."

February 1999 - Invited Lecture Series on Rhode Island's Fauna, Flora, Geology, and Ecosystems (hosted by The Rhode Island Natural History Survey, University of Rhode Island) "Arctic-nesting geese in North America: tales of recovery and overabundance, and the contemporary destruction of arctic ecosystems."

March 1999 – Guest speaker at the annual Watershed Watch cooperators meeting “Management of geese: perspectives for the private landowner.”

Public Outreach:

Scientific advisor to The Nature Conservancy (Block Island), Coastal Resources Management Council (RI), Audubon Society of RI, State Wildlife Comprehensive Conservation Plan (RI), Friends of Oceanography, Marine and Environmental Advisory Council (URI)
Science teacher for "Wicked Cool Scientist" program for 8-14 yr olds (each summer since 2000) at the Alton Jones Environmental Education Center
Workshop leader for URI's Instructional Development Program on hands-on learning techniques, writing in the sciences, grant writing
Developed information sheets on bird-friendly horticulture for URI Cooperative Extension Service.

Popular Articles (that focus on results from our research and its implications):

"Thirsty birds burn the engine in flight" National Public Radio (Saturday Edition). Retrieved 10 Sept. 2011, from <http://www.npr.org/2011/09/10/140334547/thirsty-birds-burn-the-engine-in-flight?sc=emaf>
"A race to reap energy from ocean breezes" New York Times (Science Environment section). Retrieved April 2, 2010, from <http://www.nytimes.com/2010/04/03/science/earth/03wind.html>
"Scientists believe birds can teach us about healthy eating." *ScienceDaily*. Retrieved April 9, 2010, from <http://www.sciencedaily.com/releases/2010/03/100324155357.htm>
"Birds fuel up on super foods before migrating" DiscoveryNews. Retrieved March 25, 2010, from <http://news.discovery.com/animals/birds-berries-migration.html>
Popular articles about our research have been reported in (since 2000): *Wildlife Conservation, Mechanical Engineering, Birdwatcher's Digest, California's Wild, Northern Woodlands, Boston Globe, Montreal Gazette, Providence Journal, Block Island Times, Northern Sky News, United Press International, Innovations Report, Birder's World, Natural New England, Chronicle of Higher Education*, and NPR's *Living on Earth*.
"Scientists sniff bird breath at migration 'rest stops'" WILDLIFE CONSERVATION, August 2005 (by Steven Mirsky)
"For the birds" MECHANICAL ENGINEERING, May 2005 (by Gayle Ehrenman)
"The accidental birder" BIRD WATCHER'S DIGEST, February 2005 (by David Bird)
"Picky chickadees" NORTHERN WOODLANDS, Summer 2004 (by Todd McLeish)
"Bird breathalyzer helps assess migratory diet" NORTHERN WOODLANDS, Spring 2004 (by Todd McLeish)
"Much depends on the appetite of fussy birds" GAZETTE (Montreal) newspaper, 9 May 2004 (by David Bird)
"Bird's diet may reflect warming" THE BOSTON GLOBE newspaper, 22 March 2004 (Associated Press)
"Global warming may cause songbirds to avoid certain foods" THE UNIVERSITY PACER, March 2004 (by Todd McLeish)
"URI study shows global warming having a chilling effect on songbirds" PROVIDENCE JOURNAL newspaper, 20 March 2004 (by Edward Ortiz)
"Saving the 'Last Green Valley': urgent conservation in southern New England" NORTHERN SKY NEWS, March 2004 (by Todd McLeish)
"Songbirds say no thanks to CO₂ caterpillars" EDIE.NET NEWS, March 2004 (by Sorcha Clifford)
"Global warming affects global food-chains" THE GOOD 5-CENT CIGAR, March 2004 (by Tamar Weinberg)
"Climate: bigger plants, fewer birds" UNITED PRESS INTERNATIONAL, February 2004 (by Dan Whipple)
"Global warming may cause songbirds to avoid certain foods" INNOVATIONS REPORT, Jan 2004 (by Todd McLeish)
"Songbird studies reflect global warming dangers" SOUTH COUNTY INDEPENDENT, February 2004
"URI study shows songbirds avoid CO₂-tainted food supply" WESTERLY SUN, 29 Feb 2004 (by Kathleen Currie)
"Global warming and diet" radio newstory for LIVING ON EARTH, National Public Radio, 2 Feb 2004 (by Cynthia Graber)
"Gutting it out" BIRDER'S WORLD, October 2003 (by staff writer)
"Fit and fat" CALIFORNIA'S WILD, Fall 2003 (by Kathleen Wong)
"Migrating songbirds have picky ways of discerning food options" NATURAL NEW ENGLAND, Spring 2003
"The challenge of maintaining two homes" CHRONICLE OF HIGHER EDUCATION, 12 April 2002 (by Lila Guterman)
"Birds of two worlds: temperate-tropical migration systems" TRENDS IN ECOLOGY & EVOLUTION, July 2002 (by Robert Ricklefs)
"Avoiding extreme environments: migratory birds. MARITIMES, Summer 2000 (by S. McWilliams)
"NSF grant to fund bird-migration studies on Block Island" THE BLOCK ISLAND TIMES, 13 May 2000 (by Kristen McNamara)

PROFESSIONAL SERVICE ACTIVITIES (since 1999):

Major Professor for the following Graduate Students at University of Rhode Island (current position):

Barbara Pierce (Ph.D.) – completed August 2003 (Assistant Professor, Sacred Heart University)
Megan Whitman (M.Sc.) – completed December 2002 (Researcher, Cornell Ornithology Laboratory)
Erik Endrulat (M.Sc.) – completed August 2003 (research scientist, Rhode Island Natural History Survey)
David Podlesak (Ph.D.) – completed December 2004 (Research Scientist, Los Alamos National Laboratory)
Richard McKinney (Ph.D.) – completed May 2005 (research scientist, Environmental Protection Agency)
Eric Schneider (M.Sc.) – completed August 2005 (research scientist, RI Dept. Environmental Mgt)

Susan Smith (Ph.D.) – completed May 2007 (Assistant Professor, Rochester Institute for Technology)
Kris Winiarski (M.Sc.) – completed August 2007 (Research Associate, URI)
Erik Blomberg (M.Sc.) – completed December 2007 (PhD student, Univ. Nevada Reno)
Lillie Langlois (M.Sc.) – completed August 2008 (research scientist, Max-Planck Institute for Ornithology)
Jessica Bolser (M.Sc.) – completed August 2010 (wildlife biologist, USFWS National Wildlife Refuge)
Adam Smith (Ph.D.) – current
Michelle Boyles (M.Sc.) – completed August 2011 (wildlife biologist, USFWS)
Roger Masse (Ph.D.) – current
Rebecca Alan (M.Sc.) - current
Pam Loring (M.Sc.) – current (Coadvised with Peter Paton)
Josh Bueth (M.Sc.) – current (Coadvised with Peter Paton)
Megan Skrip (Ph.D.) – current
Danielle Birmingham (MESM) - current

Served on the Graduate Committee for the following Graduate Students:

Ilyse Guck (M.Sc.) - completed 1999 (Fisheries & Animal Veterinary Science, URI)
Barry Devine (Ph.D.) – completed 1999 (Plant Sciences, URI)
David Avery (Ph.D.) – completed 2000 (Graduate School of Oceanography, URI)
Stephen Wiley (M.Sc.) – completed 2001 (Fisheries & Animal Veterinary Science, URI)
Jason Osenkowski (M.Sc.) – completed 2002 (NRS, URI)
Christine Van Orsouw (M.Sc.) – completed 2004 (Biological Sciences, URI)
Melissa Nystrom (M.Sc.) – completed 2004 (Biological Sciences, URI)
Lily Murray (M.Sc.) – completed 2006 (Fisheries & Animal Veterinary Science, URI)
Diana Burr (M.Sc.) – completed 2006 (Fisheries & Animal Veterinary Science, URI)
Niels Hobbs (Ph.D.) – completed 2007 (Biological Sciences, URI)
Lloyd Trueblood (Ph.D.) – completed 2009 (Biological Sciences, URI)
Rachel Finley (Ph.D.) – completed 2006 (NRS, URI)
Clare Wormald (Ph.D.) – completed 2007 (NRS, URI)
Dan Kresge (Ph.D.) – completed 2008 (Nutrition & Food Sciences, URI)
Jennifer Long (Ph.D.) – completed 2007 (Biological Sciences, Univ. Maine)
Edwin Price (Ph.D.) – completed 2009 (Biological Sciences, Univ. Western Ontario)
Sarah Marnell (M.Sc.) – completed 2008 (Biological Sciences, URI)
Marian Glick-Bauer (Ph.D.) – current (Biology, City University of New York)
Mike Byrne (M.Sc.) – completed 2007 (Biological Sciences, URI)
Aaron Weed (Ph.D.) – completed spring 2010 (Plant Sciences, URI)
David DesRocher (Ph.D.) – completed 2010 (Biological Sciences, Tufts)
Michelle Guidone (Ph.D.) – current (Biological Sciences, URI)
Nicole Rohr (Ph.D.) – current (Biological Sciences, URI)
Stephanie Koch (Ph.D.) – completed 2010 (NRS, URI)
Kim Lellis-Dibble (Ph.D.) – current (NRS, URI)
Caitlyn MacGlaflin (M.Sc.) – completed 2010 (Fisheries & Animal Veterinary Science, URI)

Committees at University of Rhode Island:

Member, Academic Program Review Committee (APRC) – 2009-present
Member, CELS Dean's Faculty Advisor Committee – 2010 – present
Member, URI Sabbatical Leave Committee - 2010
Chair, CELS Graduate Research & Outreach Committee (GROC) – 2008-09
Codirector, NRS Undergraduate Curriculum – 2002 to present
Member, CELS Space Advisory Team – 2008
Chair, CELS Ad Hoc Space Committee (populating the new CBLS building)- 2007
Disability Mentor (one of two) in CELS – 2004 to present
Member, CELS Committee on the Organization of Life Sciences (COLS) – 2003-05
Member, CELS Teaching with Technologies Faculty Fellows Program – 2002-03
Member, CELS Assessment Committee – 2002-04
Member, CELS Researcher of Year Award Committee - 2005
CELS representative to URI Graduate Council – 2003-04
Member, Search Committee for Assistant Professor of Marine Physiological Ecology in BISC - 2004
Member, Search Committee for Assistant Professor of Invasive Species in NRS - 2005
Member, Search Committee for Wildlife Biologist position at RI DEM - 2004
Member, Search Committee for Associate Dean of Graduate School - 2004
Member, Search Committee for Director of Honor's Program – 2008

Referee for *Auk*, *Biology Letters*, *Comparative Biochemistry and Physiology*, *Condor*, *Ecology*, *Functional Ecology*, *Ibis*, *Journal of Avian Biology*, *Journal of Comparative Physiology*, *Journal of Experimental Biology*, *Journal of Ornithology*, *Journal of Wildlife Management*, *Northeastern Naturalist*, *Oecologia*, *Physiological and Biochemical Zoology*, *Proceedings of the Royal Society*, *Western North American Naturalist*, *Wildlife Biology*, *Wildlife Monographs*, *Wilson Journal of Ornithology*, *Zoology*.

Associate Editor, *Auk* (2006-2009)

Associate Editor, *Physiological and Biochemical Zoology* (2008-present)

Associated Editor, *Oecologia* (2009-present)

Guest Editor, *Northeastern Naturalist* (2003-present)

Editorial Board of *Zoology* (2002-present)

Member of 2003 Painton Award Committee (for best paper published in *Condor* within past 4 years)

Reviewer of grants for National Science Foundation (three programs: Ecological and Evolutionary Physiology Program in the Division of Integrative Biology and Neurobiology; Ecology Program in the Division of Environmental Biology; International Doctoral Dissertation Enhancement Project Program in the Office of International Science and Engineering), National Fish and Wildlife Foundation, Maine Agricultural Experiment Station, National Research Foundation (South Africa), Netherland Science Foundation.

Co-organizer (with Rebecca Holberton, UMaine) of symposium entitled "Physiological ecology of migration" at the 3rd North American Ornithological Congress in September, 2002 (New Orleans, LA)

Co-organizer (with W.H. Karasov, UWisconsin) of symposium entitled "Comparative nutritional physiology" at the American Physiological Society conference "Comparative Physiology 2006: Integrating diversity." In October, 2006 (Virginia Beach, VA)

Co-organizer (with Blair Wolf, UNew Mexico, and Andrew McKechnie, Univ. Johannesburg) of symposium entitled "Avian ecological and evolutionary physiology in the new millennium" at the 4th North American Ornithological Congress in October, 2006 (Veracruz, Mexico)

Co-organizer (with Blair Wolf, UNew Mexico, and Keith Hobson, Canadian Wildlife Service) of full-day workshop entitled "Use of stable isotope approaches to answer questions about avian movements, physiology, behavior, and ecology" at the 77th Cooper Ornithological Society in June, 2007 (Moscow, Idaho)

Co-organizer (with Blair Wolf, UNew Mexico, and Keith Hobson, Canadian Wildlife Service) of symposium entitled "Stable isotopes in bird studies" at the 77th Cooper Ornithological Society in June, 2007 (Moscow, Idaho)

Co-organizer (with Chris Guglielmo, UWestern Ontario) of symposium entitled "Body condition of birds: the search for the Holy Grail" at the joint meeting of the American Ornithologist's Union, Cooper Ornithological Society, Society of Canadian Ornithologists in August, 2008 (Portland, Oregon)

Co-organizer (with Ulf Bauchinger, LMU, Munich) of symposium entitled "Across the great divides: how ecological barriers affect the biogeography and ecology of long-distance passerine migration" at the 2010 International Ornithological Congress in August, 2010 (Brazil)

Co-organizer (with P. Paton, URI and A. Wells-Berlin, USGS) of workshop entitled "Assessing the impact of offshore renewable energy devices on sea ducks: pre- and post-construction research needs" at the 4th International Seaduck Conference (Seward, AK)

Supervise on average two Undergraduate Research Award Students each year, five undergraduate students involved in Research Apprenticeships at URI each year, and seven URI undergraduate students involved in Internships each year.