# GRAHAM R. SCOTT

CURRICULUM VITAE

## CONTACT DETAILS

Department of Biology
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## PROFESSIONAL EMPLOYMENT

2018- Associate Professor
Department of Biology, McMaster University

2011-2018 Assistant Professor
Department of Biology, McMaster University

2009-2011 Postdoctoral Fellow
School of Biology, University of St Andrews
Supervisor: Prof. Ian A. Johnston

## OTHER POSITIONS

2023- Journal Editor
Journal of Comparative Physiology B

## EDUCATION

2004-2009 Ph.D. (Comparative Physiology)
Department of Zoology, University of British Columbia
Thesis supervisor: Dr. William K. Milsom

2002-2004 M.Sc. (Comparative Physiology)
Department of Zoology, University of British Columbia
Thesis supervisor: Dr. Patricia M. Schulte

1997-2002 B.Sc. (Biology)
Department of Biology, McMaster University
Honours thesis supervisor: Dr. Chris M. Wood

Updated on February 9, 2024

## AWARDS

| | |
|---|---|
| 2021 | University Scholar<br>McMaster University |
| 2017 | Robert G. Boutilier New Investigator Award<br>Canadian Society of Zoologists |
| 2013 | New Investigator Award<br>Comparative and Evolutionary Physiology Section<br>American Physiological Society |
| 2012 | President's Medal<br>Early career scientist award<br>Society for Experimental Biology |
| 2011 | John Charles Polanyi Prize ($20,000)<br>Research excellence in medicine and physiology<br>Provincial Government of Ontario |
| 2009-2011 | Howard Alper Postdoctoral Prize ($20,000)<br>Most outstanding PDF in NSERC PDF competition<br>Natural Sciences and Engineering Research Council of Canada (NSERC) |
| 2009-2011 | Postdoctoral Fellowship ($80,000)<br>NSERC |

## RESEARCH FUNDING

| *Current Operating Grants* | | *Total Funding (CAD)* |
|---|---|---|
| 2023-2026 | **NSERC Alliance Grant – International – Collaboration**. "Physiological mechanisms of adaptation to low-oxygen environments in high-altitude mice". Scott GR, McClelland GB. | $297,264 (3 years) |
| 2022-2026 | **National Institutes of Health (NIH) – Research Grant (R01)**. "Genomic and physiological mechanisms of hypoxia adaptation in high-altitude mice". Storz JF, Cheviron ZA, Good JM, McClelland GB, Scott GR, Sabat P.<br>(Subcontract award for $119,479 USD of operating funds and co-supervision of one postdoctoral fellow) | $1,920,229 USD (4 years) |
| 2021-2025 | **University Scholar, McMaster University.** University Scholar Research Award. Scott GR. | $60,000 (4 years) |
| 2021-2024 | **National Science Foundation (NSF) – Integrative Organismal Systems (IOS) Research Project Grant**. "Physiology of hypoxia adaptation in the world's highest-dwelling mammal". Storz JF, Bozinovic F, Cheviron ZA, D'Elia G, McClelland GB, Opazo JC, Sabat P, Scott GR. | $827,312 USD (3 years) |

(Subcontract award for $124,309 USD of operating funds and co-supervision of one postdoctoral fellow)

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|---|---|---|
| 2019-2024 | **Canada Research Chair.** Canada Research Chair (Tier 2) in Comparative and Environmental Physiology. Scott GR. | $500,000 (5 years) |
| | (Research stipend of $25,000 per year for operating costs) | |
| 2018-2024 | **Natural Sciences and Engineering Research Council of Canada (NSERC) Discovery Grant**. “Evolved mechanisms of hypoxia resistance in high-altitude natives”. Scott GR. | $486,640 (6 years) |

*Previous Operating Grants* *Total Funding (CAD)*

| | | |
|---|---|---|
| 2018-2021 | **NSERC Discovery Accelerator Supplement**. “Evolved mechanisms of hypoxia resistance in high-altitude natives”. Scott GR. | $120,000 (3 years) |
| 2018-2021 | **National Science Foundation (NSF) – Integrative Organismal Systems (IOS) Research Project Grant**. “Physiological and regulatory mechanisms of the attenuation of maladaptive plasticity in highland deer mice”. Cheviron ZA, vonHoldt B, Campbell-Staton S, Scott GR. | $986,998 USD (3 years) |
| | (Subcontract award for $90,532 USD of operating funds) | |
| 2017-2020 | **Royal Bank of Canada (RBC) Blue Water Foundation**. “Anthropogenic threats to biodiversity in Hamilton Harbour and Cootes Paradise”. Balshine S, Scott GR, Kidd KA. | $108,000 (3 years) |
| 2014-2019 | **Canada Research Chair.** Canada Research Chair (Tier 2) in Comparative and Environmental Physiology. Scott GR. | $500,000 (5 years) |
| | (Research stipend of $10,000 per year for operating costs) | |
| 2017-2019 | **International Development Research Centre – South Africa-Canada Research Chairs Mobility Initiative**. “Surviving on high: inter-continental comparisons of high-altitude adaptations in small mammals from North America and Africa”. Scott GR, Taylor PJ. | $40,000 (2 years) |
| 2014-2019 | **Ontario Ministry of Research and Innovation – Early Researcher Award**. “Nature’s solutions to oxygen deprivation”. Scott GR. | $150,000 (5 years) |
| 2012-2018 | **NSERC Discovery Grant**. “Integrative physiology of animal performance during environmental stress”. Scott GR. | $192,000 (6 years) |
| 2014-2017 | **NSF – IOS Research Project Grant**. “Mechanisms and evolution of thermogenic capacity in high-altitude deer mice”. Cheviron ZA, Storz JF, Scott GR, McClelland GB, Qutub A. | $989,340 USD (3 years) |
| | (Subcontract award for $39,164 USD of operating funds and | |

co-supervision of one postdoctoral fellow)

| | | |
|---|---|---|
| 2015-2017 | **McMaster Centre for Climate Change Seed Grant.** "Will Southern Ontario fish adapt to climate change?" Scott GR. | $14,000 (2 years) |
| 2015-2016 | **NSERC Engage and Engage Plus Grants**. "Fish physiology research to help guide municipal wastewater treatment practices in Hamilton Harbour". Scott GR. | $35,000 (2 years) |
| 2016 | **McMaster University – International Initiatives Micro Fund**. "Cardiac adaptations to high-altitude hypoxia in deer mice". Scott GR. | $5,000 (1 year) |
| 2014 | **NSERC Engage Grant**. "Fish physiology research to aid in the development and commercialization of equipment for climate change biology". Scott GR. | $25,000 (1 year) |
| 2012 | **McMaster Science and Engineering Research Board Seed Grant**. "The effects of multiple environmental stressors on aquatic life". Scott GR | $10,000 (1 year) |

## PEER-REVIEWED PUBLICATIONS

My trainees are shown in bold below. Journal impact factors (*IF*) for the publication year are listed for each article below.

*Accepted Manuscripts*

129) **Garrett EJ**, Prasad SK, Schweizer RM, McClelland GB, Scott GR. 2024. Evolved changes in phenotype across skeletal muscles in deer mice native to high altitude. Am J Physiol Reg Integr Comp Physiol. Accepted.

128) Storz JF, Scott GR. 2023. To what extent do physiological tolerances determine elevational range limits of mammals? J Physiol. Accepted.

**[Invited review]**

*Peer-Reviewed Publications in Journals*

127) McCracken KG, Scott GR, Alza L, Astie A, Bakkeren C, Bautista E, Bulgarella M, Cheek RG, Chua BA, **Dawson NJ**, Diaz A, **Ivy CM**, Frappell PB, Kopuchian C, Lague SL, Maina JN, Muñoz-Fuentes V, Schell ER, Smith MM, Sprenger RJ, Tubaro PL, Valqui T, Weber RE, Wilner D, Wilson RE, York JM, Milsom WK. 2024. Diving at high altitude: $O_2$ transport and utilization in the ruddy duck and torrent duck in the Andes. Occ Pap Mus Nat Sci LSU. 1(93), 1.

126) Taylor PJ, Nengovhela A, Denys C, Scott GR, **Ivy CM**. 2024. Adaptation in brain structure and respiratory and olfactory structures across environmental gradients in African and North American muroid rodents. Int Zool. 19, 165-181.

125) Schell ER, McCracken KG, Scott GR, White J, Lavretsky P, Dawson NJ. 2023. Consistent changes in muscle metabolism underlie dive performance across multiple lineages of diving ducks. Proc R Soc B. 290, 20231466.

124) Schweizer RM, **Ivy CM**, Natarajan C, Scott GR, Storz JF, Cheviron ZA. 2023. Gene regulatory changes underlie developmental plasticity in respiration and aerobic performance in highland deer mice. Mol Ecol. 32, 3483-3496.

123) **Ridgway MR**, Scott GR. 2023. Constant temperature and fluctuating temperature have distinct effects on hypoxia tolerance in killifish (*Fundulus heteroclitus*). J Exp Biol. 226, jeb245425.

122) Nengovhela A, **Ivy CM**, Scott GR, Denys C, Taylor PJ. 2023. Counter-gradient variation and the expensive tissue hypothesis explain parallel brain size reductions at high elevation in cricetid and murid rodents. Sci Rep. 13, 5617.

121) **Flewwelling LD**, **Wearing OH**, **Garrett EJ**, Scott GR. 2023. Thermoregulatory trade-offs underlie the effects of warming summer temperatures on deer mice. J Exp Biol. 226, jeb244852.

120) **Eizenga MR**, **Flewwelling LD**, **Warrier T**, Scott GR. 2023. Thermal performance curve of endurance running at high temperatures in deer mice. J Exp Biol. 226, jeb244847.

**[Featured in 'Inside JEB' in the Journal of Experimental Biology]**

119) **Mahalingam S**, Coulson SZ, Scott GR, McClelland GB. 2023. Function of left ventricle mitochondria in highland deer mice and lowland mice. J Comp Physiol B. 193, 207-217.

118) **Wearing OH**, Scott GR. 2022. Sex-specific effects of chronic hypoxia on routine cardiovascular function and metabolism in CD-1 mice. Am J Physiol Reg Integr Comp Physiol. 323, R547-R560.

117) **Wearing OH**, Scott GR. 2022. Evolved reductions in body temperature and the metabolic costs of thermoregulation in deer mice native to high altitude. Proc R Soc B. 289, 20221553.

116) **Ivy CM**, Velotta JP, Cheviron ZA, Scott GR. 2022. Genetic variation in HIF-2α attenuates ventilatory sensitivity and carotid body growth in chronic hypoxia in high-altitude deer mice. J Physiol. 600, 4207-4225.

**[Editorial feature in Journal of Physiology; journal cover]**

115) Yu JJ, Non AL, Heinrich EC, Gu W, Alcock J, Moya EA, Lawrence ES, Tift MS, O'Brien KA, Storz JF, Signore AV, Khudyakov JI, Milsom WK, Wilson SM, Beall CM, Villafuerte FC, Stobdan T, Julian CG, Moore LG, Fuster MM, Stokes JA, Milner R, West JB, Zhang J, Shyy JY, Childebayeva A, Vázquez-Medina JP, Pham LV, Mesarwi OA, Hall JE, Cheviron ZA, Sieker J, Blood AB, Yuan JX, Scott GR, Rana BK, Ponganis PJ, Malhotra A, Powell FL, Simonson TS. 2022. Time domains of hypoxia responses and -omics insights. Front Physiol. 13, 885295.

114) **Dawson NJ**, Scott GR. 2022. Adaptive increases in respiratory capacity and $O_2$ affinity of subsarcolemmal mitochondria from skeletal muscle of high-altitude deer mice. FASEB J. 36, e22391.

113) **Wearing OH**, Nelson D, **Ivy CM**, Crossley DA, Scott GR. 2022. Adrenergic control of the cardiovascular system in deer mice native to high altitude. Curr Res Physiol. 5, 83-92.

112) Mehdi H, Morphet ME, **Lau SC**, Bragg LM, Servos MR, Parrott JL, Scott GR, Balshine S. 2022. Temperature modulates the impacts of wastewater exposure on the physiology and behaviour of fathead minnows. Chemosphere. 294, 133738.

111) **Ivy CM**, **Wearing OH**, Natarajan C, Schweizer RM, Gutiérrez-Pinto N, Velotta JP, Campbell-Staton SC, Petersen EE, Fago A, Cheviron ZA, Storz JF, Scott GR. 2022. Genetic variation in haemoglobin is associated with evolved changes in breathing in high-altitude deer mice. J Exp Biol. 225, jeb243595.

**[Featured in 'Inside JEB' in the Journal of Experimental Biology]**

110) **Turko AJ**, Leclair ATA, Mandrak NE, Drake DAR, Scott GR, Pitcher TE. 2021. Choosing source populations for conservation reintroductions: lessons from variation in thermal tolerance among populations of the imperilled redside dace. Can J Fish Aquat Sci. 78, 1347-1355.

109) Scott GR, Dalziel AC. 2021. Physiological insight into the evolution of complex phenotypes: aerobic performance and the $O_2$ transport pathway of vertebrates. J Exp Biol. 224, jeb210849.

**[Invited review; Featured in the Big Biology Podcast]**

108) **Borowiec BG**, Scott GR. 2021. Rapid and reversible modulation of blood haemoglobin content during diel cycles of hypoxia in killifish (*Fundulus heteroclitus*). Comp Biochem Physiol A. 261, 111054.

107) **Ivy CM**, **Prest H**, **West CM**, Scott GR. 2021. Distinct mechanisms underlie developmental plasticity and adult acclimation of thermogenic capacity in high-altitude deer mice. Front Physiol. 12, 718163.

106) **Wearing OH**, **Ivy CM**, Gutiérrez-Pinto N, Velotta JP, Campbell-Staton SC, Natarajan C, Cheviron ZA, Storz JF, Scott GR. 2021. The adaptive benefit of increases in hemoglobin-$O_2$ affinity is contingent upon tissue $O_2$ diffusing capacity in high-altitude deer mice. BMC Biol. 19, 128.

105) **Wearing OH**, Scott GR. 2021. Commentary: Hierarchical reductionism approach to understanding adaptive variation in animal performance. Comp Biochem Physiol B. 256, 110636.

**[Invited review]**

104) **Lau SC**, Mehdi H, Bragg LM, Servos MR, Balshine S, Scott GR. 2021. Exposure to wastewater effluent disrupts hypoxia responses in killifish (*Fundulus heteroclitus*). Environ Pollut. 284, 117373.

103) **West CM**, **Wearing OH**, Rhem RG, Scott GR. 2021. Pulmonary hypertension is attenuated and ventilation-perfusion matching is maintained during chronic hypoxia in deer mice native to high altitude. Am J Physiol Reg Integr Comp Physiol. 320, R800-R811.

**[‘APS*select*’ article; Spotlight journal cover]**

102) Vandenberg GG, **Dawson NJ**, Head A, Scott GR, Scott AL. 2021. Astrocyte-mediated disruption of ROS homeostasis in Fragile X mouse model. Neurochem Int. 146, 105036.

101) Parr N, **Dawson NJ**, **Ivy CM**, Morten JM, Scott GR, Hawkes LA. 2021. Flight muscle and heart phenotypes in the high-flying ruddy shelduck. J Comp Physiol B. 191, 563-573.

100) Nikel KE, McCallum ES, Mehdi H, **Du SNN**, Bowman JE, Midwood JD, Scott GR, Balshine S. 2021. Fish living near two wastewater treatment plants have unaltered thermal tolerance but show changes in organ and tissue traits. J Great Lakes Res. 47, 522-533.

99) **West CM**, **Ivy CM**, **Husnudinov R**, Scott GR. 2021. Evolution and developmental plasticity of lung structure in high-altitude deer mice. J Comp Physiol B. 191, 385-396.

98) **Ivy CM**, Scott GR. 2021. Life-long exposure to hypoxia affects metabolism and respiratory physiology across life stages in high-altitude deer mice (*Peromyscus maniculatus*). J Exp Biol. 224, jeb237024.

97) Mehdi H, **Lau SC**, Synyshyn C, Salenaa MG, McCallum ES, Muzzatti MN, Bowman JE, Mataya KJ, Bragg LM, Servos MR, Kidd KA, Scott GR, Balshine S. 2021. Municipal wastewater as an ecological trap: effects on fish communities across seasons. Sci Total Environ. 759, 143430.

96) Milsom WK, Scott GR, McCracken KG, Frappell PB. 2021. Different strategies for convective $O_2$ transport in high altitude birds: a graphical analysis. Comp Biochem Physiol A. 253, 110871.

**[Invited review]**

95) Storz JF, Scott GR. 2021. Phenotypic plasticity, genetic assimilation, and genetic compensation in hypoxia adaptation of high-altitude vertebrates. Comp Biochem Physiol A. 253, 110865.

**[Invited review]**

94) **Mahalingam S**, Cheviron ZA, Storz JF, McClelland GB, Scott GR. 2020. Chronic cold exposure induces mitochondrial plasticity in deer mice native to high altitudes. J Physiol. 598, 5411-5426.

**[‘Editor’s Choice’ article; Journal cover]**

93) **Dawson NJ**, Alza L, **Nandal G**, Scott GR, McCracken KG. 2020. Convergent changes in muscle metabolism depend on duration of high-altitude ancestry across Andean waterfowl. eLife. 9, e56259.

92) **Turko AJ**, Nolan CB, Balshine S, Scott GR, Pitcher TE. 2020. Thermal tolerance depends on season, age, and body condition in imperiled redside dace *Clinostomus elongatus*. Conserv Physiol. 8, coaa062.

91) **Borowiec BG**, Scott GR. 2020. Hypoxia acclimation alters reactive oxygen species homeostasis and oxidative status in estuarine killifish (*Fundulus heteroclitus*). J Exp Biol. 223, jeb222877.

90) **Tate KB**, **Wearing OH**, **Ivy CM**, Cheviron ZA, Storz JF, McClelland GB, Scott GR. 2020. Coordinated changes across the $O_2$ transport pathway underlie adaptive increases in thermogenic capacity in high-altitude deer mice. Proc R Soc B. 287, 20192750.

**[Journal cover; 'Outside JEB' feature in Journal of Experimental Biology]**

89) Gnaiger E et al. [MitoEagle Task Group]. 2020. Mitochondrial physiology. Bioenerg Commun. 2020.1 (doi:10.26124/bec:2020-0001.v1).

88) Dubay SG, Wu Y, Scott GR, Qu Y, Liu Q, Smith J, Xin C, Reeve AH, Juncheng C, Meyers D, Wang J, Johnson J, Cheviron ZA, Lei F, Bates J. 2020. Life history predicts flight muscle phenotype and function in birds. J Anim Ecol. 89, 1262-1276.

87) **Ivy CM**, **Greaves MA**, **Sangster ED**, Robertson CE, Natarajan C, Storz JF, McClelland GB, Scott GR. 2020. Ontogenesis of evolved changes in respiratory physiology in deer mice native to high altitude. J Exp Biol. 223, jeb219360.

86) Lague SL, **Ivy CM**, York JM, Chua BA, Alza L, Cheek R, **Dawson NJ**, Frappell PB, Farrell AP, McCracken KG, Scott GR, Milsom WK. 2020. Cardiovascular responses to progressive hypoxia in ducks native to high altitude in the Andes. J Exp Biol. 223, jeb211250.

85) **Borowiec BG**, Hoffman RD, Hess CD, Galvez F, Scott GR. 2020. Interspecific variation in hypoxia tolerance and hypoxia acclimation responses in killifish from the family Fundulidae. J Exp Biol. 223, jeb209692.

84) Houpt NSB, **Borowiec BG**, Bose APH, Brown NAW, Scott GR, Balshine S. 2020. Parental males of the plainfin midshipman are physiologically resilient to the challenges of the intertidal zone. Physiol Biochem Zool. 93, 111-128.

**[Featured in Physiological and Biochemical Zoology]**

83) Schweizer RM, Velotta JP, **Ivy CM**, Jones MR, **Muir SM**, Bradburd GS, Storz JF, Scott GR, Cheviron ZA. 2019. Physiological and genomic evidence that selection on the transcription factor *Epas1* has altered cardiovascular function in high-altitude deer mice. PLoS Genet. 15, e1008420.

82) McLean AR, **Du SNN**, **Choi JA**, Culbert BM, McCallum ES, Scott GR, Balshine S. 2019. Proximity to wastewater effluent alters behaviour in bluegill sunfish (*Lepomis machrochirus*). Behaviour. 156, 1495-1517.

81) Storz JF, Scott GR. 2019. Life ascending: mechanism and process in physiological adaptation to high-altitude hypoxia. Annu Rev Ecol Evol Syst. 50, 503-526.

**[Invited review]**

80) Parr N, Bishop CM, Batbayar N, Butler PJ, Chua B, Milsom WK, Scott GR, Hawkes LA. 2019. Tackling the Tibetan Plateau in a down suit: insights into thermoregulation by bar-headed geese during migration. J Exp Biol. 222, jeb203695.

79) Scott AL, **Pranckevicius NA**, Nurse CA, Scott GR. 2019. Regulation of catecholamine release from the adrenal medulla is altered in deer mice (*Peromyscus maniculatus*) native to high altitudes. Am J Physiol Reg Integr Comp Physiol. 317, R407-R417.

78) **Du SNN**, **Choi JA**, McCallum ES, McLean AR, **Borowiec BG**, Balshine S, Scott GR. 2019. Metabolic implications of exposure to wastewater effluent in bluegill sunfish. Comp Biochem Physiol C. 224, 108562.

77) Ding Y, **Lyons SA**, Scott GR, Gillis TE. 2019. Characterizing the influence of chronic hypobaric hypoxia on diaphragmatic myofilament function and phosphorylation in high-altitude deer mice and low-altitude white-footed mice. J Comp Physiol B. 189, 489-499.

76) McCallum ES, Nikel KE, Mehdi H, **Du SNN**, Bowman JE, Midwood JD, Kidd KA, Scott GR, Balshine S. 2019. Municipal wastewater effluent affects fish communities: a multi-year study involving two wastewater treatment plants. Environ Pollut. 252, 1730-1741.

75) Storz JF, Cheviron ZA, McClelland GB, Scott GR. 2019. Evolution of physiological performance capacities and environmental adaptation: insights from high-elevation deer mice (*Peromyscus maniculatus*). J Mammal. 100, 910-922.

**[Invited review]**

74) **Ivy CM**, Lague SL, York JM, Chua BA, Alza L, Cheek R, **Dawson NJ**, Frappell PB, McCracken KG, Milsom WK, Scott GR. 2019. Control of breathing and respiratory gas exchange in ducks native to high altitude in the Andes. J Exp Biol. 222, jeb198622.

73) McClelland GB, Scott GR. 2019. Evolved mechanisms of aerobic performance and hypoxia resistance in high-altitude natives. Annu Rev Physiol. 81, 561-583.

**[Invited review]**

72) Bose APH, **Borowiec BG**, Scott GR, Balshine S. 2019. Nesting on high: reproductive and physiological consequences of breeding across an intertidal gradient. Evol Ecol. 33, 21-36.

**[Journal cover]**

71) Velotta JP, **Ivy CM**, Wolf CJ, Scott GR, Cheviron ZA. 2018. Maladaptive phenotypic plasticity in cardiac muscle growth is suppressed in high-altitude deer mice. Evolution. 72, 2712-2727.

70) **Borowiec BG**, McClelland GB, Rees BB, Scott GR. 2018. Distinct metabolic adjustments arise from acclimation to constant hypoxia and intermittent hypoxia in killifish (*Fundulus heteroclitus*). J Exp Biol. 221, jeb190900.

69) **Ivy CM**, Scott GR. 2018. Evolved changes in breathing and $CO_2$ sensitivity in deer mice native to high altitudes. Am J Physiol Reg Integr Comp Physiol. 315, R1027-R1037.

68) Scott GR, **Guo KH**, **Dawson NJ**. 2018. The mitochondrial basis for adaptive variation in aerobic performance in high-altitude deer mice. Integr Comp Biol. 58, 506-518.

67) Hood WR, Austad SN, Bize P, Jimenez AG, Montooth KL, Schulte PM, Scott GR, Sokolova I, Treberg JR, Salin K. 2018. The mitochondrial contribution to animal performance, adaptation, and life-history variation. Integr Comp Biol. 58, 480-485.

66) **Nikel KE**, **Shanishchara NK**, **Ivy CM**, **Dawson NJ**, Scott GR. 2018. Effects of hypoxia at different life stages on locomotory muscle phenotype in deer mice native to high altitude. Comp Biochem Physiol B. 224, 98-104.

65) **Dawson NJ**, **Lyons SA**, **Henry DA**, Scott GR. 2018. Effects of chronic hypoxia on diaphragm function in deer mice native to high altitude. Acta Physiol. 223, e13030.

64) **Ivy CM**, York JM, Lague SL, Chua BA, Alza L, McCracken KG, Milsom WK, Scott GR. 2018. Validation of a pulse oximetry system for high-altitude waterfowl by examining the hypoxia responses of the Andean goose (*Chloephaga melanoptera*). Physiol Biochem Zool. 91, 859-867.

**[Journal cover]**

63) **Du SNN**, McCallum ES, **Vaseghi-Shanjani M**, **Choi JA**, Warriner TR, Balshine S, Scott GR. 2018. Metabolic costs of exposure to wastewater effluent lead to compensatory adjustments in respiratory physiology in bluegill sunfish. Environ Sci Technol. 52, 801-811.

**[Featured by The Economist, CBC, Hamilton Spectator, and others]**

62) **Borowiec BG**, O'Connor CM, Goodick K, Scott GR, Balshine S. 2018. The preference for social affiliation renders fish willing to accept lower $O_2$ levels. Physiol Biochem Zool. 91, 716-724.

61) **Ivy CM**, Scott GR. 2017. Control of breathing and ventilatory acclimatization to hypoxia in deer mice native to high altitudes. Acta Physiol. 221, 266-282.

**[Editorial feature in Acta Physiologica]**

60) Lague SL, Chua B, Alza L, Scott GR, Frappell PB, Zhong Y, Farrell AP, McCracken KG, Wang Y, Milsom WK. 2017. Divergent respiratory and

cardiovascular responses to hypoxia in bar-headed geese and Andean birds. J Exp Biol. 220, 4186-4194.

**[Featured in 'Inside JEB' in the Journal of Experimental Biology]**

59) **Tate KB**, **Ivy CM**, Velotta JP, Storz JF, McClelland GB, Cheviron ZA, Scott GR. 2017. Circulatory mechanisms underlying adaptive increases in thermogenic capacity in high-altitude deer mice. J Exp Biol. 220, 3616-3620.

58) Hawkes LA, Batbayar N, Butler PJ, Chua B, Frappell PB, Meir JU, Milsom WK, Natsagdorj T, Parr N, Scott GR, Takekawa JY, Wikelski M, Witt MJ, Bishop CM. 2017. Do bar-headed geese train for high altitude flights? Integr Comp Biol. 57, 240-251.

**[Featured in Science and 'Outside JEB' of Journal of Experimental Biology]**

57) **Mahalingam S**, McClelland GB, Scott GR. 2017. Evolved changes in the intracellular distribution and physiology of muscle mitochondria in high-altitude native deer mice. J Physiol. 595, 4785-4801.

**[Journal cover]**

56) **Du SNN**, **Khajali F**, **Dawson NJ**, Scott GR. 2017. Hybridization increases mitochondrial production of reactive oxygen species in sunfish. Evolution. 71, 1643-1652.

55) Lau DS, Connaty AD, **Mahalingam S**, Wall N, Cheviron ZA, Storz JF, Scott GR, McClelland GB. 2017. Acclimation to hypoxia increases carbohydrate use during exercise in high-altitude deer mice. Am J Physiol Reg Integr Comp Physiol. 312, R400-R411.

54) York JM, Chua BA, **Ivy CM**, Alza L, Cheek R, Scott GR, McCracken KG, Frappell PB, **Dawson NJ**, Laguë SL, Milsom WK. 2017. Respiratory mechanics of eleven avian species resident at high and low altitude. J Exp Biol. 220, 1079-1089.

**[Featured in 'Inside JEB' in the Journal of Experimental Biology]**

53) McCallum ES, **Du SNN**, **Vaseghi-Shanjani M**, **Choi JA**, Warriner TR, Sultana T, Scott GR, Balshine S. 2017. *In situ* exposure to wastewater effluent reduces survival but has little effect on the behaviour or physiology of an invasive Great Lake fish. Aquat Toxicol. 184, 37-48.

52) Lisser DFJ, Lister ZP, Pham-Ho PQH, Scott GR, Wilkie MP. 2017. Relationship between oxidative stress and brain swelling in goldfish (*Carassius auratus*) exposed to high environmental ammonia. Am J Physiol Reg Integr Comp Physiol. 312, R114-R124.

51) Scott GR, Matey V, **Mendoza JA**, Gilmour KM, Perry SF, Almeida-Val VMF, Val AL. 2017. Air breathing and aquatic gas exchange during hypoxia in armoured catfish. J Comp Physiol B. 187, 117-133.

50) **Ivy CM**, Scott GR. 2017. Ventilatory acclimatization to hypoxia in mice: methodological considerations. Respir Physiol Neurobiol. 235, 95-103.

49) **Dawson NJ**, **Ivy CM**, Alza L, Cheek R, York JM, Chua B, Milsom WK, McCracken KG, Scott GR. 2016. Mitochondrial physiology in the skeletal and cardiac muscles is altered in torrent ducks, *Merganetta armata*, from high altitudes in the Andes. J Exp Biol. 219, 3719-3728.

**[Journal cover]**

48) Brunt E, Turko AJ, Scott GR, Wright PA. 2016. Amphibious fish jump better on land after acclimation to a terrestrial environment. J Exp Biol. 219, 3204-3207.

47) **Borowiec BG**, **Crans KD**, Khajali F, **Pranckevicius NA**, **Young A**, Scott GR. 2016. Interspecific and environment-induced variation in hypoxia tolerance in sunfish. Comp Biochem Physiol A. 198, 59-71.

46) **Du SNN, Mahalingam S**, **Borowiec BG**, Scott GR. 2016. Mitochondrial physiology and reactive oxygen species production are altered by hypoxia acclimation in killifish (*Fundulus heteroclitus*). J Exp Biol. 219, 1130-1138.

45) **Crans KD**, **Pranckevicius NA**, Scott GR. 2015. Physiological tradeoffs may underlie the evolution of hypoxia tolerance and exercise performance in sunfish (Centrarchidae). J Exp Biol. 218, 3264-3275.

44) Regan MD, RS Dhillon, DPL Toews, B Speers-Roesch, MA Sackville, S Pinto, JS Bystriansky, Scott GR. 2015. Biochemical correlates of aggressive behaviour in the Siamese fighting fish (*Betta splendens*). J Zool. 297, 99-107.

**[Journal of Zoology 2015 Paper of the Year Award]**

43) Scott GR, **Elogio TS, Lui MA**, Storz JF, Cheviron ZA. 2015. Adaptive modifications of muscle phenotype in high-altitude deer mice are associated with evolved changes in gene regulation. Mol Biol Evol. 32, 1962-1976.

**[Editorial feature in Molecular Biology and Evolution]**

42) **Ivy CM**, Scott GR. 2015. Control of breathing and the circulation in high-altitude mammals and birds. Comp Biochem Physiol A. 186, 66-74.

**[Invited review]**

41) **Lui MA**, **Mahalingam S**, **Patel P**, Connaty AD, **Ivy CM,** Cheviron ZA, Storz JF, McClelland GB, Scott GR. 2015. High-altitude ancestry and hypoxia acclimation have distinct effects on exercise capacity and muscle phenotype in deer mice. Am J Physiol Reg Integr Comp Physiol. 308, R779-R791.

**[Featured on TV science program on capillaries by NHK Japan]**

40) **Borowiec BG**, **Darcy KL**, **Gillette DM**, Scott GR. 2015. Distinct physiological strategies are used to cope with constant hypoxia and intermittent hypoxia in killifish (*Fundulus heteroclitus*). J Exp Biol. 218, 1198-1211.

39) Scott GR, Hawkes LA, Frappell PB, Butler PJ, Bishop CM, Milsom WK. 2015. How bar-headed geese fly over the Himalayas. Physiology. 30, 107-115.

**[Invited review]**

38) Bishop CM, Spivey RJ, Hawkes LA, Batbayar N, Chua B, Frappell PB, Milsom WK, Natsagdorj T, Newman SH, Scott GR, Takekawa JY, Wikelski M, Butler PJ. 2015. The roller coaster flight strategy of bar-headed geese conserves energy during Himalayan migrations. Science. 347, 250-254.

**[Cover article, and featured by New Scientist, CBC, BBC, CBS, and others]**

37) **Schnurr ME**, **Yin Y**, Scott GR. 2014. Temperature during embryonic development has persistent effects on muscle energy metabolism in zebrafish. J Exp Biol. 217, 1370-1380.

36) Hawkes LA, Butler PJ, Frappell PB, Meir JU, Milsom WK, Scott GR, Bishop CM. 2014. Maximum running speed of captive bar-headed geese is unaffected by severe hypoxia. PLoS One. 9, e94015.

**[Featured on CBC Radio's 'Quirks and Quarks', BBC.com, and others]**

35) De Boeck G, Wood CM, Iftikar FI, Matey V, Scott GR, Sloman KA, De Nazaré Paula da Silva M, Almeida-Val VMF, Val AL. 2013. Interactions between hypoxia tolerance and food deprivation in Amazonian oscars, *Astronotus ocellatus*. J Exp Biol. 216, 4590-4600.

34) Hawkes LA, Balachandran S, Batbayar N, Butler PJ, Chua B, Douglas DC, Frappell PB, Hou Y, Milsom WK, Newman SH, Prosser DJ, Sathiyaselvam P, Scott GR, Takekawa JY, Natsagdorj T, Wikelski M, Witt MJ, Yan B, Bishop CM. 2013. The paradox of extreme high-altitude migration in bar-headed geese *Anser indicus*. Proc R Soc B. 280, 20122114.

**[Featured in 'Outside JEB' of the Journal of Experimental Biology]**

33) Scott GR, Johnston IA. 2012. Temperature during embryonic development has persistent effects on thermal acclimation capacity in zebrafish. Proc Natl Acad Sci. 109, 14247-14252.

**[Featured in 'Outside JEB' of the Journal of Experimental Biology]**

32) Scott GR. 2011. Elevated performance: the unique physiology of birds that fly at high altitudes. J Exp Biol. 214, 2455-2462.

**[Featured in 3rd edition of textbook 'Principles of Animal Physiology']**

31) Scott GR, Schulte PM, Egginton S, Scott ALM, Richards JG, Milsom WK. 2011. Molecular evolution of cytochrome c oxidase underlies high-altitude adaptation in the bar-headed goose. Mol Biol Evol. 28, 351-363.

**[Featured in 'Sightings' in High Altitude Medicine and Biology]**

30) Hawkes LA, Scott GR, Meir JU, Frappell PB, Milsom WK. 2011. Last Word on Point:Counterpoint: High altitude is/is not for the birds! J Appl Physiol. 111, 1525.

29) Scott GR, Meir JU, Hawkes LA, Frappell PB, Milsom WK. 2011. Point: High altitude is for the birds! J Appl Physiol. 111, 1514-1519.

**[Selected by the Faculty of 1000]**

28) Hawkes LA, Balachandran S, Batbayar N, Butler PJ, Frappell PB, Milsom WK, Tseveenmyadag N, Newman SH, Scott GR, Sathiyaselvam P, Takekawa JT, Wikelski M, Bishop CM. 2011. The trans-Himalayan flights of bar-headed geese (*Anser indicus*). Proc Natl Acad Sci. 108, 9516–9519.

**[Featured by Science, CBC Radio's 'Quirks and Quarks', Times, and others]**

27) Matey V, Iftikar FI, De Boeck G, Scott GR, Sloman KA, Almeida-Val VMF, Val AL, Wood CM. 2011. Gill morphology and acute hypoxia: responses of mitochondria-rich, pavement, and mucous cells in two species with very different approaches to the osmo-respiratory compromise, the Amazonian oscar (*Astronotus ocellatus*) and the rainbow trout (*Oncorhynchus mykiss*). Can J Zool. 89, 307-324.

26) Storz JF, Scott GR, Cheviron ZA. 2010. Phenotypic plasticity and genetic adaptation to high-altitude hypoxia in vertebrates. J Exp Biol. 213, 4125-4136.

**[Invited review, Journal cover]**

25) Scott GR, Richards JG, Milsom WK. 2009. Control of respiration in flight muscle from the high-altitude bar-headed goose and low-altitude birds. Am J Physiol Reg Integr Comp Physiol. 297, R1066-R1074.

**[Featured in 'Sightings' in High Altitude Medicine and Biology]**

24) Scott GR, Egginton S, Richards JG, Milsom WK. 2009. Evolution of muscle phenotype for extreme high altitude flight in the bar-headed goose. Proc R Soc B. 276, 3645-3653.

**[Featured by New York Times, CBC.ca, and Discovery Channel Magazine]**

23) Takekawa JY, Heath SR, Douglas DC, Perry WM, Javed S, Newman SH, Suwal RN, Rahmani AR, Choudhury BC, Prosser DJ, Yan B, Hou Y, Batbayar N, Natsagdorj T, Bishop CM, Butler PJ, Frappell PB, Milsom WK, Scott GR, Hawkes LA, Wikelski M. 2009. Geographic variation in bar-headed geese *Anser indicus*: connectivity of wintering areas and breeding grounds across a broad front. Wildfowl. 59, 100–123.

**[Journal cover]**

22) Sloman KA, Sloman RD, De Boeck G, Scott GR, Iftikar FI, Wood CM, Almeida-Val VMF, Val AL. 2009. The role of size in synchronous air-breathing of *Hoplosternum littorale*. Physiol Biochem Zool. 82, 625-634.

21) Wood CM, Iftikar FI, Scott GR, De Boeck G, Sloman KA, Matey V, Valdez Domingos FX, Duarte R, Almeida-Val VMF, Val AL. 2009. Regulation of gill transcellular permeability and renal function during acute hypoxia in the Amazonian oscar (*Astronotus ocellatus*): new angles to the osmo-respiratory compromise. J Exp Biol. 212, 1949-1964.

**[Featured in 'Inside JEB' in the Journal of Experimental Biology]**

20) Lee SY, Scott GR, Milsom WK. 2008. Have wing morphology or flight kinematics evolved for extreme high altitude migration in the bar-headed goose? Comp Biochem Physiol C. 148, 324-331.

19) Scott GR, Wood CM, Sloman KA, Iftikar FI, De Boeck G, Almeida-Val VMF, Val AL. 2008. Respiratory responses to progressive hypoxia in the Amazonian oscar, *Astronotus ocellatus*. Respir Physiol Neurobiol. 162, 109-116.

18) Scott GR, Baker DW, Schulte PM, Wood CM. 2008. Physiological and molecular mechanisms of osmoregulatory plasticity in killifish after seawater transfer. J Exp Biol. 211, 2450-2459.

17) Singer TD, Keir KR, Hinton M, Scott GR, McKinley RS, Schulte PM. 2008. Structure and regulation of the cystic fibrosis transmembrane conductance regulator (*CFTR*) gene in killifish: a comparative genomics approach. Comp Biochem Physiol D. 3, 172-185.

16) Scott GR, Cadena V, Tattersall GJ, Milsom WK. 2008. Body temperature depression and peripheral heat loss accompany the metabolic and ventilatory responses to hypoxia in low and high altitude birds. J Exp Biol. 211, 1326-1335.

**[Images featured in the 2009 Journal of Experimental Biology calendar]**

15) Scott GR, Milsom WK. 2007. Control of breathing and adaptation to high altitude in the bar-headed goose. Am J Physiol Reg Integr Comp Physiol. 293, R379-R391.

**[Featured in 'UBC Reports']**

14) Wood CM, Kajimura M, Sloman KA, Scott GR, Walsh PJ, Almeida-Val VMF, Val AL. 2007. Rapid regulation of $Na^+$ fluxes and ammonia excretion in response to acute environmental hypoxia in the Amazonian oscar, *Astronotus ocellatus*. Am J Physiol Reg Integr Comp Physiol. 292, R2048-R2058.

13) Dodd GAA, Scott GR, Milsom WK. 2007. Ventilatory roll off during sustained hypercapnia is gender specific in pekin ducks. Respir Physiol Neurobiol. 156, 47-60.

12) Scott GR, Milsom WK. 2006. Flying high: a theoretical analysis of the factors limiting exercise performance in birds at altitude. Respir Physiol Neurobiol. 154, 284-301.

11) Scott GR, Schulte PM, Wood CM. 2006. Plasticity of osmoregulatory function in the killifish intestine: drinking rates, salt and water transport, and gene expression after freshwater transfer. J Exp Biol. 209, 4040-4050.

10) Sloman KA, Wood CM, Scott GR, S Wood, Kajimura M, Johannsson OE, Almeida-Val VMF, Val AL. 2006. Tribute to R.G. Boutilier: The effect of size on the physiological and behavioural responses of oscar, *Astronotus ocellatus*, to hypoxia. J Exp Biol. 209, 1197-1205.

9) Scott GR, Keir KR, Schulte PM. 2005. Effects of spironolactone and RU486 on gene expression and cell proliferation after freshwater transfer in the euryhaline killifish. J Comp Physiol B. 175, 499-510.

8) Scott GR, Schulte PM. 2005. Intraspecific variation in gene expression after seawater transfer in gills of the euryhaline killifish *Fundulus heteroclitus*. Comp Biochem Physiol A. 141, 176-182.

7) Scott GR, Claiborne JB, Edwards SL, Schulte PM, Wood CM. 2005. Gene expression after freshwater transfer in gills and opercular epithelia of killifish: insight into divergent mechanisms of ion transport. J Exp Biol. 208, 2719-2729.

6) Scott GR, Rogers JT, Richards JG, Wood CM, Schulte PM. 2004. Intraspecific divergence of ionoregulatory physiology in the euryhaline teleost *Fundulus heteroclitus*: possible mechanisms of freshwater adaptation. J Exp Biol. 207, 3399-3410.

5) Scott GR, Richards JG, Forbush B, Isenring P, Schulte PM. 2004. Changes in gene expression in gills of the euryhaline killifish *Fundulus heteroclitus* after abrupt salinity transfer. Am J Physiol Cell Physiol. 287, C300-C309.

4) Sloman KA, Scott GR, McDonald DG, Wood CM. 2004. Diminished social status affects ionoregulation at the gills and kidney in rainbow trout (*Oncorhynchus mykiss*). Can J Fish Aquat Sci. 61, 618-626.

3) Scott GR, Sloman KA. 2004. The effects of environmental pollutants on complex fish behaviour: integrating behavioural and physiological indicators of toxicity. Aquat Toxicol. 68, 369-392.

2) Sloman KA, Scott GR, Diao Z, Rouleau C, Wood CM, McDonald DG. 2003. Cadmium affects the social behaviour of rainbow trout, *Oncorhynchus mykiss*. Aquat Toxicol. 65, 171-185.

1) Scott GR, Sloman KA, Rouleau C, Wood CM. 2003. Cadmium disrupts behavioural and physiological responses to alarm substance in juvenile rainbow trout (*Oncorhynchus mykiss*). J Exp Biol. 206, 1779-1790.

**[Featured in ‘Inside JEB’ and on CBC Radio’s ‘Quirks and Quarks’]**

*Peer-Reviewed Book Chapters*

4) Scott GR, **Dawson NJ**. 2016. Flying high: the unique physiology of birds that fly at high altitudes. In *The Biology of the Avian Respiratory System: Evolution, Development, Structure and Function* (ed. Maina JN), pp. 113-128. Springer.

3) Hawkes LA, Batbayar N, Bishop CM, Butler PJ, Frappell PB, Meir JU, Milsom WK, Natsagdorj T, Scott GR. 2017. Goose migration over the Himalayas: physiological adaptations. In *Bird Migration Across the Himalayas: Wetland Functioning Amidst Mountains and Glaciers* (eds. Prins HHT, Namgail T), pp. 241-253. Cambridge University Press.

2) McClelland GB, Scott GR. 2014. Muscle Plasticity. In *The Physiology of Fishes*, 4th Edition (eds. Evans DH, Claiborne JB, Currie S), pp. 1-31. CRC Press.

1) Scott GR, Milsom WK. 2009. Control of breathing in birds: implications for high altitude flight. In *Cardio-Respiratory Control in Vertebrates: Comparative and Evolutionary Aspects* (eds. Glass ML, Wood SC), pp. 429-448. Springer-Verlag.

*Other Publications*

11) Knight K, Scott G. 2017. Early career researchers: an interview with Graham Scott. J Exp Biol. 220, 2845-2847.

10) Scott GR. 2015. Classics: Early insights into the evolution of respiratory and cardiovascular physiology in vertebrates. J Exp Biol. 218, 2818-2820.

9) Scott GR, Brix KV. 2013. Evolution of salinity tolerance from transcriptome to physiological system. Mol. Ecol. 22, 3656-3658.

8) Scott GR. 2008. Outside JEB: Simple steps to building a lung. J Exp Biol. 211(23), v-vi.

7) Scott GR. 2008. Outside JEB: Getting to the heart of exercise. J Exp Biol. 211(17), vi.

6) Scott GR. 2008. Outside JEB: Haemoglobin evolution in mammals. J Exp Biol. 211(12), vi.

5) Scott GR. 2008. Outside JEB: High altitude is NO problem for Tibetans. J Exp Biol. 211(5), v-vi.

4) Scott GR. 2007. Outside JEB: Getting efficient in low oxygen. J Exp Biol. 210(23), iv.

3) Scott GR. 2007. Outside JEB: Soaring with smaller genomes. J Exp Biol. 210(17), vi.

2) Scott G. 2007. Outside JEB: Evolution of endurance athletes. J Exp Biol. 210(11), v.

1) Scott GR. 2007. Outside JEB: Mitochondria and making new species. J Exp Biol. 210(3), iv-v.

## SEMINARS AND CONFERENCES

Note: Students I have trained are shown in bold below.

*Invited Seminars*

| | |
|---|---|
| 2023 | Department of Biological Sciences, University of North Texas, USA. |
| 2022 | Department of Kinesiology and Health Sciences, University of Waterloo. |
| 2021 | Control of Breathing and Airway Defence (CoBAD), International Online Seminar Series, University of Florida, USA. |
| 2021 | Schmid College of Science and Technology, Chapman University, USA. |
| 2020 | Department of Integrative Biology, University of California Berkeley, USA. |

2019 Department of Biology, Queen's University.

2018 Department of Biological Sciences, University of Manitoba.

2017 Division of Biomedical Sciences and Department of Biology, University of California Riverside, USA.

2017 Department of Evolutionary and Environmental Biology, University of Haifa, Israel.

2017 Department of Biology, University of Miami, USA.

2017 Division of Respirology, Faculty of Health Sciences, McMaster University.

2016 Department of Biology, Trent University.

2016 Department of Integrative Biology, University of Guelph.

2016 Department of Zoology, University of British Columbia.

2015 Department of Pediatrics, Université Laval.

2015 Department of Biology, University of Waterloo.

2015 Department of Biology, Wilfred Laurier University.

2014 Department of Biological Sciences, University of North Texas, USA.

2014 Department of Biology, York University.

2014 Department of Biological Sciences, University of Toronto-Scarborough.

2012 Division of Respirology, Faculty of Health Sciences, McMaster University.

2012 Department of Biology, University of Western Ontario.

2012 Department of Integrative Biology, University of Guelph.

2012 Ottawa-Carlton Institute of Biology Symposium, University of Ottawa.

2012 Department of Biology and Wildlife, University of Alaska Fairbanks, USA.

2012 Department of Biology, Queen's University.

2011 School of Biological Sciences, University of Nebraska-Lincoln, USA.

*Invited Symposium Presentations [and Published Abstracts]*

2023 Scott GR. Physiological basis of hypoxia resistance in high-altitude deer mice. How Animals Function. Sønderborg, Denmark.

2022 Scott GR. Integrative cardio-respiratory mechanisms of high-altitude adaptation in deer mice. American Physiological Society, San Diego, CA, USA.

2022 Scott GR. Respiratory adaptations to high altitude and their genetic basis in deer mice. Chronic Hypoxia Symposium, La Paz, Bolivia.

2022 Scott GR. Physiological implications of haemoglobin evolution in high-altitude deer mice. International Conference on Oxygen-Binding and Sensing Proteins, Rome, Italy.

2022 Scott GR. Integrative mechanisms of hypoxia adaptation in high-altitude deer mice. Center for Physiological Genomics of Low Oxygen (CPGLO) Summit, online.

2020 Scott GR. Living the high life: integrative physiological mechanisms of high-altitude adaptation. Brazilian Physiological Society, online.

**[Plenary Lecture]**

2020 Scott GR. Control of breathing and the circulation in deer mice native to high altitude. Brazilian Physiological Society, online.

2019 Scott GR. Evolutionary physiology of aerobic performance and mitochondrial function in high-altitude natives. Society for Experimental Biology, Seville, Spain.

2019 Scott GR. Living the high life: integrative physiological mechanisms of high-altitude adaptation in mice. Mini-Symposium on Rodents from Challenging Environments, Pretoria, South Africa.

2019 Scott GR. Control of breathing and the hypoxic chemoreflex in deer mice native to high altitude. Colloque Scientific Étudiant de la Société Legallois pour l'Étude du Contrôle Respiratoire (SLECR), Orford, QC, Canada.

2018 Scott GR. Evolution of the acclimation responses to hypoxia and cold in deer mice native to high altitudes. American Physiological Society, New Orleans, LA, USA. [Physiologist 62(1), 91].

2018 Scott GR. Mitochondrial physiology and respiratory performance in high-altitude natives. Society for Integrative and Comparative Biology, San Francisco, CA, USA. [Int. Comp. Biol. 58, E206].

2017 Scott GR. Evolution, plasticity, and the integrative physiology of performance in high-altitude environments. Society for Experimental Biology, Gothenburg, Sweden. Explain

2017 Scott GR. Living the high life: integrative functional mechanisms of high-altitude adaptation. Canadian Society of Zoologists, Winnipeg, MB, Canada.

**[Boutilier Award Keynote Lecture]**

2017 Scott GR. Physiological basis of high-altitude flight in birds. International Workshop on Linking Mechanics and Physiology in Animal Flyers, Kfar Blum, Hula Valley, Israel.

2016 Scott GR. Integrative physiology of oxygen transport in high-altitude natives. International Conference on Oxygen-Binding and Sensing Proteins, Hamburg, Germany.

2015 Scott GR. Mitochondrial adaptations to high-altitude hypoxia. Experimental Biology, Boston, MA, USA.

2014 Scott GR. Evolution of cardiorespiratory physiology in high-altitude mammals and birds. American Physiological Society, San Diego, CA, USA.

2014 Scott GR. Integrative physiology of oxygen transport in high-altitude mammals and birds. Society for Experimental Biology, Manchester, UK.

2014 Scott GR. Living the high life: cardiorespiratory physiology of high-altitude vertebrates. Fueling the Fire of Life: A Tribute to the Career of Bill Milsom. Society for Experimental Biology Animal Symposium, Musselburgh, Scotland.

2013 Scott GR. The physiology of high-altitude vertebrates. Ontario Biology Day, Hamilton, ON, Canada.

2012 Scott GR. Evolution and physiological plasticity in high-altitude vertebrates. Society for Experimental Biology, Salzburg, Austria.

2010 Scott GR, Milsom WK. Flying across the Himalayas: the unique physiology of bar-headed geese. World Congress on High Altitude Medicine and Physiology, International Society for Mountain Medicine, Arequipa, Peru. [High Alt. Med. Biol. 11, 287, 2010].

2010 Scott GR, Milsom WK. Physiological mechanisms of high-altitude flight in bar-headed geese. American Physiological Society, Westminster, CO, USA.

2007 Scott GR, Milsom WK. Control of breathing in birds: implications for high altitude flight. International Congress of Comparative Physiology and Biochemistry, Salvador, Brazil. [Comp Biochem Physiol A. 148, S110, 2007].

*Other Conference Presentations [and Published Abstracts]*

2024 **Garvey KM**, Scott GR. The influence of hemoglobin-oxygen affinity on aerobic capacity in deer mice (*Peromyscus maniculatus*) (oral). Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2024 **Harter TS**, Scott GR. Linking red blood cell functional phenotypes to environmental tolerance in high-altitude adapted deer mice (poster). Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2024 **Lotchuang J**, **Harter TS**, Scott GR. High-altitude adaptation and carbonic anhydrase function in deer mice (*Peromyscus maniculatus*) (poster). Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2024 **Tomas CA**, Scott GR. Investigating the contribution of the gut microbiome to thermogenesis at high altitudes (poster). Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2024 Herron H, Zarini S, Thompson A, Scott GR, Balshine S. First measurements of metabolic rate in juvenile round goby (oral). Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2024 **Somo D**, McClelland GB, Scott GR. A multi-factor meta-analysis of the determinants of variation in thermogenic capacity in deer mice (poster). Society for Integrative and Comparative Biology, Seattle, WA, USA.

2023 Velotta JP, Conrad L, **Tate KB**, Scott GR, McClelland GB, Cheviron ZA. A double bind: mechanisms of adaptation to cold and hypoxia in high-altitude deer mice (oral). Evolution Conference, Albuquerque, NM, USA.

2023 **Garvey KM**, Scott GR. Influence of hemoglobin-$O_2$ affinity on aerobic capacity in deer mice (*Peromyscus maniculatus*) (poster). Canadian Society of Zoologists, Saskatoon, SK, Canada.

**[Finalist for the Battle Award for best student poster]**

2023 **Gahs HE**, Scott GR. Torpor as an energy saving strategy to cope with metabolic challenges in deer mice (*Peromyscus maniculatus*) (poster). Canadian Society of Zoologists, Saskatoon, SK, Canada.

**[Finalist for the Battle Award for best student poster]**

2023 **Saleem R**, Scott GR. Mitochondrial physiology in cardiac muscle of deer mice native to high altitude (oral). Canadian Society of Zoologists, Saskatoon, SK, Canada.

2023 **Zucker EA**, Bucking C, Scott GR. The gut microbiome contributes to thermogenesis in high-altitude deer mice (oral). Canadian Society of Zoologists, Saskatoon, SK, Canada.

2023 **Zucker EA**, Bucking C, Scott GR. The gut microbiome contributes to adaptive thermogenesis in high-altitude deer mice (poster). How Animals Function, Sønderborg, Denmark.

2023 **Holicka C**, Scott GR. Effects of chronic manipulation of haemoglobin-$O_2$ affinity on breathing in deer mice (poster). Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2023 **Ridgway MR**, Scott GR. Acclimation to diel cycles of temperature improves hypoxia tolerance in killifish (poster). Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2023 **Saleem R**, Scott GR. Mitochondrial physiology in cardiac muscle of deer mice native to high altitude (poster). Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2023 **Zucker EA**, Bucking C, Scott GR. The gut microbiome contributes to adaptive thermogenesis in deer mice (oral). Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2023 Sleeting MF, Schweizer RM, Wilsterman K, **Ivy CM**, Scott GR, Cheviron ZA. The contribution of allelic variation in *Deptor* to high elevation adaptation in deer mice (poster). Society for Integrative and Comparative Biology, Phoenix, AZ, USA.

2022 Bautista NM, **Shadowitz C**, Scott GR, Storz JF. Experimental insights into hypoxia acclimatization and the potential for elevational range shifts in a warming world (oral). American Physiological Society Intersociety Meeting in Comparative Physiology, San Diego, CA, USA.

2022 **Garrett EJ**, Prasad SK, Schweizer RM, Lyons SA, McClelland GB, Scott GR. Mechanisms underlying evolved increases in oxidative capacity of muscles in high-altitude deer mice (poster). American Physiological Society Intersociety Meeting in Comparative Physiology, San Diego, CA, USA.

2022 **Ridgway MR**, Scott GR. Acclimation to diel cycles of temperature improves hypoxia tolerance in killifish (poster). American Physiological Society Intersociety Meeting in Comparative Physiology, San Diego, CA, USA.

2022 **Saleem R**, Scott GR. Mitochondrial physiology in cardiac muscle of deer mice native to high altitude (poster). American Physiological Society Intersociety Meeting in Comparative Physiology, San Diego, CA, USA.

**[Runner-up for Best Student Poster]**

2022 **Zucker EA**, Bucking C, Scott GR. The role of the gut microbiome in adaptive thermogenesis in deer mice (*Peromyscus maniculatus*) (poster). American Physiological Society Intersociety Meeting in Comparative Physiology, San Diego, CA, USA.

2022 Taylor PJ, Nengovhela A, **Ivy CM**, Scott GR, Denys C. Nature over nurture: parallel brain size responses to high elevation in North American (Cricetidae) and African (Muridae) rodents (oral). International Conference on Rodent Biology and Management, Arusha, Tanzania.

2022 **Wearing OH**, Scott GR. Cool running: evolved reductions in body temperature and the metabolic costs of thermoregulation in deer mice native to high altitude (oral). Society for Experimental Biology, Montpellier, France.

2022 **Flewwelling LD**, **Wearing OH**, Scott GR. Effects of climate warming on the activity and metabolic physiology of deer mice (*Peromyscus maniculatus*) (oral). Canadian Society of Zoologists, online.

2022 **Gahs H**, **Turko AJ**, Scott GR. Differences in respiratory plasticity between wild and lab conditions in the endangered redside dace (*Clinostomus elongatus*) (oral). Canadian Society of Zoologists, online.

**[Runner-up for Hall Award in comparative morphology]**

2022 **Garrett EJ**, Prasad SK, Lyons SA, McClelland GB, Scott GR. Evolved increases in oxidative capacity of muscles in high-altitude deer mice (oral). Canadian Society of Zoologists, online.

2022 **Ridgway MR**, Scott GR. Acclimation to diel cycles of temperature improves hypoxia tolerance in killifish (oral). Canadian Society of Zoologists, online.

2022 **Turko AJ**, **Lau SC**, Balshine S, Scott GR. Hypoxia acclimation decreases activity and boldness independent of effects on metabolic rate in the mummichog *Fundulus heteroclitus* (oral). Canadian Society of Zoologists, online.

2022 **Wearing OH**, Scott GR. Playing it cool: evolved reductions in body temperature minimize metabolic costs of thermoregulation in high-altitude deer mice (*Peromyscus maniculatus*) (oral). Canadian Society of Zoologists, online.

**[Hoar Award for best student presentation]**

2022 **Zucker EA**, Bucking C, Scott GR. The role of the microbiome in adaptive thermogenesis in deer mice (*Peromyscus maniculatus*) (poster). Canadian Society of Zoologists, online.

**[Runner-up for the Battle Award for best student poster]**

2022 Nengovhela A, **Ivy CM**, Scott GR, Denys C, Taylor PJ. Nature over nurture: parallel brain size responses to high elevation in North American (Cricetidae) and African (Muridae) rodents (oral). Southern African Mountain Conference, Drakensberg, South Africa.

2022 **Gahs H**, **Turko AJ**, Scott GR. Age-related differences in seasonal respiratory plasticity of the endangered redside dace (oral). Comparative Physiology and Biochemistry Workshop, online.

**[Best 3-minute thesis presentation by an undergraduate student]**

2022 **Ridgway MR**, Scott GR. Thermal plasticity modifies tolerance of low oxygen in killifish (oral). Comparative Physiology and Biochemistry Workshop, online.

2021 Nengovhela A, Scott GR, **Ivy CM**, Taylor PJ. Highland versus lowland rodents – who are the smartest? (oral). International Congress of Zoology, online.

2021 Robertson CE, **Ivy CM**, **Nomikos J**, **Husnudinov R**, **Halliday L**, Scott GR. Evolved changes in postnatal muscle development and satellite cells in high-altitude deer mice (oral). Society for Experimental Biology, online.

2021 Scott GR, **Ivy CM**. Distinct mechanisms underlie developmental plasticity and adult acclimation in high-altitude deer mice (oral). Society for Experimental Biology, online.

2021 **Wearing OH**, Nelson D, **Ivy CM**, Crossley DA, Scott GR. Evolved changes in cardiovascular control in high-altitude deer mice (*Peromyscus maniculatus*) (oral). Society for Experimental Biology, online.

2021 **Wearing OH**, Scott GR. Cardiovascular function is regulated to maintain mean arterial pressure in mice during chronic hypoxia (poster). Society for Experimental Biology, online.

**[Honourable mention for the Irene Manton Poster Award]**

2021 **Wearing OH**, Scott GR. Cardiovascular function is regulated to maintain mean arterial pressure in mice during chronic hypoxia (poster). Center for Physiological Genomics of Low Oxygen (CPGLO) Summit, online.

2021 **Flewwelling LD**, Scott GR. Effects of climate warming on the activity and metabolic physiology of deer mice (poster). Canadian Society of Zoologists, online.

2021 **Nomikos J**, Robertson CE, **Ivy CM**, Scott GR. Satellite cells and the evolution of muscle development in high-altitude deer mice (oral). Canadian Society of Zoologists, online.

2021 **Turko AJ**, Faiczak A, Balshine S, Scott GR. Thermal preference and aerobic performance of the endangered redside dace (oral). Canadian Society of Zoologists, online.

**[Finalist for the Presidents' Award for best postdoc presentation]**

2021 **Wearing OH**, Scott GR. Cardiovascular function is regulated to maintain mean arterial pressure in mice during chronic hypoxia (poster). Canadian Society of Zoologists, online.

**[Finalist for the Helen Battle Award for best student poster]**

2021 **Flewwelling LD**, Scott GR. Effects of climate warming on the activity and metabolic physiology of deer mice (poster). Comparative Physiology and Biochemistry Workshop, online.

2021 **Nomikos J**, Robertson CE, **Ivy CM**, Scott GR. Satellite cells and the evolution of muscle development in high-altitude deer mice (oral). Comparative Physiology and Biochemistry Workshop, online.

**[Louise Milligan Award for best undergraduate student presentation]**

2021 **Turko AJ**, Faiczak A, Pitcher TE, Balshine S, Scott GR. Do fish choose temperatures that optimize performance? Comparing thermal preference

and aerobic scope in the endangered redside dace *Clinostomus elongatus* (poster). Comparative Physiology and Biochemistry Workshop, online.

2021 **Wearing OH**, Scott GR. Cardiovascular function is regulated to maintain mean arterial pressure in mice during chronic hypoxia (poster). Comparative Physiology and Biochemistry Workshop, online.

2020 **Ivy CM**, Velotta JP, Cheviron ZA, Scott GR. Genetic variation in HIF-2$\alpha$ attenuates ventilatory sensitivity and carotid body proliferation in chronic hypoxia in high-altitude deer mice (poster). Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2020 **Lau SC**, Mehdi H**,** Balshine S, Scott GR. Wastewater effluent disrupts the responses to chronic hypoxia in Atlantic killifish (oral). Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2020 **West CM**, **Wearing OH**, Rhem R, Scott GR. The role of lung structure and function in high-altitude adaptation in deer mice (*Peromyscus maniculatus*) (poster). Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2019 **Lau SC**, Mehdi H**,** Balshine S, Scott GR. Interactive effects of wastewater effluent and hypoxia on the health and metabolic physiology of Atlantic killifish (oral). SETAC (Society for Environmental Toxicology and Chemistry) North America Annual Meeting, Toronto ON, Canada.

2019 Mehdi H, **Lau SC**, Morphet M, Bragg L, Servos MR, Parrott J, Scott GR, Balshine S. Summer vs. winter: how do fish respond physiologically and behaviourally to wastewater exposure under two seasonal regimes? (oral). SETAC (Society for Environmental Toxicology and Chemistry) North America Annual Meeting, Toronto ON, Canada.

2019 Balshine S, Nikel KE, McCallum ES, Mehdi H, **Du SNN**, Scott GR. Fish living near two wastewater treatment plants have unaltered behaviour and thermal tolerance but show changes in organ and tissue traits (poster). SETAC (Society for Environmental Toxicology and Chemistry) North America Annual Meeting, Toronto ON, Canada.

2019 McCracken KG, Alza L, Chua BA, **Dawson NJ**, Frappell PB, Graham AM, **Ivy CM**, Laguë SL, Milsom WK, Scott GR, York JM. Time at high altitude dictates evolutionary response to hypoxia (oral). North American Duck Symposium, Winnipeg, MB, Canada.

2019 Scott GR, **Tate KB**, **Wearing OH**, **Ivy CM**, Cheviron ZA, Storz JF, McClelland GB. Evolution of plasticity of thermogenic performance in deer mice native to high altitudes (oral). International Congress of Comparative Physiology and Biochemistry, Ottawa, ON, Canada.

2019 **Borowiec BG**, McClelland GB, Scott GR. Intermittent hypoxia is a unique challenge that elicits unique coping mechanisms in killifish (oral).

International Congress of Comparative Physiology and Biochemistry, Ottawa, ON, Canada.

2019 **Borowiec BG**, Hoffman RD, Hess CD, Galvez F, Scott GR. Evolutionary variation in hypoxia tolerance and hypoxia acclimation responses in killifish from the family Fundulidae (poster). International Congress of Comparative Physiology and Biochemistry, Ottawa, ON, Canada.

2019 **Ivy CM**, **Wearing OH**, Fago A, Natarajan C, Cheviron ZA, Storz JF, Scott GR. Haemoglobin adaptations to high altitude lead to adaptive changes in breathing pattern in deer mice (*Peromyscus maniculatus*) (oral). Society for Experimental Biology, Seville, Spain.

2019 **Borowiec BG**, McClelland GB, Scott GR. Intermittent hypoxia is a unique challenge that elicits unique coping mechanisms in killifish (oral). Canadian Society of Zoologists, Windsor, ON, Canada.

**[Finalist for the Hoar Award for best student presentation]**

2019 **Dawson NJ**, Scott GR. Evolved changes in respiratory capacity and $O_2$ kinetics of subsarcolemmal mitochondria from the muscle of high-altitude deer mice (*Peromyscus maniculatus*) (oral). Canadian Society of Zoologists, Windsor, ON, Canada.

**[Finalist for the Presidents' Award for best presentation by a post-doctoral fellow]**

2019 **Ivy CM**, **Greaves MA**, **Sangster ED**, Scott GR. Evolved changes in the control of breathing in deer mice native to high altitude (oral). Canadian Society of Zoologists, Windsor, ON, Canada.

2019 **Turko AJ**, Nolan CB, Balshine S, Scott GR, Pitcher TE. Seasonal variation in thermal tolerance and energy allocation of endangered Redside Dace *Clinostomus elongatus* in the wild (oral). Canadian Society of Zoologists, Windsor, ON, Canada.

2019 **West CM**, **Ivy CM**, **Husnudinov R**, Scott GR. The role of lung structure and function in adaptation to high-altitude hypoxia in deer mice (*Peromyscus maniculatus*) (oral). Canadian Society of Zoologists, Windsor, ON, Canada.

2019 **Borowiec BG**, Hoffman RD, Hess CD, Galvez F, Scott GR. Hypoxia tolerance in Fundulidae fishes (poster). Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2019 **Lau SC**, Mehdi H**,** Balshine S, Scott GR. Interactive effects of wastewater pollution and hypoxia on the health and physiology of Atlantic killifish (poster). Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2019 Houpt N, **Borowiec BG,** A. Bose, Scott GR, Balshine S. Physiological effects of hypoxia and air exposure on an intertidally breeding fish (oral).

Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2019 **West C**, Scott GR. The role of lung structure and function in adaptation to high-altitude hypoxia in deer mice (oral). Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2018 **Borowiec BG**, Hoffman RD, Hess CD, Galvez F, Scott GR. Evolutionary variation in hypoxia tolerance in *Fundulidae* killifishes (oral). American Physiological Society, New Orleans, LA, USA. [Physiologist 62(1), 89].

**[Finalist for the Scholander Award for best student presentation]**

2018 **Borowiec BG**, Hashem R, Campos DF, Rooke AC, Fox MG, Val AL, Almeida-Val VMF, Scott GR. Evolution of thermal tolerance in pumpkinseed sunfish (*Lepomis gibbosus*) (poster). American Physiological Society, New Orleans, LA, USA. [Physiologist 62(1), 79].

2018 Hoffman RD, **Borowiec BG,** Hess CD, Scott GR, Galvez F. Hypoxia-induced oxidative stress in Fundulid killifish (poster). American Physiological Society, New Orleans, LA, USA. [Physiologist 62(1), 68-69].

2018 **Ivy CM**, **Wearing OH**, Cheviron ZA, Storz JF, Scott GR. Haemoglobin adaptations to high altitude alter breathing pattern in deer mice (oral). American Physiological Society, New Orleans, LA, USA. [Physiologist 62(1), 49]

2018 **Ivy CM**, **Greaves MA**, **Sangster ED**, Scott GR. Evolution of the development of respiratory physiology in deer mice native to high altitude (poster). American Physiological Society, New Orleans, LA, USA. [Physiologist 62(1), 116].

**[Received APS Award for best student poster]**

2018 **Wearing OH**, **Ivy CM**, Cheviron ZA, Storz JF, Scott GR. Haemoglobin adaptations to high altitude augment arterial $O_2$ saturation in hypoxia but not aerobic capacity in deer mice (*Peromyscus maniculatus*) (oral). American Physiological Society, New Orleans, LA, USA. [Physiologist 62(1), 39].

2018 Schweizer RM, Velotta JP, **Ivy CM**, Storz JF, Scott GR, Cheviron ZA. Selection on Epas1, a regulator of oxygen homeostasis, contributes to adaptive hypoxia signaling in deer mice (poster). Joint Congress on Evolutionary Biology, Montpellier, France.

2018 **Borowiec BG**, Scott GR. Effects of hypoxia and reoxygenation on ROS homeostasis and oxidative stress in killifish (*Fundulus heteroclitus*) (oral). International Congress on the Biology of Fish, Calgary, AB, Canada.

2018 **Ivy CM**, **Wearing OH**, Cheviron ZA, Storz JF, Scott GR. Haemoglobin adaptations to high altitude alter breathing pattern in deer mice (oral). Canadian Society of Zoologists, St. John's, NL, Canada.

2018 **Borowiec BG**, **Hashem R**, Campos D, Rooke AC, Fox MG, Scott GR. Thermal tolerance and hypoxia tolerance of invasive pumpkinseed sunfish (*Lepomis gibbosus*) (poster). Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2018 **Dawson NJ**, **Lyons SA**, **Henry DA**, Scott GR. Effects of chronic hypoxia on diaphragm function in deer mice native to high altitude (poster). Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2018 **Wearing OH**, **Ivy CM**, Scott GR. Do adaptations in haemoglobin function alone confer the increased aerobic capacity observed in highland deer mice? (poster) Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2018 Schweizer RM, Velotta JP, **Ivy CM**, Scott GR, Cheviron ZA. Selection on a master regulator of oxygen homeostasis contributes to adaptive hypoxia signaling in deer mice. Society for Integrative and Comparative Biology, San Francisco, CA, USA. [Int. Comp. Biol. 58, E206].

2017 Balshine S, **Du SNN**, Scott GR, McCallum ES. The impacts of municipal wastewater on fish behaviour, physiology and community structure (oral). Canadian Ecotoxicology Workshop, Guelph, ON, Canada.

2017 **Du SNN**, McCallum ES, Balshine S, Scott GR. Metabolic and respiratory consequences of wastewater exposure in bluegill sunfish (oral). Canadian Ecotoxicology Workshop, Guelph, ON, Canada.

**[Second place for best student oral presentation]**

2017 **Wearing OH**, Scott GR. Cardiovascular control and high-altitude adaptation in deer mice (*Peromyscus maniculatus*) (oral). Society for Experimental Biology, Gothenburg, Sweden.

2017 Cheviron ZA, Velotta JP, Schweizer RM, **Ivy CM**, Scott GR. A master regulator of oxygen homeostasis contributes to adaptive hypoxia signaling in deer mice (oral). Evolution Conference, Portland, Oregon, USA.

2017 DuBay S, Wu Y, Cheviron ZA, Scott GR, Qu Y, Lei F, Bates J. Differential altitudinal migration and elevational range size are associated with differences in thermal tolerance in birds (oral). Evolution Conference, Portland, Oregon, USA.

2017 Velotta JP, Cheviron ZA, Scott GR. Loss of non-adaptive plasticity promotes adaptation to high-altitude in *Peromyscus* mice (oral). Evolution Conference, Portland, Oregon, USA.

2017 **Borowiec BG**, Scott GR. Metabolic adjustments of killifish (*Fundulus heteroclitus*) acclimated to intermittent hypoxia (oral). Canadian Society of Zoologists, Winnipeg, MB, Canada.

2017 **Dawson NJ**, **Ivy CM**, Alza L, Cheek R, York JM, Chua B, Milsom WK, McCracken KG, Scott GR. Muscle physiology and metabolic capacity in high-altitude ducks and geese from the Andes (oral). Canadian Society of Zoologists, Winnipeg, MB, Canada.

2017 **Ivy CM**, Laguë SL, Chua BA, Alza L, Cheek R, **Dawson NJ**, Frappell PB, McCracken KG, Milsom WK, Scott GR. Convergent evolution of the hypoxic ventilatory response in high-altitude ducks from the Andes (oral). Canadian Society of Zoologists, Winnipeg, MB, Canada.

2017 **Mahalingam S,** Scott GR, McClelland GB. High-altitude ancestry alters muscle phenotype and plasticity of muscle mitochondria in chronic cold and hypoxia in deer mice (oral). Canadian Society of Zoologists, Winnipeg, MB, Canada.

2017 **Dawson NJ**, **Lyons SA**, **Henry DA**, Scott GR. The effects of high-altitude ancestry and hypoxia acclimation on diaphragm function of the deer mouse, *Peromyscus maniculatus* (oral). 50 Years of Comparative Biochemistry: The Legacy of Peter Hochachka. Satellite Symposium, Canadian Society of Zoologists, Winnipeg, MB, Canada.

2017 **Ivy CM**, Scott GR. Ventilatory acclimatization to hypoxia in deer mice native to high altitudes (poster). 50 Years of Comparative Biochemistry: The Legacy of Peter Hochachka. Satellite Symposium, Canadian Society of Zoologists, Winnipeg, MB, Canada.

2017 **Mahalingam S**, McClelland GB, Scott GR. Physiology of mitochondria from skeletal and cardiac muscles in high-altitude deer mice (oral). 50 Years of Comparative Biochemistry: The Legacy of Peter Hochachka. Satellite Symposium, Canadian Society of Zoologists, Winnipeg, MB, Canada.

2017 Scott GR, **Ivy CM**, **Tate KB**, Velotta JP, Schweizer RM, Cheviron ZA. High-altitude adaptation and hypoxia signalling in deer mice (poster). 50 Years of Comparative Biochemistry: The Legacy of Peter Hochachka. Satellite Symposium, Canadian Society of Zoologists, Winnipeg, MB, Canada.

2017 Hoffman R, **Borowiec B**, Scott G, Adams C, Galvez F. Physiological plasticity and tolerance of fundulid killifish to aquatic hypoxia (poster). Experimental Biology, Chicago, IL, USA. [Faseb J. 31(1S), 719.17].

**[Received Scholander Award for best undergraduate student poster]**

2017 **Ivy CM**, Scott GR. Ventilatory acclimatization to hypoxia in deer mice native to high altitudes (oral and poster). Experimental Biology, Chicago, IL, USA. [Faseb J. 31(1S), 841.4].

2017 **Pranckevicius NA**, Scott AL, Nurse CA, Scott GR. Adrenal chromaffin cell function in high-altitude deer mice (*Peromyscus maniculatus*) (poster). Experimental Biology, Chicago, IL, USA. [Faseb J. 31(1S), 841.7].

2017 Scott AL, **Pranckevicius NA**, **Patel P**, Nurse CA, Scott GR. Catecholamine secretion from the adrenal medulla is blunted in high-altitude deer mice (*Peromyscus maniculatus*) (poster). Experimental Biology, Chicago, IL, USA. [Faseb J. 31(1S), 841.3].

2017 Scott GR, **Ivy CM**, **Tate KB**, Velotta JP, Schweizer RM, Cheviron ZA. High-altitude adaptation and hypoxia signaling in deer mice (oral and poster). Experimental Biology, Chicago, IL, USA. [Faseb J. 31(1S), 1075.2].

2017 **Wearing OH**, **Tate KB**, Scott GR. Autonomic control of thermogenic capacity is optimized in deer mice native to high- and low-altitudes (poster). Experimental Biology, Chicago, IL, USA. [Faseb J. 31(1S), 719.4].

2017 **Bellicoso E**, Scott GR. Cellular and respiratory responses to acute hypoxia in deer mice (oral). Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2017 **Choi JA**, **Du SNN**, McLean AR, Culbert BM, McCallum ES, Balshine S, Scott GR. The effects of wastewater effluent on the metabolism of bluegill sunfish (oral). Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2017 McLean AR, **Du SNN**, **Choi JA**, McCallum ES, Scott GR, Balshine S. Does proximity to wastewater effluent alter bluegill sunfish behaviour? (oral). Canadian Conference for Fisheries Research, Montreal, QC, Canada.

2017 Owerkowicz T, **Ivy CM,** Scott GR. Respiratory turbinate surface area is not affected by adaptation to high-altitude hypoxia in deer mice (oral). Society for Integrative and Comparative Biology, New Orleans, LA, USA. [Int. Comp. Biol. 57, E372].

2016 **Mahalingam S**, Scott GR, McClelland GB. High-altitude ancestry alters the plasticity of muscle mitochondria in chronic cold and hypoxia in deer mice (oral). Society for Experimental Biology, Brighton, UK.

2016 Scott GR, **Tate KB**, **Mahalingam S,** McClelland GB, Storz JF, Cheviron ZA. Physiological mechanisms of high-altitude adaptation and plasticity of respiratory performance in deer mice (oral). Evolution Conference, Austin, Texas, USA.

2016 Velotta JP, Scott GR, Cheviron ZA. Mechanisms of hypoxia adaptation: plasticity and evolution of heart size and gene regulation in high-altitude deer mice (oral). Evolution Conference, Austin, Texas, USA.

2016 Scott GR, Matey V, **Mendoza JA**, Gilmour KM, Perry SF, Almeida-Val VMF, Val AL. Air breathing and aquatic gas exchange during hypoxia in armoured catfish from the Amazon (oral). International Congress on the Biology of Fish, San Marcos, Texas, USA.

2016 **Borowiec BG**, Scott GR. Distinct physiological strategies for coping with constant hypoxia and intermittent hypoxia in killifish (*Fundulus heteroclitus*) (oral). International Congress on the Biology of Fish, San Marcos, Texas, USA.

2016 **Du SNN**, McCallum ES, **Vaseghi-Shanjani M**, **Choi JA**, Warriner TR, Balshine S, Scott GR. Impacts of wastewater exposure on respiratory and metabolic physiology of fish (oral). International Congress on the Biology of Fish, San Marcos, Texas, USA.

2016 Hoffman R, **Borowiec BG**, Scott GR, Adams C, Galvez F. Physiological resilience of *Fundulus* species to aquatic hypoxia (poster). International Congress on the Biology of Fish, San Marcos, Texas, USA.

2016 **Du SNN**, McCallum ES, **Vaseghi-Shanjani M**, **Choi JA**, Warriner TR, Balshine S, Scott GR. Distinct changes to respiratory and metabolic physiology in two Great Lakes fish exposed to wastewater effluent (oral). Laurentian Society of Environmental Toxicology and Chemistry, Waterloo, ON, Canada.

2016 **Borowiec BG**, Scott GR. Distinct physiological strategies for coping with constant hypoxia and intermittent hypoxia in killifish (*Fundulus heteroclitus*) (oral). Canadian Society of Zoologists, London, ON, Canada.

2016 **Dawson NJ**, McCracken KG, Scott GR. Muscle physiology and oxidative capacity in high-altitude Andean ducks and geese (oral). Canadian Society of Zoologists, London, ON, Canada.

2016 **Ivy CM**, Scott GR. Evolution of respiratory physiology in high-altitude deer mice (*Peromyscus maniculatus*) (oral). Canadian Society of Zoologists, London, ON, Canada.

2016 Laguë SL, Chua B, Farrell AP, Frappell PB, **Ivy CM**, McCracken KG, Scott GR, Wang Y, Milsom WK. Altitude matters: Cardiovascular and respiratory responses to hypoxia in high- and low-altitude geese and ducks (oral). Canadian Society of Zoologists, London, ON, Canada.

2016 Lisser DF, Lisser ZP, Scott GR, Wilkie MP. Reactive oxygen species (ROS) cause brain swelling in goldfish (*Carassius auratus*) exposed to high environmental ammonia (oral). Canadian Society of Zoologists, London, ON, Canada.

2016 **Mahalingam S**, McClelland GB, Scott GR. High-altitude ancestry and hypoxia acclimation affect mitochondrial physiology in deer mice (oral). Canadian Society of Zoologists, London, ON, Canada.

2016 McCallum ES, **Du SNN**, Scott GR, Balshine S. Exposure to wastewater effluent differentially affects the behaviour and physiology of two Great Lakes fish species (oral). Canadian Society of Zoologists, London, ON, Canada.

2016 York J, Chua B, **Ivy C**, Scott G, Laguë S, McCracken K, **Dawson N**, Frappell P, Alza L, Milsom W. Pulmonary mechanics and morphometrics comparing five high-altitude duck species and six low-altitude sister species (oral). Canadian Society of Zoologists, London, ON, Canada.

2016 **Ivy CM**, Scott GR. Respiratory adaptations to high-altitude hypoxia in deer mice (*Peromyscus maniculatus*) (oral and poster). Experimental Biology, San Diego, CA, USA. [Faseb J. 30(1S), 1230.3].

2016 Brunt E, Turko A, Scott G, Wright P. Amphibious fish jump better on land when acclimated to a terrestrial environment (oral). Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2016 **Du S**, Vaseghi M, Choi J, McCallum E, Warriner T, Balshine S, Scott G. The physiological impacts of exposure to wastewater effluent on a native and invasive species of the Great Lakes (oral). Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2016 **Lyons S**, Scott G. High altitude effects on deer mouse diaphragm physiology (oral). Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2016 **Pranckevicius N**, Scott AL, Nurse CA, Scott GR. Physiology of adrenal chromaffin cells in highland and lowland deer mice (poster). Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2016 **Wearing OH**, Scott GR. Sympathetic control of thermogenesis and the cardiovascular system in highland and lowland deer mice (*Peromyscus maniculatus*) (poster). Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2016 Cheviron ZA, Velotta JP, Wolf CJ, Storz JF, McClelland GB, Scott GR. Evolutionary and functional genomics of the attenuation of maladaptive plasticity in highland deer mice (*Peromyscus maniculatus*) (oral). Society for Integrative and Comparative Biology, Portland, OR, USA. [Int. Comp. Biol. 56, E36].

2015 Scott GR, **Tate KB**, **Ivy CM**, **Guo K**, **Patel P**, **Mahalingam S**. Cardiac performance in hypoxia of high-altitude deer mice (oral). Canadian Society of Zoologists, Calgary, AB, Canada.

2015 **Dawson NJ**, Scott GR, McCracken KG. High-altitude adaptation and metabolic capacities in Andean ducks and geese (poster). Canadian Society of Zoologists, Calgary, AB, Canada.

2015 Lisser DF, Lisser Z, Wilkie M, Scott G. The role of oxidative stress in the mechanisms of ammonia-induced neurotoxicity in goldfish (*Carassius auratus*) (oral). Canadian Society of Zoologists, Calgary, AB, Canada.

2015 **Ivy CM**, Scott GR. Control of breathing and adaptation to high-altitude hypoxia in deer mice (*Peromyscus maniculatus*) (poster). Experimental Biology, Boston, MA, USA. [Faseb J. 29(1S), 686.4].

**[Received Scholander Award for best student poster]**

2015 Scott GR, **Crans KD**, **Pranckevicius N**. Physiological tradeoffs underlie the evolution of hypoxia tolerance and exercise performance in fish (oral and poster). Experimental Biology, Boston, MA, USA. [Faseb J. 29(1S), 982.4].

2015 **Borowiec BG**, Scott GR. The effects of constant and intermittent hypoxia on metabolic rate and oxygen debt in killifish (*Fundulus heteroclitus*) (poster). Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2015 **Du SNN**, Scott GR. Mitochondrial responses to constant and intermittent hypoxia in killifish (*Fundulus heteroclitus*) (oral). Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2015 **Guo KH**, Scott GR. Mitochondrial respiration in cardiac muscle of highland and lowland deer mice (*Peromyscus maniculatus*) (poster). Comparative Physiology Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2015 **Ivy CM**, Laguë SL, Milsom WK, McCracken KG, Scott GR. Is parallel evolution of respiratory physiology occurring in independent lineages of highland ducks from the Andes? (oral). Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2015 Lisser DF, Wilkie MP, S. Sidhu, Scott GR. Tissue-specific induction of oxidative stress in goldfish (*Carassius auratus*) during acute hyperammonemia (poster). Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2015 **Pranckevicius N**, Scott GR. Does haemoglobin $P_{50}$ underlie the tradeoff between hypoxia tolerance and exercise performance in fish? (oral). Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2014 **Du SNN**, Scott GR. Mitochondrial responses to sustained and intermittent hypoxia in killifish (*Fundulus heteroclitus*) (poster). American Physiological Society, San Diego, CA, USA.

**[Received award for best poster by an undergraduate student]**

2014 Bishop CM, Spivey RJ, Hawkes LA, Batbayar N, Chua B, Frappell PB, Milsom WK, Natsagdorj T, Newman SH, Scott GR, Takekawa JY, Wikelski M, Butler PJ. Locomotion dynamics and heart rate of migrating bar-headed geese (*Anser indicus*) (oral). Bio-logging Science Symposium (BLS5), Strasbourg, France.

2014 Scott GR, **Borowiec BG**, **Du S**, **Gillette DM**, **Darcy KL**. Pattern matters – Distinct physiological strategies are used to cope with constant and intermittent hypoxia in killifish (*Fundulus heteroclitus*) (oral). Society for Experimental Biology, Manchester, UK.

2014 Scott GR, Matey V, Gilmour KM, Perry SF, Almeida-Val VMF, Val AL. Air breathing and aquatic gas exchange during hypoxia in armoured catfish from the Amazon (poster). Fueling the Fire of Life: A Tribute to the Career of Bill Milsom. Society for Experimental Biology Animal Symposium, Musselburgh, Scotland.

2014 **Borowiec BG**, **Darcy KL**, Scott GR. Distinct physiological strategies are used to cope with constant and intermittent hypoxia in killifish (*Fundulus heteroclitus*) (oral). Joint meeting of the Canadian Society of Ecology and Evolution, the Canadian Society of Zoology, and the Society of Canadian Limnologists, Montreal, QC, Canada.

2014 **Ivy CM**, Scott GR. Control of breathing and adaptation to high altitude hypoxia in deer mice (*Peromyscus manipulates*) (oral). Joint meeting of the Canadian Society of Ecology and Evolution, the Canadian Society of Zoology, and the Society of Canadian Limnologists, Montreal, QC, Canada.

2014 **Mahalingam S**, Connaty AD, Scott GR, McClelland GB. High-altitude adaptation and mitochondrial physiology in deer mice (oral). Joint meeting of the Canadian Society of Ecology and Evolution, the Canadian Society of Zoology, and the Society of Canadian Limnologists, Montreal, QC, Canada.

2014 **Borowiec BG**, Scott GR. Differences in hypoxia tolerance in killifish (*Fundulus heteroclitus*) acclimated to constant or intermittent hypoxia (oral). Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2014 **Crans KD**, Scott GR. Hypoxia tolerance in bass and sunfish (Family Centrarchidae) (oral). Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2014 **Ivy CM**, Scott GR. Control of breathing and adaptation to high-altitude hypoxia in deer mice (*Peromyscus manipulates*) (poster). Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2013 Scott GR, **Mahalingam S**, McClelland GB. 2013. Mitochondrial adaptations to hypoxia in high-altitude birds and mammals (oral). Comparative Mitochondrial Physiology (MiP2013), Obergurgl, Austria.

2013 Scott GR, **Lui MA**, **Elogio TS**. Evolution of the hypoxia acclimation response in high-altitude deer mice (oral). Canadian Society of Zoologists, Guelph, ON, Canada.

2013 **Borowiec BG**, **Darcy KL**, Scott GR. A comparison of the acclimation responses to constant and intermittent hypoxia in killifish (*Fundulus heteroclitus*) (poster). Canadian Society of Zoologists, Guelph, ON, Canada.

**[Finalist for the Helen Battle Award for best student poster]**

2013 **Crans KD**, Scott GR. The evolution of hypoxia tolerance and performance in centrarchid fishes (poster). Canadian Society of Zoologists, Guelph, ON, Canada.

2013 **Mahalingam S**, Cheviron ZA, Storz JF, Connaty AD, Scott GR, McClelland GB. 2013. Developmental and physiological plasticity of muscle metabolic phenotypes in highland and lowland deer mice (oral). Canadian Society of Zoologists, Guelph, ON, Canada.

2013 **Lui MA**, Scott GR. 2013. The effects of hypoxia acclimation on maximal oxygen consumption and muscle capillarity in deer mice from high or low altitude (oral). Ontario Biology Day, Hamilton, ON, Canada.

2013 **Borowiec BG**, Scott GR. 2013. The impacts of constant and intermittent hypoxia acclimation on oxygen transport in killifish (*Fundulus heteroclitus*) (poster). Ontario Biology Day, Hamilton, ON, Canada.

2013 Scott GR, **Lui MA**, **Elogio TS**, McClelland GB, Cheviron ZA, Storz JF. Highland ancestry alters the hypoxia acclimation response in deer mice (oral). International Hypoxia Symposium, Lake Louise, AB, Canada.

2013 **Borowiec BG**, **Darcy KL**, Scott GR. The impacts of chronic and intermittent hypoxia acclimation on oxygen transport in killifish (*Fundulus heteroclitus*) (poster). Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2013 **Crans KD**, Scott GR. Performance in hypoxia: the effect of hypoxia on critical swimming speed and maximum metabolic rate in centrarchid fishes (poster). Comparative Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

2012 Scott GR, **Schnurr ME**, Johnston IA. Swimming with temperature change – integrative physiology and genomics (oral). Woodstock 2012, Society for Experimental Biology Animal Symposium, Abbazia di Spineto, Tuscany, Italy.

2012 Scott GR, **Schnurr ME**, **Yin Y**, Johnston IA. Embryonic temperature produces persistent effects on the capacity for thermal acclimation in adult zebrafish (oral). Canadian Society of Zoologists, Sackville, NB, Canada.

2010 Scott GR, Schulte PM, Egginton S, Scott ALM, Richards JG, Milsom WK. Cardiac adaptations to hypoxia in the high-altitude bar-headed goose (oral). Physiological Society, Birmingham, UK.

2010 Milsom WK, Scott GR. Cardiorespiratory adaptations to hypoxia: birds at altitude (oral). Physiological Society, Birmingham, UK.

2010 Sloman KA, Scott GR, Wood CM, Almeida-Val V, Val A. The behavioural trade-off between safety and hypoxia in Amazonian fish (oral). International Congress on the Biology of Fish, Barcelona, Spain.

2010 Wood CM, Matey V, Iftikar FI, Scott GR, De Boeck G, Sloman KA, Valdez Domingos FX, Duarte RM, Almeida-Val VMF, Val AL. The unusual osmo-respiratory compromise in the Amazonian oscar, *Astronotus ocellatus* (oral). International Congress on the Biology of Fish, Barcelona, Spain.

2009 Scott GR, Egginton S, Richards JG, Milsom WK. Evolution of muscle physiology for extreme high altitude flight in the bar-headed goose (oral). Canadian Society of Zoologists, Scarborough, ON, Canada.

2009 Scott GR, Richards JG, Milsom WK. Oxygen dependence of mitochondrial respiration in high and low altitude birds (poster). Experimental Biology, New Orleans, LA, USA. [Faseb J. 23, 598.14, 2009].

2009 Scott GR, Egginton S, Richards JG, Milsom WK. Adaptations for exercising at high altitude in the flight muscle of bar-headed geese (oral). International Hypoxia Symposium, Lake Louise, AB, Canada.

2008 Scott GR, Richards JG, Milsom WK. Matching $O_2$ supply and demand in the high flying bar-headed goose (oral). Society for Experimental Biology, Marseille, France. [Comp Biochem Physiol A. 150, S53, 2008].

2008 Scott GR, Wood CM, Sloman KA, Iftikar FI, De Boeck G, Almeida-Val VMF, Val AL. Respiratory responses to progressive hypoxia in the Amazonian oscar (poster). Society for Experimental Biology, Marseille, France. [Comp Biochem Physiol A. 150, S121, 2008].

2008 Wood CM, Iftikar F, Scott GR, De Boeck G, Sloman KA, Almeida-Val VMF, Val AL. Investigating the mechanism by which severe hypoxia down-regulates $Na^+$ efflux in the Amazonian oscar (oral). Canadian Society of Zoologists, Halifax, NS, Canada.

2008 Scott GR, Richards JG, Milsom WK. Evolutionary physiology of the high-flying bar-headed goose (poster). Canadian Society for Ecology and Evolution, Vancouver, BC, Canada.

2008 Scott GR, Richards JG, Milsom WK. Control of mitochondrial respiration in flight muscle of bar-headed geese (poster). Experimental Biology, San Diego, CA, USA. [Faseb J. 22, 757.2, 2008].

2007 Scott GR, Tattersall GJ, Milsom WK. Thermoregulatory and metabolic adaptations to hypoxia in bar-headed geese (oral). Canadian Society of Zoologists, Montreal, QC, Canada.

2007 Lee SY, Scott GR, Milsom WK. Morphological adaptations for high altitude flight in bar-headed geese (poster). Canadian Society of Zoologists, Montreal, QC, Canada.

2006 Scott GR, Richards JG, Milsom WK. Metabolic profiles in the flight muscles of high and low altitude birds (poster). American Physiological Society, Virginia Beach, VA, USA.

2006 Scott GR, Milsom WK. Respiratory adaptations to high altitude in bar-headed geese (poster). American Physiological Society, Virginia Beach, VA, USA.

2006 Wood CM, Kajimura M, Sloman KA, Walsh PJ, Scott GR, Almeida-Val VMF, Val AL. Rapid regulation of $Na^+$ uptake and ammonia excretion in the Amazonian oscar during exposure to and recovery from severe environmental hypoxia (oral). International Congress on the Biology of Fish, St. John's, NL, Canada.

2006 Scott GR, Milsom WK. Ventilatory control and adaptation to high altitude hypoxia in birds (oral). Canadian Society of Zoologists, Edmonton, AB, Canada.

2005 Sloman KA, Scott GR, Wood S, Kajimura M, Johannsson O, Almeida-Val V, Val A, Wood CM. The effect of size on the physiological and behavioural responses of oscar to hypoxia (oral). Society of Experimental Biology, Barcelona, Spain. [Comp Biochem Physiol A. 141, S176-S177, 2005].

2005 Scott GR, Milsom WK. Potential adaptations for high altitude hypoxia in bar-headed geese: sensitivity analysis of the factors influencing $Vo_{2,max}$ in birds during normoxia and hypoxia (poster). Canadian Society of Zoologists, Kingston, ON, Canada.

2005 Scott GR, Milsom WK. Sensitivity analysis of the factors influencing $Vo_{2,max}$ in birds during normoxia and hypoxia (poster). International Hypoxia Symposium, Lake Louise, AB, Canada. [Adv. Exp. Med. Biol. 588, 330-331, 2006].

2004 Scott GR, Keir KR, Rogers JT, Wood CM, Schulte PM. Gene regulation and ion flux in the euryhaline killifish after freshwater transfer (oral). International Congress on the Biology of Fish, Manaus, Brazil.

2004 Wood CM, Scott GR, Laurent P, Claiborne JB, Edwards S, Schulte PM. Rapid adaptation of the killifish to salinity change (oral). International Congress on the Biology of Fish, Manaus, Brazil.

2004 Scott GR, Richards JG, Rogers JT, Wood CM, Schulte PM. Intraspecific variation in freshwater ionoregulation in the euryhaline teleost (oral). Society for Integrative and Comparative Biology, New Orleans, LA, USA.

2003 Scott GR, Schulte PM. Ion transporter expression during salinity transfer in the euryhaline teleost (oral). Canadian Society of Zoologists, Waterloo, ON, Canada.

2002 Scott GR, Sloman KA, Rouleau C, Wood CM. Olfaction-mediated predator avoidance behaviours are disrupted in cadmium-exposed rainbow trout (poster). Society of Environmental Toxicology and Chemistry, Salt Lake City, UT, USA.

2002 Sloman KA, Scott GR, McDonald DG, Wood CM. Dominance hierarchies: implications for aquatic toxicology (poster). Society of Environmental Toxicology and Chemistry, Salt Lake City, UT, USA.

2002 Scott GR, Sloman KA, Rouleau C, Wood CM. Cadmium-induced alteration of fish behaviour: implications for aquatic predator-prey interactions (oral). Canadian Society of Zoologists, Lethbridge, AB, Canada.

2002 Sloman KA, Scott GR, Rouleau C, Wood CM, McDonald DG. Cadmium exposure disrupts the social behaviour of rainbow trout (oral). Canadian Society of Zoologists, Lethbridge, AB, Canada.

2002 Sloman KA, Scott GR, Baker DW, McDonald DG, Wood CM. Why does social status influence uptake of waterborne trace metals? (oral). Society of Experimental Biology, Swansea, UK.

2002 Scott GR, Sloman KA, Rouleau C, Wood CM. Cadmium inhibits predator avoidance behaviours in rainbow trout (oral). Fish Physiology and Biochemistry Workshop, Rice Lake, Keene, ON, Canada.

## TRAINEE SUPERVISION

*Postdoctoral Fellows*

Derek Somo (2023-present). Developmental plasticity of muscle energetics in deer mice.

Till Harter (2023-2024). High-altitude adaptation and red blood cell physiology in mice.
*NSERC Banting Postdoctoral Fellowship 2023-2024*

Andrew Turko (2018-2022). Conservation physiology and management of an Ontario fish species at risk.
*E.B. Eastburn Postdoctoral Fellowship 2020-2022*
*Currently a NSERC Postdoctoral Fellow at Wilfred Laurier University, and will start as an Assistant Professor at University of Guelph in January 2024*

Neal Dawson (2014-2018). High-altitude adaptation in Andean ducks.
*NSERC Postdoctoral Fellowship 2016-2018*
*Currently a Postdoctoral Fellow at University of Glasgow*

Kevin Tate (2014-2016). Integrative respiratory physiology of high-altitude deer mice.
*Currently an Assistant Professor at Texas Lutheran University*

*Ph.D. Students*

Ranim Saleem (2021-present). Mitochondrial adaptations to hypoxia in high-altitude deer mice.

Oliver Wearing (2015-2022). Circulatory and metabolic adaptations to high altitude in deer mice (*Peromyscus maniculatus*).
*NSERC Vanier Canada Graduate Scholarship 2018-2021, Whidden Graduate Scholarship 2016-2018*
*Currently a Killam Postdoctoral Fellow at University of British Columbia*

Catherine Ivy (2013-2020). High-altitude adaptation and control of breathing in deer mice (*Peromyscus maniculatus*).

*2022 T.W.M. Cameron Award from Canadian Society of Zoologists for most outstanding Ph.D. thesis in zoology in Canada*
*NSERC Doctoral Scholarship (PGS D) 2015-2018, Ontario Graduate Scholarships (OGS) 2013-2015 & 2018-2019*
*Currently a NSERC Banting Postdoctoral Fellow at Western University*

Brittney Borowiec (2013-2019). Intermittent hypoxia elicits a unique physiological coping strategy in *Fundulus* killifish.
*NSERC PGS D in 2016-2019, OGS 2014-2016*
*Currently a NSERC Postdoctoral Fellow at University of Waterloo*

Sajeni Mahalingam (2013-2017). High-altitude adaptations and phenotypic plasticity of mitochondria in deer mice.
*OGS 2014-2016*
*Currently Program Manager, Science Office of Undergrad. Research, McMaster U.*

*M.Sc. Students*

Caileigh Tomas (2023-present). Thermogenesis, the gut microbiome, and high-altitude adaptation in deer mice.

Kayla Garvey (2022-present). Aerobic capacity, haemoglobin, and high-altitude adaptation in deer mice.
*OGS 2022, 2023*

Heather Gahs (2022-2023). Thermoregulation, torpor use, and high-altitude adaptation in deer mice.
*Withdrawn to attend Physician Assistant Program*

Emma Zucker (2021-2023). The contribution of the gut microbiome to thermogenesis in high-altitude deer mice.
*NSERC Canada Graduate Scholarship (CGS-M) 2022*

Megan Ridgway (2021-2023). The effects of acclimation temperature on hypoxia tolerance of mummichog killifish.
*NSERC CGS-M 2022, Ontario Graduate Fellowship (OGF) 2021*

Emily Garrett (2021-2023). Evolved increases in oxidative capacity across many skeletal muscles in high-altitude deer mice. *OGS 2021*
*Currently a Research Associate at AGADA Biosciences*

Luke Flewwelling (2020-2022). The effect of climate warming on the metabolic physiology and activity of deer mice (*Peromyscus maniculatus*).
*Currently a PhD student at York University*

Samantha Lau (2018-2020). Interactive effects of wastewater effluent and hypoxia on the metabolic physiology and health of mummichog killifish (*Fundulus heteroclitus*).
*Currently Lead of Research & Analysis, Pollution Probe*

Claire West (2018-2020). The role of lung structure and function in adaptation to high altitude in deer mice (*Peromyscus maniculatus*).
*Currently in Accelerated Nursing Program, St. Francis Xavier University*

Nicole Pranckevicius (2015-2017). Adrenal chromaffin cell function in high-altitude deer mice.
*Currently a Research Technician at Centre for Molecular Medicine, Austrian Academy of Sciences*

Sherry Du (2015-2017). Effects of wastewater exposure on fish metabolism and respiration.
*OGS 2016-2017*
*Currently a Policy Analyst at Environment and Climate Change Canada*
Kyle Crans (2012-2014). Mechanisms, evolution, and phenotypic plasticity of hypoxia tolerance among bass and sunfish.
*Currently a Lawyer with Norton Rose Fulbright*

*Visiting Scientists*

Fariborz Khajali (2014-2015). Pulmonary function during hypoxia in birds.

*Undergraduate Students*

Evelyn Alley (2023-2024). To be determined.
Mya Jain (2023-2024). To be determined.
Sonia Kamran (2023-2024). To be determined.
Joyce Lotchuang (2023-2024). To be determined.
Emily Gomes-Szoke (2022-2023). Effects of hypoxia on exercise training in deer mice.
Caroline Holicka (2022-2023). Respiratory adaptations to high altitude in deer mice. [2]
*Best physiology presentation at the 2023 Biology Undergraduate Symposium*
Tanisha Warrier (2022-2023). Temperature effects on mitochondrial physiology in mice.
Matt Eizenga (2021-2022). Temperature effects on exercise performance in deer mice.
Heather Gahs (2021-2022). Seasonal variation in gill morphology in redside dace.
Aedan Rourke (2021-2022). Evolution of the adrenal gland in high-altitude deer mice.
Ellen Shadowitz (2021-2022). Physiological constraints on elevational range shifts.
Julia Nomikos (2020-2021). Evolution of muscle development in high-altitude mice. [1]
*Best talk at the 2021 Life Sciences Interdisciplinary Research Symposium*
Haley Prest (2020-2021). Developmental plasticity of lung morphology in deer mice.
Angela Tobia (2020-2021). Thermal sensitivity of swim performance in redside dace.
Eden Bishop (2019-2020). Evolution of muscle phenotype in high-altitude deer mice.
Marissa Fazio (2019-2020). Evolution of muscle phenotype in high-altitude deer mice.
Renata Husnudinov (2019-2020). Evolution of muscle development in deer mice. [1]
Laura Halliday (2018-2019). Evolution of muscle development in high-altitude mice.
Folasade Ologundudu (2018-2019). Physiological constraints on altitudinal range shifts.
Mae Van Der Kamp (2018-2019). Intestinal responses to hypoxia in killifish.
Sarah Dyalsingh (2017-2018). High-altitude adaptation and lung structure in deer mice.
Mary Greaves (2017-2018). Developmental plasticity of breathing in deer mice.
Reem Hashem (2017-2018). Physiology of climate change adaptation in sunfish.
*Best physiology presentation at the 2018 Biology Undergraduate Symposium*
Adhora Mir (2017-2018). Haemoglobin and muscle phenotype in deer mice.
Sarah Muir (2017-2018). Hypoxia signalling and muscle phenotype in deer mice.
Naman Shanishchara (2017). Developmental hypoxia and muscle phenotype in mice.
Emily Bellicoso (2016-2017). Molecular adaptations to hypoxia in highland deer mice. [1]
Jasmine Choi (2016-2017). The impacts of wastewater effluent on fish physiology.
*Awarded second place in NSERC's Science, Action! Video Contest ("Something Fishy About Wastewater", about our collaborative project with Sigal Balshine). Award for best physiology presentation at the 2017 Biology Undergraduate Symposium*

Elizabeth Sangster (2016-2017). Developmental plasticity of breathing in deer mice.
Kirsten Nikel (2016). Developmental plasticity of muscle in high-altitude deer mice. [1]
Sulayman Lyons (2015-2016). Diaphragm muscle function in highland deer mice.
Gabriele Nandal (2015-2016). Flight and muscle energy metabolism in birds.
*Award for best talk at the 2016 Life Sciences Interdisciplinary Research Symposium*
Maryam Vaseghi-Shanjani (2015). Effects of wastewater effluent on round goby.
Kevin Guo (2014-2015). Cardiac energy metabolism in highland deer mice.
Nicole Pranckevicius (2014-2015). Hypoxia tolerance and haemoglobin function in fish.
Sherry Du (2013-2014). Hypoxia and mitochondrial function in fish.
*Awards for the best undergraduate student poster at the 2014 American Physiological Society meeting, and for best physiology poster at the 2014 Biology Undergraduate Symposium*
Danielle Gillette (2013-2014). Hypoxia and muscle plasticity in killifish.
Paras Patel (2013-2014). Respiratory adaptations to high altitude in deer mice. [1]
Alex Young (2013-2014). Interactive effects of hypoxia and temperature in fish.
Brittney Borowiec (2012-2013). Responses of the gills to intermittent hypoxia in killifish.
Kimberly Darcy (2012-2013). Metabolic responses to intermittent hypoxia in killifish.
*Award for best poster at the 2013 Biology Undergraduate Symposium*
Todd Elogio (2012-2013). Adaptations to high altitude in the muscle of deer mice.
*Award for best oral presentation at the 2013 Biology Undergraduate Symposium*
Mikaela Lui (2012-2013). High-altitude adaptation and exercise capacity in deer mice. [1]
Meghan Schnurr (2011-2012). Temperature effects on muscle enzymes in fish.
Yi Yin (2011-2012). Temperature effects on brain enzymes in fish.

[1] Awarded *NSERC USRA scholarship*
[2] *Awarded Sparkuhl summer fellowship*

## PROFESSIONAL SERVICE

### Editorial Boards

2021- Frontiers in Physiology

2015- Comparative Biochemistry and Physiology

2020-2022 Journal of Comparative Physiology B

### Elected Positions

2016-2019 Councillor (elected)
Canadian Society of Zoologists

### Conference and Symposium Organization

2023 Conference Organizer
Comparative Physiology & Biochemistry Workshop, Rice Lake, Ontario.

2021 Conference Chair
Annual Meeting of the Canadian Society of Zoologists
(Virtual meeting in May 2021)

2018 Symposium Chair

Evolution of phenotypic plasticity in physiological systems
American Physiological Society Intersociety Meeting, New Orleans, USA

2017 Symposium Chair
Comparative perspectives on hypoxia signaling and tolerance
Experimental Biology, Chicago, USA

2014 Conference Co-Organizer
Fueling the Fire of Life: A Tribute to the Career of Bill Milsom
Society for Experimental Biology Animal Symposium, Scotland

2014 Conference Organizer
Comparative Physiology & Biochemistry Workshop, Rice Lake, Ontario.

2014 Symposium Chair
Cardiorespiratory physiology of vertebrate extremophiles
American Physiological Society Intersociety Meeting, San Diego, USA

## POPULAR MEDIA

2022 Big Biology Podcast
Hosted by Marty Martin and Art Woods
[https://www.bigbiology.org/episodes/2022/6/23/ep-86-what-the-flux-the-evolution-of-oxygen-cascades-with-graham-scott]

2021 Quirks & Quarks, CBC Radio
Hosted by Bob McDonald
[https://www.cbc.ca/radio/quirks/apr-3-gorilla-troops-raise-orphans-canadian-laser-cools-antimatter-concussion-spit-test-and-more-1.5971234/do-all-creatures-on-earth-have-red-blood-1.5971237]

2020 New Scientist
Colin Barras (science writer)
[https://www.newscientist.com/article/2237997-worlds-highest-mammal-discovered-at-the-top-of-a-mars-like-volcano/]

2020 Science News
Jack Lee (Science News Intern)
[https://www.sciencenews.org/article/south-american-mouse-world-highest-dwelling-mammal]

2019 Washington Post
Ben Guarino (science reporter)
[https://www.washingtonpost.com/science/2019/09/04/this-astronaut-raised-geese-study-their-hearts-birds-stole-hers/]

2016 Live Science
Mindy Weisberger (Senior Writer)
[http://www.livescience.com/55455-how-high-can-birds-fly.html]

2016 National Geographic Magazine
Carrie Arnold (Freelance Writer)

2011 Scientific American Magazine
David Godkin (Freelance Writer)