Curriculum Vitae

Molly R. Morris

Addresses:	Department of Biological Sciences Ohio University Athens, OH 45701	8100 N. Coolville Ridge Rd Athens, OH 45701
Phone numbers:	(740) 593-0337	
FAX:	(740) 593-4527	
E-mail:	morrism@ohio.edu	

Education:

09/74 -06/78 *B.A. Biology*, Earlham College, Richmond, IN
Major Professor, Dr. William Buskirk

01/83 - 12/87 *Ph.D. Ecology, Evolution and Behavior*, Indiana University, Bloomington, IN
Major Professor, Dr. Craig E. Nelson
"Mating behavior in relation to sexual selection in the treefrogs *Hyla chrysoscelis* and *Hyla ebraccata*"

Experience:

09/84 - 12/86 *Associate Instructor*, Indiana University, Bloomington, IN
Introductory Biology Laboratory, Evolution and Ecology.

01/88 - 02/88 *Research Associate*, University of Bielefeld, Bielefeld, West Germany
Research Project: Game Theory in the Behavioral Sciences.

07/88 - 03/94 *Post-doctoral Fellow*, Department of Zoology, University of Texas, Austin, TX
National Science Foundation Postdoctoral Fellowship "Maintenance of an alternative mating strategy in *Xiphophorus nigrensis*"
National Science Foundation (Principal Investigator M.J. Ryan) "Evolution of female preference in *Xiphophorus pygmaeus*".

08/94 - 06/95 *Visiting Assistant Professor*, Department of Natural Sciences, University of Maryland Eastern Shore Campus, Princess Anne, MD

09/95 - 12/95 *Adjunct Professor*, Department of Biology, Montgomery College, Rockville, MD.

12/95 - 06/97 *Associate Professor*, Department of Biology, Montgomery College, Rockville, MD.

10/95 – 09/07 *Research Associate*, Division of Fishes, National Museum of Natural History, Smithsonian Institution, Washington, DC

10/07 – 10/13 *Research Collaborator*, Division of Fishes, National Museum of Natural History, Smithsonian Institution, Washington, DC

09/97 – 09/03 *Assistant Professor,* Department of Biological Sciences, Ohio University, Athens

09/03 – 04/08 *Associate Professor,* Department of Biological Sciences, Ohio University, Athens

05/08 – 08/26 *Professor,* Department of Biological Sciences, Ohio University, Athens, OH.

09/26 - *Professor Emeritus,* Department of Biological Sciences, Ohio University, Athens, OH.

Professional Society Memberships:

American Association for the Advancement of Science, Society for the Study of Evolution, American Society of Naturalists, Association for Tropical Biology, Animal Behavior Society, Sigma Xi

Reviewer for:

Animal Cognition
American Naturalist
Animal Behavior
Auk
Evolutionary Applications
Behaviour
Behavioral Ecology
Behavioral Ecology and Sociobiology
Biology Letters
Biotropica
BMC Evolutionary Biology
Copeia
Evolution
Evolutionary Ecology
Ethology
Ecology of Freshwater Fish
Herpetologica
Journal of Herpetology
Journal of Evolutionary Biology
Organization of Tropical Studies
National Science Foundation (Animal Behavior)
Systematic Biology, and Population Biology)
Proceedings of the National Academy
Proceedings of the Royal Society, B
PLOS One
The Science of Nature
Systematic Biology
National Geographic Foundation

Elected Offices, Committees, Editorial Boards:

Scientific Community: National Science Foundation, Animal Behavior Program, Panel Member (6 Panels); Secretary Animal Behavior Society (6/02-8/05); President Animal Behavior Society (8/06-8/10); Associate Editor *Behaviour* (3/06 – 8/11); Editor *Animal Behaviour* (9/13 – 9/16); Fellow Animal Behavior Society (8/16)

University: Faculty Senate Representative (9/00 – 9/06; Professional Relations Committee; Promotion and Tenure Committee); Faculty Compensation Task Force (10/06-2-07); Graduate Council (3/10-3/14)

College: Promotion and Tenure committee (10/03-9/06) (10/08-9/11)

Department: Director of EEB Focus Group (9/01 – 9/03), Promotion and Tenure committee (9/03-8/04), Chair of Student Engagement Committee (9/02 – 9/04); Executive Advising Committee (9/05-9/07), Chair of Staffing Committee (5/06-6/07); Promotion and Tenure Committee (9/06-9/08); Chair of Faculty Search Committee (9/08-6/10); Graduate Chair (9/13 – 6/18); Promotion and Tenure Committee (1/19-6/20); Vice Chair (6/20- 6/22); Promotion and Tenure Committee (3/23-current)

Graduate Students (thesis or dissertation title):

Shala Hankison, MS 1999 "Multiple cue use in sexual selection and species identification by *Xiphophorus pygmaeus*"

Justin Merry, MS 2001 "Testing for reproductive character displacement in a hybrid zone between two species of swordtail fishes"

Brooke Axline-Minotti, MS 2003 "The role of threespot damselfish (*Stegastes planifrons*) as a keystone species in a Bahamian patch reef"

Jason Moretz, Ph.D. 2004 "A comparative analysis of the role of male-male competition in the evolution of aggression, vertical bars and male body size in the northern swordtail fishes"

M. Scarlett Tudor, MS 2007 "Mechanisms that drive variation in female mating preferences in *Xiphophorus malinche*"

Andre Fernandez, PhD 2008 "Selection for the Xmrk oncogene in *Xiphophorus cortezi*"

Lisa Bono, MS 2009 "Examining the relative lifetime fitnesses for alternative mating phenotypes in *Xiphophorus multilineatus*"

Candice Clark, Ph.D. Student 2008-2009 (MA Social Sciences 2015, Bradley University)
Donelle Robinson, Ph.D. 2011 "Variation in Female Mating Preferences in Swordtail Fishes: the Importance of Social Experience, Male Aggression and Genetic Variation"
Susan Lyons, MS 2011 "The influence of condition, context, and life history on variation in female mate preference in *Xiphophorus* fishes"
Alex Murphy, MS 2012 "Plasticity of growth rate in the High-Back Pygmy Swordtail, *Xiphophorus multilineatus*, in response to social context and maternal effects"
Danielle d'Amore, Ph.D. 2018 "Swordtails gone wild : how maternal environment, the aquarium trade, and artificial selection influence behavior and invasive potential in a popular pet fish" Current position: Outreach Lead at Accdon, LLC (Publishing services), Barrington, New Hampshire
Fred Tucker, MS 2019 "Influences of food availability and social context on behavior and behavioral plasticity in *Xiphophorus helleri* hybrids" Current position: Tree Frog Keeper at Josh's Frogs, Toledo OH. Former Conservation Assistant at Metroparks Toledo, Toledo, Ohio
Hannah Griebling, MS 2019 "Intraspecific variation in cognitive traits in a swordtail fish (*Xiphophorus multilineatus*)" Current position: PhD student University of British Columbia, Vancouver |UBC, Department of Forest and Conservation Sciences
Melissa Liotta, Ph.D. 2020. "Intralocus Tactical Conflict as a Constraint on the Evolution of Alternative Reproductive Tactics in Xiphophorus multilineatus (Cyprinodontiformes: Poeciliidae")
Neil Hamrick, MS 2021 "Predator Inspection and Social Information Usage in the Sexually Dimorphic Livebearing Fish *Xiphophorus helleri"* Park Naturalist, Columbus OH. Instructional Faculty, Dublin Campus Ohio University
Meredith Fitschen-Brown, Ph.D. 2022 "The behavioral responses to environmental stressors in swordtail fishes (Xiphophorus)"
Keith Tompkins, Ph.D 2024 "*The Influence of Temperature on Growth, Sexual Maturation, and the Novel Development of Nuchal Humps in the Swordtail Fish, Xiphophorus multilineatus"*
Kaylee Rutters, MS 2024 "Heat and Holding in Plastic Bags as Stressors in Swordtail Fishes"
Ryan Cross, MS 2026 "The Impacts of Laboratory-Rearing and Social Isolation on Behavioral Research Using Swordtail Fish (Xiphophorus multilineatus)"

Postdoctoral Fellows:
Laurie Dries, Postdoctoral Fellow, 2001-2003 (Research Scientist, City of Austin TX)
Carla Guiterrez, Postdoctoral Fellow, 2003-2005 (Associate Professor, Instituto de Ecologica, Xalapa, Mexico)
Oscar Rios Cardenas, Postdoctoral Fellow, 2003-2005 (Associate Professor, Instituto de Ecologica, Xalapa, Mexico)
Natalie Dubois, Postdoctoral Fellow, 2004-2006 (Climate Change and Wildlife Scientist, Defenders of Wildlife, Washington DC)

Grants and Fellowships:
1998-1999 *National Science Foundation*, Animal Behavior. Collaborative*:* "Female preference for multiple components of a complex secondary sexual trait in the swordtail fishes *Xiphophorus multilineatus* and *X. cortezi. $41,000*

1999-2000 *National Science Foundation*, P.I.-Winfried Just, Department of Mathematics, Ohio University. "An Evolutionary Algorithm for Simulation of Animal Interactions" M. R. Morris, Faculty Associate - *$6,000.00*

2000-2005 *National Science Foundation,* Animal Behavior. CAREER: Defining a sexually selected signal in swordtail fishes in relation to female preferences. *$366,123.00*

2002-2003 *Ohio University Postdoctoral Fellowship Grant*, "Resolving the Phylogenetic Relationships within the Swordtail and Platy Fishes (*Xiphophorus*) Using DNA Sequence Data" *$20,000.00*

2003-2007 *National Science Foundation,* Animal Behavior. "The Role of Sexual Selection in the Loss of a Sexually Selected Male Trait". *$450,000*

2005-2009 *National Institute of Health*, Ruth Kirschstein Fellowship Award "Selection for Xmrk gene in *Xiphophorus* melanoma model" Student Investigator: Andre Fernandez. *$120,958*

2007-2008 *National Science Foundation,* Animal Behavior. Supplement to "The Role of Sexual Selection in the Loss of a Sexually Selected Male Trait". *$8,019*

2009-2010 *National Science Foundation,* Graduate Student Travel Award for Animal Behavior Meetings in Brazil. PI (President of Animal Behavior Society) Funded 34 students. *$34,000*

2006-2010 *National Science Foundation, "*Maintenance of an alternative reproductive strategy in the swordtail *Xiphophorus multilineatus"* Animal Behavior. *$570,667*

2010-2011 *National Science Foundation, "*Maintenance of an alternative reproductive strategy in the swordtail *Xiphophorus multilineatus"* Animal Behavior (no cost extension).

2013-2014 *OURC,* Fluctuating Asymmetry in Fingerprints: Diagnostic tool for Diabetes. Collaborators: Dr. Jay Shubrook, Dr. Bjoern Ludwar. *$8,000*

2013-2017 *STINT*, The Swedish Foundation of International Cooperation. IATC and the Evolution of Alternative mating tactics. Collaborators: Dr. Jessica Abbott; Dr. Oscar Rios-Cardenas. *$120,670*

2014-2015 *Baker*, Ohio University Research Grant. *"Intralocus Tactical Conflict: Constraint on the Evolution of Alternative Reproductive Tactics?"* Collaborators: Dr. Jessica Abbott; Dr. Oscar Rios-Cardenas. *$12,000*

2015-2017 *OURC,* The influence of Melanocortin 4 receptor as a driver gene for obesity and hyperglycemia: variation across naturally selected genomes. Collaborators: Dr. Ron Walter, Dr. Oscar Rios-Cardenas. *$8,000*

2022-2023 *Baker,* Ohio University Research Grant. *Two mating tactics within a sex but one genome: intralocus tactical conflict for body size in the swordtail fish Xiphophorus multilineatus.* Collaborators: Dr. Yuan Lu; Dr. Jessica Abbott; Dr. Oscar Rios-Cardenas. *$11,935.81*

2022-2027 Rush Elliot Endowed Chair, Department of Biological Sciences. $*100,000*

2022-2025 *NIH R-24,* Co-PI, PI Dr. Yuan Lu *"Advancement of the Xiphophorus Model for Studying Disease"* Subaward *$27,000*

Graduate Student Grants (funded past five years)

2018-2019 *Ohio University Student Research Grant*, Meredith Fitschen-Brown, *$2,000*

2018-2019 *Ohio University Original Work Grant,* Meredith Fitschen-Brown, *$1,500*

2019-2020 *SEA,* Differences in sexual selection within and among populations of *Xiphophorus* found in agriculturally contaminated sites. Meredith Fitschen-Brown. *$6,000*

2020-2021 *OCEES Fellowship*, Meredith Fitschen-Brown. *$8,400*
2020-2021 *Ohio University Original Work Grant*. Keith Tompkins. *$1,000*
2021-2022 *Ohio University Student Research Grant*, Meredith Fitschen-Brown, $2,000
2021-2022 *Ohio University Original Work Grant,* Meredith Fitschen-Brown, *$1,500*

Undergraduate Student Grants (funded past five years)
2019-2020 *PURF*, Using brain size and neuron number to explain the relationship between cognition and delayed maturation in the swordtail fish, *Xiphophorus multilineatus.* Helen Stec. *$1,500*
Summer 2020 *HTC Research Apprenticeship* Riley Zielinski, $3,000
2021-2022 *PURF*, Variation in female mate preferences and the "signal reliability" hypothesis. Nicole Cobb, *$1,500*
2021-2022 *PURF*, The impacts of nitrate on mating behavioral plasticity in the green swordtail (*Xiphophorus hellerii*). Madison Parker, *$1,500*
2021-2022 *HTC* research funding, Variation in insulin sensitivity due to diet and temperature in swordtail fishes. Kana Wisniewski, *$900*
2024-2025 Jeanette G. Grasselli Brown Undergraduate Research Award. Neuron Density in *Xiphophorus multilineatus* Brain Regions Resul5ng from Different Developmental Environments. Faith Pape, *$1,000*
Summer 2025 *HTC Research Apprenticeship* Cynthia Bauer, *$3,000*

Undergraduate Senior Theses (past five years)
Madison Parker (2022) The impacts of nitrates on mating behavioral plasticity in the green swordtail (*Xiphophorus helleri*)
Caden Beegan (2025) Exploring personality dimensions in male swordtail fish, *Xiphophorus multilineatus*

Presentations (past five years, undergraduate co-authors in **bold**:
01/22 *Winter Animal Behavior Conference*, Steamboat Springs, CO "Physiological cost to behavioral plasticity in the swordtail fish *Xiphophorus multilineatus: clues to its evolutionary loss"* **Helen Stec, Madison Gambill, Hannah Whitmer, Nicole Cobb**, Keith Tompkins, Oscar Rios-Cardenas and Molly R. Morris
07/22 *Animal Behavior Conference*, San Jose, Costa Rica "Physiological cost to behavioral plasticity in the swordtail fish Xiphophorus multilineatus: clues to its evolutionary loss" **Helen Stec, Madison Gambill, Hannah Whitmer, Nicole Cobb,** Keith Tompkins, Oscar Rios-Cardenas and Molly R. Morris
12/22 27th International Course on Biological Bases of Behavior, Universidad Michoacana, MX "Two mating tactics within a sex but one genome: intralcous tactical conflict as an evolutionary constraint"
01/23 *Winter Animal Behavior Conference*, Steamboat Springs, CO "Physiological cost to behavioral plasticity in the swordtail fish *Xiphophorus multilineatus: clues to its evolutionary loss"* **Helen Stec, Madison Gambill, Hannah Whitmer, Nicole Cobb**, Keith Tompkins, Oscar Rios-Cardenas and Molly R. Morris
01/24 *Winter Animal Behavior Conference*, Steamboat Springs, CO "Physiological cost to behavioral plasticity in the swordtail fish *Xiphophorus multilineatus: clues to its evolutionary loss"* **Helen Stec, Madison Gambill, Hannah**

Whitmer, Nicole Cobb, Keith Tompkins, Oscar Rios-Cardenas and Molly R. Morris

10/24 *11th Aquatic Models for Human Disease Conference*, San Antonio TX Xiphophorus fishes: An evolutionary model for diet induced obesity" Keith Tompkins[1], Kaylee Rutter[1], Yuan Lu[2] and Molly R. Morris[1]

7/25 *Animal Behavior Society Conference*, Baltimore MD **Olive Stringer**, **Faith Pape**, **Makenna Koogler[1]**, **Brooklyn Ritter[1]**, Ryan Cross[1], Michael Weinstein, Oscar Rios-Cardenas, Molly R. Morris "Variation in female mate preference: potential to mitigate the growth-mortality tradeoff in *Xiphophorus multilineatus"*

01/26 *Winter Animal Behavior Conference*, Steamboat Springs, CO "Female mate preferences and the reliability hypothesis*"* Molly R Morris and Oscar Rios-Cardenas

07/26 *12th International Conference of Poeciliid Biologists,* Padura Italy "Variation in female mate preferences: optimizing the growth-mortality tradeoff? Molly R Morris and Oscar Rios-Cardenas

Undergraduate and Graduate Student Presentations (past five years, presenter in **bold**)

05/20 **Madison Gambil**, Helen Stec, Molly R. Morris. "Alternative reproductive tactics have different investment strategies in relation to cognition"

07/20 **Madison Gambill,** Helen Stec**,** Hannah Griebling, Oscar Rios-Cardenas, Molly R Morris (2020). "Alternative reproductive tactics have different investment strategies in relation to cognition" Talk, Virtual Animal Behavior Conference

07/20 **Helen Stec,** Madison Gambill**,** Keith Tomkins, Oscar Rios-Cardenas, Molly R. Morris (2020) "Brain size predicts behavioral plasticity of Sneaker males in the swordtail fish *Xiphophorus multilineatus"* Talk, Virtual Animal Behavior Conference

05/21 Melissa Liotta, **Shasta Kamara**, Jessica Abbott, Oscar Rios-Cardenas and Molly R. Morris "Evidence for Genetic Integration of mating Behavior and Morphology in a Behaviorally Plastic Alternative Reproductive Tactic" Poster, Ohio University Expo

05/21 **Helen Stec**, Kana Wisniewski, Alissa Shull*, Madison Gambill*, Keith Tompkins, Oscar Rios-Cardenas, Molly R. Morris (2021) "Neuronal factors with no correlation to behavioral plasticity of sneaker males in the swordtail fish *Xiphophorus multilineatus*" Poster, Ohio University Expo

05/22 **Nicole Cobb,** Sam Mason, Keith Tompkins, Meredith Fitschen-Brown and Molly R. Morris (2022) Variation in female mate preferences and the "signal reliability" hypothesis. Poster, Ohio University Expo

05/22 **Madison Parker,** Shasta Kamara, Meredith Fitschen-Brown and Molly R. Morris "The impacts of nitrates on mating behavioral plasticity in the green swordtail (*Xiphophorus helleri*)". Poster, Ohio University Expo

07/22 **Nicole Cobb,** Sam Mason, Keith Tompkins, Meredith Fitschen-Brown and Molly R. Morris (2022) Variation in female mate preferences and the "signal reliability" hypothesis. Poster, Animal Behavior Society, Jan Jose, Costa Rica

07/22 **Madison Parker,** Shasta Kamara, Meredith Fitschen-Brown and Molly R. Morris "The impacts of nitrates on mating behavioral plasticity in the green swordtail (*Xiphophorus helleri*)". Poster, Animal Behavior Society, Jan Jose, Costa Rica

10/24 **Ryan Cross**, Hanna Mielcarek, Keith Tompkins, Oscar Rios-Cardenas and Molly R Morris "Sexually selected traits as indicators of growth rates in *Xiphophorus multilineatus" 11th International Conference of Poeciliid Biologists,* San Marocs TX

10/24 **Kaylee Rutter[Emi],** Makenna Koogler, Keith Tompkins, Oscar Rios-Cardenas, Molly R Morris "The influence of rearing temperature on female Xiphophorus multilineatus responses to heat stress" *11th International Conference of Poeciliid Biologists,* San Marcos TX

10/24 Helen Stec, **Faith Pape,** Jack Zeitzheim, Ben Sandkam, Molly Morris "Neuron Density in *Xiphophorus multilineatus* Brain Regions Resulting from Different Developmental Environments" *11th International Conference of Poeciliid Biologists,* San Marcos TX

10/24 **Sadie Langer,** Hanna Mielcarek, Fitschen-Brown, M., Leforce, S[1], Rios-Cardenas, O., and Morris, M.R[1]"Evidence for learning and genetic integration of mating behavior and two sexually selected traits in *Xiphophorus multilineatus" 11th International Conference of Poeciliid Biologists,* San Marcos TX

10/24 **Grace Vance**, Dan Powell, Tris Dodge, Molly Morris, Molly Schumer "Investigating the effects of a "false gravid spot" on foraging opportunity in male *Xiphophorus birchmanni*" *11th International Conference of Poeciliid Biologists,* San Marcos TX

7/25 **Ryan Cross**, Oscar Rios-Cardenas, Molly Morris "The Impacts of Lab-Rearing on the Behavioral Responses and Stress of Swordtails (*Xiphophorus multilineatus*)" *Animal Behavior Society Conference*, Baltimore MD

5/26 **Lillian Rees, Ethan brooks,** Emily Fissel, Ryan Cross, and Molly R Morris "Validation of a Detour Test to Detect Cognitive Differences Between Male Alternative Reproductive Tactics in *Xiphophorus multilineatus".* Ohio University Expo, Poster

5/26 **Ella Spangler, Iliana Lopinsky,** Cynthia Bauer, Lauren Empie, Alivia Layne, Molly R. Morris" Variation in male mate preference for conspecific mates in swordtail fishes" Ohio University Expo, Poster

5/26 **Emma Wanat, Jocelyn Newton,** Faith Pape, Helen Stec, Ben Sandkam, and Molly Morris "Effects of developmental temperature on neuron density in key regions of the female *Xiphophorus multilineatus* brain" Ohio University Expo, Poster

5/26 **Ryan Cross**, Oscar Rios-Cardenas, Molly R Morris "Impacts of Rearing Environment on Behavior and Stress in a Laboratory Fish (*Xiphophorus multilineatus*) Ohio University Expo, Poster

5/26 **Madison Mercuri,** Iliana Lopinsky, Ryan Cross, Molly R. Morris "The Impact of Spatial Constraints on Stress in Swordtail Fishes" Ohio University Expo, Poster

7/26 **Lillian Rees,** Ethan brooks, Emily Fissel, Ryan Cross, Molly R Morris "Validation of a Detour Test to Detect Cognitive Differences Between Male Alternative Reproductive Tactics in *Xiphophorus multilineatus*" *12th International Conference of Poeciliid Biologists,* Padura Italy

Google Scholar (h-index = 33):
https://scholar.google.com/citations?user=mYWd7RgAAAAJ&hl=en

Publications

Rutter, K., Cross, R., and Morris, M.R. (in prep) Reflex impairment index for detecting stress in small fish

Rios-Cardenas, O., Fitschen-Brown, M., Langer, S., Mielcarek, H., Leforce, S. and Morris, M.R. (in review) Learning as an indicator of suboptimal mating behaviors in the plastic alternative reproductive tactic of a swordtail fish

Rutter, K., Rios-Cardenas, O., and Morris, M.R. (in review) Rearing temperature influences female's responses to acute heat stressor in the swordtail *Xiphophorus multilineatus*

Tompkins, K., Miles, D.B., and Morris, M.R. (2026) Predicting responses to warming temperatures for the growth, size and age at sexual maturity in male *Xiphophorus multilineatus* PeerJ

Fitschen-Brown, M., Kamara, S., Parker, M.1, Daniels, K.1, Gilbert, A.L.4, Morris, M.R.1 (2026) Chronic Exposure to Nitrate alters Aggression and Boldness in the swordtail fish, *Xiphophorus helleri* Animal Behavior

Tompkins, K, Boswell, W., Du2, K., Lai, X., Lu, Y., and Morris, M.R. (2025). Composition and Function of the Nuchal Hump of Male *Xiphophorus multilineatus*. Fish Physiol. Biochem. 51:130

Maldonado-Sánchez, D., Rios-Cardenas1 O., Morris M. R., and Gutiérrez-Rodríguez C. (2025) Phylogeography and demographic history of the swordtail fish Xiphophorus multilineatus Environmental Biology of Fishes

Aguillon S.M., Haase Cox S.K., Langdon Q.K., Gunn T.R. Baczenas J.J., Banerjee S.M., Donny A.E., Moran B.M., Gutiérrez-Rodríguez C., Ríos-Cárdenas O., Morris M.R., Powell D.L., Schumer M. (2025) Pervasive gene flow despite strong and varied reproductive barriers in swordtails. Nature Ecology and Evolution. 1-12.

Dodge, T.O., ……Morris, M.R., Schartl, M., Powell, D.L. and Schumer, M. (2024) Complex structural variation and behavioral interactions underpin a balanced sexual mimicry polymorphism. Current Biology, 34(20), 4662-4676.

Preising, G.A., Gunn, T.,…..Rios-Cardenas, O., Morris, M.R., and Schumer, M. (2024) Recurrent evolution of small body size and loss of the sword ornament in Northern Swordtail Fish. Evolution, 78(12), 2017-2031.

Langdon, Q.K., Groh J.S., Stepfanie M.A., Powell D.L., Gunn T., Payne P., Baczenas J.J., Donny A., Dodge T.O., Du K., Schartl M., Ríos-Cárdenas O., Gutierrez-Rodríguez C., Morris M.R., Schumer M. (2024) Genome evolution is surprisingly predictable after initial hybridization. PLOS Biology 22(8): e3002742. https://doi.org/10.1371/journal.pbio.3002742

Cobb N.E., Mason S.M., Tompkins K., Fitschen-Brown M., Rios-Cardenas O., Morris M.R. (2024) Variation in the Strength of Female Mate Preferences Support the Signal Reliability Hypothesis. PlosOne 19(6), e0303691

Fitschen-Brown, M., Morris M.R. (2023) Genotype and growth rates influence female mate preferences in Xiphophorus multilineatus: potential selection to optimize mortality-growth rate tradeoff. PlosOne 18(6), e0287843

Stec, H., Gambill, M., Whitmer, H., Tompkins, K. Rios-Cardenas, O., Morris, M.R. (2023) Physiological cost to behavioral plasticity in a swordtail fish: clues to its evolutionary loss. Animal Behavior, 201, 167-174.

Fitschen-Brown, M., Tudor, M. S., Hamlin, H., Morris M.R. (2022) Higher Cortisol in Muscle Correlates with Weaker Strength of Female Mate Preference in Swordtail Fish, Xiphophorus multilineatus. Animal Behavior 187, 63-69.

Liotta, M.N., Kamara, S., Abbot, J.K, Rios-Cardenas, O., Morris, M.R. (2021) Evidence for Genetic Integration of Mating Behavior and Morphology in a Behaviorally Plastic Alternative Reproductive Tactic. Evolutionary Ecology, 35, 723-737.

Tompkins, K., Lott, M.S., Rios-Cardenas, O., Jash, S., Morris, M.R. (2021) Metabolic-growth hypothesis for the evolution of the nuchal hump fat deposit in swordtail fishes. Environmental Biology of Fishes, 104, 1195-1206.

Liotta, M.N., Abbot, J.K, Morris M.R., Rios-Cardenas O. (2021) Antagonistic selection on body size and sword length in a wild population of the swordtail fish, Xiphophorus multilineatus: potential for intralocus tactical conflict. Ecology and Evolution. 11, 3941-3955. (https://doi.org/10.22541/au.160875615.53047765/v1)

Griebling, H., Rios-Cardenas O., Abbot, J., Morris M.R. (2020) A study of tactical and sexual dimorphism in cognition with insights for sexual conflict. Animal Behaviour. 170, 43-50.

Abbott J.K., Rios-Cardenas O., Morris M.R. (bioRxiv, September 2019) Genetic correlations across genetically determined and developmentally plastic alternative reproductive tactics. https://www.biorxiv.org/content/10.1101/768721v1

Abbott J.K., Rios-Cardenas O., Morris M.R. (2019) Invited Review: Insights from Intralocus Tactical Conflict: adaptive states, interactions with ecology and population divergence. Perspectives, Oikos 128 (11), 1525-1536. (Highlighted as Editor's Choice).

D'Amore, D. M., Popescu, V. D., & Morris, M. R. (2019) The influence of the invasive process on behaviours in an intentionally introduced hybrid, Xiphophorus helleri–maculatus. Animal Behaviour, 156, 79-85.

Weinstein M., Liotta M.N., Solitt A., Hunt A., Abbott J.K., Rios-Cardenas O., and Morris M.R. (2019) Selection on growth rates to increase survival to sexual maturity and longevity in the swordtail fish *Xiphophorus multilineatus* Evolutionary Ecology 1-18.

Liotta, M.R., Abbott, J.K., Rios-Cardenas, O., Morris, M.R. (2019) Tactical dimorphism in body shape and the correlation with mating behaviors in the swordtail Xiphophorus multilineatus Biological Journal of the Linnean Society 127 (2), 337-350.

Morris, M.R., Friebertshauser, R.J., Zupi, M., Liotta, M., Dunn, G., Rios-Cardenas, O. (2018) Higher feeding rates lead to faster growth rates for males that mature later in the swordtail *Xiphophorus multilineatus*. Zebrafish 15 (5), 484-491.

Rios-Cardenas, O., Bono, L. and Morris, M. R. (2018) Negative Frequency-Dependent Selection and Fluctuations around an Equilibrium for Alternative Reproductive Tactics in the Swordtail Xiphophorus multilineatus Animal Behaviour 140, 19-28.

Lu, Y., Klimovich, C., Robeson, K., Boswell, W., Rios-Cardenas, O., Walter, R.B., Morris, M.R. (2017) Transcriptome assembly and candidate genes involved in nutritional. programming in the swordtail fish *Xiphophorus multilineatus* PeerJ, 5, e3275

Morris, M.R., R.J. Friebertshauser, O. Rios-Cardenas, M.N. Liotta and J.K. Abbott (2016) The potential for disruptive selection on growth rates across genetically influenced alternative reproductive tactics. Evolutionary Ecology 30, 519-533.

Morris, M.R., Ludwar L.C., Swingle, E., Mamo, M.N., and Shubrook, J.H. (2016) "A new method to assess asymmetry in fingerprints can be used as an early indicator of type 2 diabetes mellitus" Diabetes Science and Technology

D'Amore, D.M., Rios-Cardenas, O. and Morris, M.R. (2015) Maternal investment influences development of a behavioral syndrome in swordtail fish, Xiphophorus multilineatus. Animal Behaviour 103, 147-151. (Chosen by Executive Editor as the Article of Focus, May 2015).

Murphy, A., Goedert, D. and Morris, M. R. (2014) Maternal effects are long lasting and influence female offspring's reproductive strategy in the swordtail fish *Xiphophorus multilineatus*. Journal of Evolutionary Biology 27, 1613-1622.

Lyons, S.M., Goedert, D., & Morris, M. R. (2014) Male-trait-specific variation in female mate preferences. Animal Behaviour 87, 39-44.

Rios-Cardenas, O., Brewer, J., and Morris, M.R. (2013) Maternal Investment in the Swordtail Fish *Xiphophorus multilineatus*: support for the differential allocation hypothesis. PloS one 8, e82723.

Morris, M.R. and Rios-Cardenas, O, S. (2013) Underestimating the role of female preference and sexual conflict in the evolution of ARTs in fishes: Insights from a clade of Neotropical fishes. In: Sexual Selection: Insights from the Neotropics (Regina H. F. Macedo and Glauco Machado, Editors).

Morris, M.R., Goedert, D., Abbott J. K., Robinson D.M. and Rios-Cardenas O. (2013) Intralocus tactical conflict and the evolution of alternative reproductive tactics. Advances in the Study of Behavior 45, 447-47858.

Morris, M.R., Rios-Cardenas, O. S. Lyons, M.S. Tudor, and Bono, L. (2012) Fluctuating asymmetry indicates optimization of growth rate over developmental stability. Functional Ecology 26, 23-731.

Rios-Cardenas O. and Morris M.R. (2012) The implications of variation in female preferences for swordtail fishes. In: Viviparous Fishes II, the proceedings of the III International Symposium on Viviparous Fishes. M.C. Uribe & H.J. Grier, editors. New Life Publications, Homestead, USA

Tudor M.S. and Morris M.R. (2011) Frequencies of alternative mating strategies influence female mate preference in the swordtail *Xiphophorus multilineatus* Animal Behaviour 82, 1313-1317.

Robinson, D. Tudor, M.S. and Morris M.R. (2011) Female preference and the evolution of an exaggerated male ornament: the shape of the preference function matters. Animal Behaviour 81, 1015-1021.

Rios-Cardenas, O. and Morris, M.R. (2011) Precopulatory Sexual Selection in Poeciliidae. Chapter 17 in: Ecology and Evolution of Poeciliid Fishes (editors: Jon Evans, Andrea Pilastro & Ingo Schlupp) University of Chicago Press, Chicago USA.

Bono, L.M., Rios-Cardenas, O. and Morris, M.R. (2011) Alternative life history strategies in Xiphophorus multilineatus: Evidence for different ages to sexual maturity and growth responses in the wild. Journal of Fish Biology 78, 1311-1322.

Rios-Cardenas, O., Darrah, A. Morris, M.R. (2010) Female mimicry indirectly enhances a male sexually selected trait; what does it take to fool a male? Behaviour147, 1443-1460.

Robinson, D. and Morris, M. R. (2010) Unravelling the complexities of variation in female mate preference for vertical bars. Behavioral Ecology and Sociobiology 64, 1537–1545.

Morris, M. R., Brewer, J. and Rios-Cardenas, O. (2010) Variation in mating preference within a wild population influences the mating success of alternative mating strategies. Animal Behaviour 79, 673-678.

Rios-Cardenas O. and Morris M. R. (2010) Mating systems and strategies of tropical fish. In : International Commission on Tropical Biology and Natural Resources (Eds. Claro, K., Oliveira, P.S., Gray, V. et al.), Encyclopedia of Life Support Systems (EOLSS), Developed under the auspices of the UNESCO, EOLSS Publishers, Oxford , UK (http://www.eolss.net).

Tudor, M.S. and Morris, M. R. (2009) Experience plays a role in female preference for symmetry in the swordtail fish *Xiphophorus* malinche. Ethology 115, 812-822.

Tudor, M.S. and Morris, M. R (2009) Does male mate preference in the swordtail Xiphophorus malinche influence variation in female preference for symmetry? Behaviour 146:727-740.

Gerl, E.J. and Morris, M.R. (2008) The Causes and Consequences of Color Vision. Evolution: Education and Outreach 1, 476-486.

Fernandez, A.A. and Morris, M. R. (2008) Mate choice for more melanin as a mechanism to maintain a functional oncogene. Proceedings of the National Academy of Science 105, 13503-13507.

Morris, M. R., Rios-Cardenas, O. and Darrah, A. (2008) Male mating tactics in the Northern Mountain Swordtail fish (*Xiphophorus nezahualcoyotl*): coaxing and coercing females to mate. Ethology 114:977-988.

Lyons, S. and Morris, M. R. (2008) Headstands: a sexually selected signal in the swordtail fish *Xiphophorus nezahualcoyotl*. Behaviour 145, 1247-1262.

Guieterrez, C., Shearer, A., Morris, M. R., and de Queiroz, K. (2008). Phylogeography and monophyly of the swordtail fish species *Xiphophorus birchmanni* (Cyprinodontiformes, Poeciliidae). Zoologica Scripta, 37:129-139.

Morris, M. R., Tudor, S.M. and Dubois, N. S. (2007) Sexually selected signal attracted females prior to deterring aggression in rival males. Animal Behaviour 74, 1189-1197.

Fernandez, A.A. and Morris, M. R. (2007) Sexual Selection and Trichromatic Color Vision in Primates: Statistical Support for the Pre-existing Bias Hypothesis. American Naturalist 170, 10-20.

Rios-Cardenas, Tudor, M.S. and Morris, M. R. (2007) Variation in female preference has implications for the maintenance of an alternative mating strategy in a swordtail fish. Animal Behaviour 74, 633-640.

Gutiérrez-Rodríguez, C. Morris, M. R., Dubois, N. S. and de Queiroz, K. (2007) Genetic variation and phylogeography of the swordtail fish Xiphophorus cortezi (Cyprinodontiformes, Poeciliidae). Molecular Phylogenetics and Evolution. 43:111-123.

Just, W., Morris, M. R., and Sun, X. (2007) The evolution of aggressive losers. Behavioural Processes 74, 342-350.

Moretz, J.A. and Morris, M. R. (2006) Phylogenetic Analysis of the Evolution of a Signal of Aggressive Intent in Northern Swordtail Fishes. American Naturalist. 168, 336–349.

Morris, M.R., Ríos Cárdenas, O., Tudor, M.S. (2006) Larger Swordtail Females Prefer Asymmetrical Males. Biology Letters, Royal Society of London 2, 8-11.

Wiegmann, D.D. and Morris, M. R. (2005) Search Behavior and Mate Choice. Invited paper for special issue of Recent Research Developments in Experimental and Theoretical Biology Vol. 1, Editor S.G. Pandalai, pp 201-216. ISBN: 81-7895-167-3

Morris, M.R., Moretz, J.A., Farley, K. and Nicoletto, P. (2005) The Role of Sexual Selection in the Loss of Sexually Selected Traits in the Swordtail Fish *Xiphophorus continens*. Animal Behaviour. 69:1415-1424.

Just, W. and Morris, M.R. (2003) The Napoleon Complex: Why Smaller Males Pick Fights. Evolutionary Ecology 17:509-522.

Moretz, J.A. and Morris, M.R (2003) Evolutionarily Labile Responses to a Conventional Threat Signal. Proceedings of the Royal Society, London B. Proc. 270, 2271-2277.

Hankison, S.J. and Morris, M.R. (2003) Avoiding a compromise between sexual selection and species recognition: female swordtail fish assess multiple species-specific cues. Behavioral Ecology 14, 282-287.

Morris, M. R. Hesselman, L. and Nicoletto, P. (2003) A Polymorphism in female preference for a polymorphic male trait in the swordtail *Xiphophorus cortezi*. Animal Behaviour 65(1), 45-52.

Hankison, S.J. and Morris, M.R. (2002) Sexual selection and species identification in *Xiphophorus pygmaeus*: conflicting preferences Behavioral Ecology and Sociobiology 51, 140-145.

Morris, M.R., Elias, J.A. and Moretz, J. A. (2001) Defining the sexually selected male trait vertical bars in relation to female preference in the swordtail fish *Xiphophorus cortezi*. Ethology 107, 827-837.
Dries, L., Morris, M.R. and Ryan, M.J. (2001) Why are some male pygmy swordtails large? Copeia 2001, 355-364.
Morris, M.R., de Queiroz, K. and Morizot, D. (2001) Phylogenetic relationships among the Northern Swordtails (Xiphophorus) as inferred from allozyme data. Copiea 2001, 65-81.
Merry, J.W. and Morris, M.R. (2001) Preference for symmetry in swordtail fish. Animal Behavior 61, 477-479.
Hoefler, C.H. and Morris, M. R. (1999) A technique for the temporary application and augmentation of pigment patterns in fish. Ethology 105. 431-438.
Morris, M. R. (1998) Further examination of female preference for vertical bars in swordtails: preference for "no bars" in a species without bars. Journal of Fish Biology Supplement A to Volume 53, 57-64.
Morris, M. R. (1998) Female Preference for Trait Symmetry in Addition to Trait Size in Swordtail Fishes. Proceedings of the Royal Society, B. 1399, 907-911.
Morris, M.R. and Casey, K. (1998) Female swordtail fish prefer symmetrical sexual signal. Animal Behaviour, 55, 33-39.
Morris, M.R., Wagner Jr, W.E. and Ryan, M.J. (1996) A negative correlation between trait and mating preference in *Xiphophorus pygmaeus*. Animal Behaviour, 52, 1193-1203.
Morris, M.R. and Ryan, M.J. (1996) Sexual difference in signal-receiver coevolution. Animal Behaviour, 52, 1017-1024.
Wiens, J.J. and Morris, M.R. (1996) Sexual selection and the evolution of swords. American Naturalist, 147, 866-869.
Morris, M.R., Gass, L. and Ryan, M.J. (1995) Assessment and individual recognition of opponents in the swordtails *Xiphophorus nigrensis* and *Xiphophorus multilineatus*. Behavioral Ecology and Sociobiology 37, 303-310.
Morris, M.R., Mussel, M. and Ryan, M. J. (1995) Vertical body bars on male X. multilineatus: a signal that deters rival males and attracts females. Behavioral Ecology 6, 274-279.
Morris, M.R. and Ryan, M.J. (1995) Large body size in the pygmy swordtail *Xiphophorus pygmaeus.* Biological Journal of the Linnaean Society 54, 383-395.
Morris, M.R., Batra, P. and Ryan, M.J. (1992) Male-male competition and access to females in the swordtail *Xiphophorus nigrensis*. Copeia 1992, 980-986.
Morris, M.R. and Ryan, M.J. (1992) Breeding cycles in natural populations of *Xiphophorus nigrensis*, X. multilineatus, and *X. pygmaeus*. Copeia, 1074-1077.
Ryan, M.J., Pease, C.E. and Morris, M.R. (1992) A genetic polymorphism in the swordtail *Xiphophorus* nigrensis: Testing the prediction of equal fitnesses. American Naturalist 139, 21-31.
Gardner, R. & Morris, M.R. (1991) The evolution of bluffing in animal contests: an extended model. In: Game Equilibrium Models I: Evolution and Game Theory. Ed. Selten, R. pp 182-194. Springer-Verlag, Berlin.
Morris, M.R. (1991) Female choice of large males in the treefrog *Hyla ebraccata*. Journal of Zoology 223, 371-378.
Morris, M.R. & Ryan M.J. (1990) Age at sexual maturity of male *Xiphophorus nigrensis* in nature. Copeia 1990, 747-751.
Morris, M.R. (1989) Female choice and selection for male size in the treefrog *Hyla chrysoscelis*. Behavioral Ecology and Sociobiology, 25, 275-281.

Gardner, R. & Morris, M.R. (1989) The evolution of bluffing in animal contests: an ESS approach. Journal of Theoretical Biology, 137, 235-243.
Morris, M.R. & Yoon, S.L. (1989) A mechanism for female choice of large males in the treefrog *Hyla chrysoscelis*. Behavioral Ecology and Sociobiology, 25, 65-71.
Gardner, R., Morris, M.R. and Nelson, C.E. (1987) Conditional evolutionarily stable strategies. Animal Behaviour, 35, 507-519.

Other publications:

Greig, N. and Morris, M. (1992) eds. *Tropical Biology: An Ecological Approach* 92-1. Organization for Tropical Studies, Inc., Duke University, Durham, NC
Morris, M.R. (1996) Invited Book Review. *Amphibian Biology*, *Volume 2, Social Behavior* (Editors Heatwole, H. and Sullivan, B.) *Herpetological Review*, 27, 220-221.
Wiens, J.J. and Morris M.R. (2003) Invited Book Review. *Sexual Selections* by M. Zuk, *Quarterly Review of Biology* 78, 127.
Morris, M.R. (2005) Invited Book Review. *Animal Signals* by Maynard Smith, J. & Harper, D. Oxford Series in Ecology and Evolution, Oxford University Press, New York. *Ethology*111-10, 1071-1072.
Morris, M.R. (2009) Invited Book Review. *Fish Behaviour* by Carin Magnhagen, Science Publishers, *Quarterly Review of Biology. Invited Book Review. Fish Behaviour by Carin Magnhagen, Science Publishers, Quarterly Review of Biology* 84, 312.
Macedo, R.H., & Morris, M. R. 2008. Introduction to Tropical Zoology. In: International Commission on Tropical Biology and Natural Resources (Eds. Claro, K., Oliveira, P.S., Gray, V. et al.), in Encyclopedia of Life Support Systems (EOLSS), Developed under the auspices of the UNESCO, EOLSS Publishers, Oxford, UK (http://www.eolss.net)
Morris, M.R. & Ludwar, B. (2018). Detection Systems Using Fingerprint Images for Type 1 Diabetes Mellitus and Type 2 Diabettes Mellitus. US Patent App. 15/765,399
Morris, M.R. (2019) Invited Book Review. *Beyond Sex Differences: Genes, Brains and Matrilineal Evolution*, by Eric B. Keverne, *Quarterly Review of Biology*