

# MAYRA C VIDAL

PhD, Ecology & Evolution

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## EDUCATION

Ph.D., Biology, Ecology & Evolution, 2018

University of Denver, USA

Dissertation: Diet breadth evolution and diversification of a generalist insect herbivore

Advisor: Shannon Murphy

Committee: Erica Larson, John Lill, Julie Morris, Tom Quinn, Robin Tinghitella

M.S., Ecology, 2013

University of Campinas (Brazil)

Thesis: The predation of ants by *Rhinoleucophenga* n. sp. (Diptera, Drosophilidae) and its effects on the mutualism between ants and *Qualea grandiflora* (Vochysiaceae)

Advisors: Paulo S. Oliveira, Sebastian F. Sendoya

B.A., Philosophy, 2011-interrupted (moved to USA)

University of Campinas (Brazil)

B.S., Biological Sciences, 2011

University of Campinas (Brazil),

Undergraduate research: Immature morphology and trophic ecology of *Rhinoleucophenga* n. sp. (Diptera, Drosophilidae)

Advisor: Paulo S. Oliveira

Teaching Licensure, Biological Sciences, 2011

University of Campinas (Brazil)

## PROFESSIONAL APPOINTMENTS

Assistant Professor, UMass Boston (USA), January 2021

Postdoctoral Fellow, Syracuse University (USA), July 2018 – January 2021

Mentors: Kari Segraves and David Althoff

## PUBLICATIONS

(\* = graduate student, \*\* = undergraduate student)

19. **Vidal, M.C.**, Anneberg, T. J.\*, Curé, A. E.\*, Althoff, D. M. and K. A. Segraves. 2021. The variable effects of global change on insect mutualisms. *Current Opinion in Insect Science* 47: 46-52.

18. **Vidal, M.C.** and K.A. Segraves. 2021. Coevolved mutualists experience fluctuating costs and benefits over time. *Evolution* 75: 219-230.

17. **Vidal, M.C.** 2021. DARWIN, E. Zoonomia, ou as leis da vida orgânica, volume I, prefácio, seções I-III. *Helius* 3: 1264-1298 (invited contribution, Translation to Portuguese of Erasmus Darwin's Zoonomia vol 1)
16. Maelah Robinson-Castillo\*\*, Audrey Mitchell\*\*, Amanda Fasching\*\*, **Mayra C. Vidal**, Mariana Abarca, Gina M. Wimp, Blyssalyn Bieber\*, Dhaval K. Vyas, Shannon M. Murphy. 2020. Protocols for Rearing Fall Webworm (*Hyphantria cunea*) in a Colony and Basic Methods for Laboratory and Field Experiments. *University of Denver Undergraduate Research Journal* 2, 9.
15. **Vidal, M.C.**, Wang, S.\* , Rivers, D.M., Althoff, D.M. and K.A. Segraves. 2020. Species richness and redundancy promote persistence of exploited mutualisms in yeast. *Science* 370: 346-350.
14. **Vidal, M.C.**, Lill, J.T., Marquis, R.J. and S.M. Murphy. 2020. Geographic variation in performance of a widespread generalist herbivore. *Ecological Entomology* 45: 617–625.
13. **Vidal, M.C.**, Quinn, T.W., Stireman, J.O., Tinghitella, R.M., and S.M. Murphy. 2019 Geographic distance is more important than host plant use on the divergence of a generalist insect herbivore. *Molecular Ecology* 28: 4317–4334.
12. Horna Lowell, E.S.\* , Morris, J., **Vidal, M.C.**, Durso, C., and S.M. Murphy. 2019. The effect of conspecific cues on honey bee foraging behaviour. *Apidologie* 50: 454-462
11. Murphy, S.M., **Vidal, M.C.**, Hallagan, C.J.\* , Broder, E.D., Barnes, E.E., Horna Lowell, E.S.\* , and J.D. Wilson\*. 2019. Does this title bug (Hemiptera) you? How to write a title that increases your citations. *Ecological Entomology* 44: 593–600 *Top downloaded article within 12 months of publication*
10. **Vidal, M.C.**, Silva, A.K., and S.F. Sendoya. 2019. Foraging preferences of ants on a heterogeneous Brazilian sandy shore habitat. *Ecological Entomology* 44: 283-286. *Media coverage by Hakai magazine*
9. **Vidal, M.C.**, and S.M. Murphy. 2018. Quantitative measure of tri-trophic fitness and its influence on diet breadth of insect herbivores. *Ecology* 99: 2681-2691.
8. Murphy, S.M., **Vidal, M.C.**, Hallagan, C.J.\* , Smith, T.P.\*\* , Rowland, D.\*\* , Broder, E.D, and L.C. Cepero. 2018. The effect of forest fire severity on host plant quality and insect herbivore damage. *Frontiers in Ecology and Evolution* 6: 135.
7. Koltz, A.M., Burkle, L., Pressler, Y., Dell, J., **Vidal, M.C**, Richards, L., and S.M. Murphy. 2018. Global change and the increasing importance of fire in insect ecology and evolution. *Current Opinion in Insect Science* 29:110-116.
6. **Vidal, M.C.**, Sendoya, S.F., Yamaguchi. L., Kato, M.J., Oliveira, R.S. and P.S. Oliveira. 2018. Use of extrafloral nectar as prey attractant by a sit-and-wait dipteran predator. *Environmental Entomology* 47: 1165-1172. *Media coverage by Entomology Today and Fapesp*
5. **Vidal, M.C.**, and S.M. Murphy. 2018. Bottom-up versus top-down effects on terrestrial insect herbivores: a meta-analysis. *Ecology Letters* 21:138-150. *Top downloaded article within 12 months of publication; Highly Cited Paper in Web of Science*
4. Murphy, S.M., **Vidal, M.C.**, Hallagan, C. J.\* , Barnes E. E. and E.D. Broder. 2018. A slow-growth high-mortality meta-analysis for insects: A comment on Chen & Chen. *Insect Science* 25:352-354.

3. **Vidal, M.C.**, Sendoya, S.F. and P.S. Oliveira. 2016. Mutualism exploitation: Predatory drosophilid larvae sugar-trap ants and jeopardize facultative ant-plant mutualism. *Ecology* 97:1650-1657.
2. **Vidal, M.C.** and C. R. Vilela. 2015. A new species of *Rhinoleucophenga* (Diptera, Drosophilidae) from the Brazilian Cerrado biome associated with extrafloral nectaries of *Qualea grandiflora* (Vochysiaceae). *Annals of the Entomological Society of America* 108: 932-940.
1. Mota, L.L., Sendoya, S.F., Tacioli, A. and **M.C. Vidal**. 2014 Mites inhabiting a lepidopteran egg. *Journal of the Lepidopterists' Society* 68: 141-142

#### EDUCATIONAL (PEER-REVIEWED)

- Lehto, W.R., Murphy, S.M., **Vidal, M.C.**, and R.M. Tinghitella. 2018. Life Tables, Darwin's Finches, and the Dynamics of Small, Island Populations. *National Center for Case Study Teaching in Science*. [website](#)
- Vidal, M.C.**, Grenis, K., Lehto, W.R., Tinghitella, R.M. and S.M. Murphy. 2017. Butterfly hunt: the role of density dependence in Batesian and Mullerian mimicry. *National Center for Case Study Teaching in Science*. [website](#)
- Grenis, K., Lehto, W.R., **Vidal, M.C.**, Murphy, S.M. and R.M. Tinghitella. 2017. Animals on Treadmills: critical thinking and public perception of science. *National Center for Case Study Teaching in Science*. [website](#)
- Grenis, K., Cepero, L.C. and **M.C. Vidal**. 2016. Evaluating adaptive hypotheses: the case of the poop-shooting caterpillar. *National Center for Case Study Teaching in Science*. [website](#)

#### FORTHCOMING PUBLICATIONS

- Bieber, B.V.\*, Vyas, D.K., Koltz, A.M., Burkle, L., S.M. Murphy#, and **M.C. Vidal**#. Fire affects arthropod performance, diversity, and ecosystem services: a meta-analysis. In prep, invited contribution: *Functional Ecology*. (#co-last authors)
- Vidal, M.C.**, Wang, S., K.A. Segraves. Strength of selection between partners leads to different coevolutionary patterns in facultative and obligate mutualisms. In prep, intended journal: *PNAS*
- Bieber, B.V., Welsh, G.T., **Vidal, M.C.**, Lehto, W.R., Lehmer, E.M., Tinghitella, R.M., and S. M. Murphy. Disease ecology: Can plant disease and global change affect human health? Submitted to: *National Center for Case Study Teaching in Science*.

#### PUBLISHED DATA REPORTS

- Vidal, M. C. Wang, S., Rivers, D.M., Althoff, D.M. and K.A. Segraves. (2020). Data from: Species richness and redundancy promote persistence of exploited mutualisms in yeast. Dryad Digital Repository doi: 10.5061/dryad.pc866t1m6.
- Murphy, S.M., Vidal, M.C., Hallagan, C.J., Broder, E.D., Barnes, E.E., Horna Lowell, E.S., & Wilson, J.D. 2019. Data from: Does this title bug (Hemiptera) you? How to write a title that increases your citations. Dryad Digital Repository. doi:10.5061/dryad.qr77sm4
- Vidal, M.C. and S.M. Murphy. 2018. Data from: Quantitative measure of fitness in tri-trophic interactions and its influence on diet breadth of insect herbivores Digital Repository doi:10.5061/dryad.28032r2

Murphy, S.M., Vidal, M.C., Hallagan, C.J., Smith, T.P., Rowland, D., Broder, E.D, and L.C. Cepero. 2018. Data from: Forest fire severity affects host plant quality and insect herbivore damage. Dryad Digital Repository doi: 10.5061/dryad.t36p0cd

Vidal, M. C. and S. M. Murphy. 2017. Data from: Bottom-up versus top-down effects on terrestrial insect herbivores: a meta-analysis. Dryad Digital Repository doi: 10.5061/dryad.2ng06

### GRANTS & FELLOWSHIPS (in US dollar)

Pending	NSF-DEB BEE collaborative proposal	
2021-2022	NSF-DEB REPS supplement for #2030691	\$36,464
2020-2024	NSF-DEB PCE #2030691 collaborative project	\$385,000
2019-2020	co-PI NSF travel grant, Population and Community Ecology Program	\$49,500
2013-2017	Capes (Brazil) Science without Borders (PhD abroad Sponsor)	\$130,000
2016	Jefferson County Open Space Small Grants Program	\$882
2016	International Biodiversity Foundation grant, Lepidopterists' Society meeting	\$225
2016	University of Denver Dissertation Fellowship	\$2,500
2015	Jefferson County Open Space Small Grants Program	\$1,552
2015	University of Denver Shubert Award	\$500
2014	University of Denver Doctoral Fellowship for Inclusive Engagement	\$4,500
2011-2013	Fapesp (Brazil), Fellowship for Master's Research	\$12,500
2009	Capes/PIBIC (Brazil), Fund for Undergraduate Research	\$2,740

### AWARDS & OTHER RECOGNITION

2021	Vidal & Murphy 2018 Ecology Letters cited in Ecology book: Ecology, by Anna Sher and Manuel Molles (2021)
2020	Vidal & Murphy 2018 Ecology Letters highlighted in Entomology book: Parasitoids' Ecology and Evolution, by Gladys Bichanga et al. (2020)
2020	Murphy et al. 2018 – top downloaded article in Ecological Entomology
2020	Vidal & Murphy 2018 Ecology Letters cited in Entomology book: Parasitoids' Ecology and Evolution, by Gladys Bichanga et al. (2020)
2019	Vidal & Murphy 2018 Ecology Letters cited in Ecology book: Community Ecology, by Gary Mittelbach and Brian McGill (2019)
2019	Vidal & Murphy 2018 - top downloaded article in Ecology Letters
2019	Vidal et al. 2019 Ecol Entomol highlighted in the Hakai Magazine, <a href="#">website</a> .
2018	Interviewed for the Brazilian podcast about insects, Bug Bites.
2018	Vidal et al. 2018 Env Entomol highlighted by Agencia Fapesp (Brazil), <a href="#">website</a>
2018	Vidal et al. 2018 Env Entomol highlighted in the Entomology Today blog, by Entomological Society of America <a href="#">website</a>
2017	Vidal et al. 2016 Ecology cited in Ecology textbook: Mutualism and Insect Conservation, by Tim New (2017) pp. 167-192
2017	Avida-ED Active Lens Award (workshop travel and lodging expenses)
2017	Excellence in Research Award, Biological Sciences, University of Denver
2017	Excellence in Research Award, Division of Natural Sciences and Mathematics, University of Denver
2017	Winner of top research paper award, selected by the chancellor, University of Denver Research and Performance Summit
2017	Graduate Student Poster Award, Front Range Student Ecology Symposium
2016	Vidal et al. 2016 Ecology highlighted in a Dutch blog, <a href="#">website</a>
2016	Invited to Sigma Xi

2011 Winner of best post award, Open Congress of Biology, Brazil

## TEACHING EXPERIENCE AND MENTORSHIP

### LECTURE

BIOL 342/343 Ecology Lecture and Lab, Spring 2022 (upcoming)  
BIOL 653 Current Literature – graduate course, highlighted EEB research @UMB, Fall 2021  
BIOL 637 Climate Change Biology – graduate course, Spring 2021, *UMass Boston*  
BIOL 797 Insect Ecology Seminar – graduate course, provided assistance throughout the course, Fall 2020, *Syracuse University*.

### GUEST LECTURER

Mutualism Ecology, BIOL 342: Ecology, by Solange Brault, *UMass Boston*, 2021  
Genetic drift using Avida-ED, course: Evolution Heredity Biodiversity by Julie Morris, *University of Denver*, 2018

### TEACHING ASSISTANT (2016-2018)

Courses: Evolution Heredity Biodiversity (biology majors), General Ecology (biology majors), Sustaining life (non-majors);  
23-41 students per course,  
Responsible for application of laboratory activities and grading assignments/reports.

### MENTORSHIP AND ADVISING

Dr. Mattheau Comerford, post-doctoral researcher (diet breadth of insect herbivores)  
Tyler Barr, post-baccalaureate researcher, UMB, funded by REPS NSF (caterpillar coloration)  
Amira Bailey, undergraduate student, UMB (genetic basis of diet breadth)  
Matthew Tran, undergraduate student, UMB (genetic basis of diet breadth)  
Eva Horna Lowell, M.Sc. in Ecology and Evolution, University of Denver (co-advised, meta-analysis of bee behavior)  
Heather Murin, undergraduate student, Syracuse University (co-advised, competition in brewer's yeast)  
Sarah Kraft, undergraduate student, Kalamazoo College (co-advised, variation in performance of the two types fall webworm larvae)  
Supervision of 13 work-study undergraduate students

## INVITED SEMINARS AND WORKSHOP ORGANIZATION

Accepted International Congress of Entomology 2020 Symposium, "Bottom-up and top-down in insect food webs, the effect of global change."

Invited talk, *UMass Amherst*, 2021

Invited talk, *Smith College*, 2021

Invited talk, Fritz Muller Seminar Series, *Universidade de São Paulo (Brazil)*, 2021

Invited talk, *University of Miami*, 2021

Invited talk, *Purdue University*, Entomology Department, 2021

Invited talk, BioArt Mixer, *Syracuse University*, 2020

Invited talk, Department of Biology, *Universidade Federal de Pelotas (Brazil)*, 2020

Invited talk, *Texas A&M Corpus Christi*, 2020

Invited talk, *UMass Boston*, 2020

Invited talk, GEPEG, *Universidade Federal de São Carlos (Brazil)*, 2019

Invited talk, Biofórum, *Universidade Estadual de Campinas (Brazil)*, 2019

Invited talk, Department of Biological Sciences, *Universidade de São Paulo (Brazil)*, 2019

Invited talk, EvoDay Seminar, *Cornell*, 2019

Avida-ED workshop, hosted by Front Range Student Ecology Symposium, *Colorado State University*, 2018

Invited talk, *Syracuse University*, 2018

Department of Biological Science Biology Seminar Series, *University of Denver*, 2016

## CONTRIBUTED PRESENTATIONS

### 2021

Vidal, M.C., Abarca, M., Vyas, D., Murphy, S.M., Wimp, G. What makes a generalist? Defining the level of generalism of an extreme generalist herbivore (fall webworm, *Hyphantria cunea* Erebidae), *Entomological Society of America Meeting*, Denver CO

Vidal, M.C. Ecology and Evolution of Species Interactions, *SACNAS New England* (virtual)

### 2019

Vidal, M.C. & Segraves, K.A. (invited oral presentation) Coevolution in facultative and obligate mutualisms under exploitation, *Cornell EvoDay*, Ithaca NY.

Vidal, M.C. & Segraves, K.A. (oral presentation) Coevolution in facultative and obligate mutualisms under exploitation, *Evolution Meeting*, Providence RI.

### 2018

Vidal, M.C., Stireman, J.O., Quinn, T.W., Tinghitella, R.M., Lill, J.T. & Murphy, S.M (oral presentation), *Ecological Society of America Annual Meeting*, New Orleans LA.

### 2017

Vidal, M.C. & Murphy, S.M (oral presentation), *Entomological Society of America Annual Meeting*, Denver CO

Vidal, M.C. & Murphy, S.M. (poster) *Evolution Meeting*, Portland OR

Vidal, M.C. & Murphy, S.M. (oral presentation, Top paper presentation highlighted in the Chancellor's panel), *DURAPs*, University of Denver

Vidal, M.C. & Murphy, S.M. (poster) Gordon Research Conference and Seminar – Plant-Herbivore Interactions, Ventura CA

Vidal, M.C. & Murphy, S.M. (poster, Winner of 2nd Best Graduate Student Poster Award) *Front Range Student Ecology Symposium*, Colorado State University

### 2016

Vidal, M.C. & Murphy, S.M. (poster) *International Congress of Entomology*, Orlando, FL

Murphy, S. M., M. C. Vidal, K. Grenis, W. Lehto, and R. M. Tinghitella.(co-author) *27th Annual Meeting of the High Country Lepidopterists*, Boulder CO

Vidal, M.C. and S. M. Murphy (oral presentation) *27th Annual Meeting of the High Country Lepidopterists*, Boulder CO

Vidal, M.C. and S. M. Murphy (oral presentation) *GREEBs - Guild of Rocky Mountain Ecologists and Evolutionary Biologists*, Gothic CO

Vidal, M.C. and S. M. Murphy (oral presentation) *Lepidopterists' Society Meeting*, Florissant CO

Vidal, M.C. and S. M. Murphy (oral presentation) *Front Range Student Ecology Symposium*, Colorado State University

### 2015

Vidal, M.C. and S. M. Murphy (oral presentation) *26th Annual Meeting of the High Country Lepidopterists*, Denver CO

Vidal, M. C., Sendoya, S.F., and P.S. Oliveira (oral presentation) *100th Annual Meeting and Exposition of the Ecological Society of America*. Baltimore MD

Vidal, M. C., Sendoya, S.F., and P.S. Oliveira (oral presentation) *Front Range Student Ecology Symposium*, Colorado State University

### **2011-2014**

Vidal, M. C., Sendoya, S.F., and P.S. Oliveira (oral presentation) *GREEBs - Guild of Rocky Mountain Ecologists and Evolutionary Biologists, 2014*

Vidal, M.C. and S.F. Sendoya (poster, winner of best ecology poster) *Open Congress of Biology*, Campinas SP, Brazil, 2013

Vidal, M. C., Sendoya, S.F., and P.S. Oliveira (oral presentation) *49th Annual Meeting of the Association for Tropical Biology and Conservation*, Bonito MT, Brazil, 2012

Vidal, M. C., Sendoya, S.F., and P.S. Oliveira (poster) *XX Myrmecology Symposium - I Encuentro de Mirmecologistas de las Americas*, Petropolis RJ, Brazil, 2011

### **COMMUNITY OUTREACH**

Co-organized panel about women in insect-plant interactions. Museum of Natural Sciences Syracuse, 2020

Counselor, mentor and organizer for University of Denver SciTech girls' camp, 2016-2017

Participated as activity manager at Femme in STEM (one-day science "camp" for girls), 2016

Murphy Lab invited to give presentation at Asbury Elementary to discuss plant-insect interactions and science methods with Marianne Berge's 4<sup>th</sup> grade classroom, 2014

### **PROFESSIONAL SERVICES**

#### REVIEW FOR JOURNALS

American Naturalist, Arthropod-Plant Interactions, Basic and Applied Ecology, Biological Invasions, Biological Journal of the Linnean Society, Climate Change Ecology, Communications Biology, Ecological Entomology, Ecology, Ecology & Evolution, Evolutionary Biology, Environmental Entomology, Evolution, Insects, Insect Science, Molecular Ecology

#### SOCIETY MEMBERSHIP

Entomological Society of America, Society for the Study of Evolution, Society for Advancement of Chicanos/Hispanics and Native Americans in Science

#### OTHER SERVICES

Dissertation committee – Aura Muniz (UMass Boston), Teá Kesting Handly (UMass Boston), Hannah Diebboll (UMass Boston), Julia Barone (UMass Boston), Wendi White (UMass Boston), Bruna Silva (UMass Boston), Hélio Soares (UFRS, Brazil)

Qualifying exam or defense committee outside UMass Boston – Leandro Cosmo (PhD qualifying exam, USP, Brazil), Amanda Santana (master's defense, UFPB, Brazil)

Judge for oral presentation award, Entomology Meeting 2021

Judge for poster award, Lepidopterists' Society Annual Meeting 2021

Member of Evaluation committee for merit-based Scholarships, CSM UMass Boston

Member of Search Committee for Assistant Professor position in Ecology and Evolution of Emerging Diseases – UMass Boston

Administration of Brazilian researcher community on Facebook, with the objective of discussing actions to improve funding for science in Brazil and share opportunities (5.9 k members)

Representative of Biology Department at Graduate Students of the Four Faculties, 2016-2018

Panelist, Shubert Graduate Fellowship Fund, University of Denver, 2016

Volunteer at Denver Museum of Nature and Sciences – sorting arthropod NEON samples, 2015

Co-Secretary of University of Denver Biological Sciences Graduate Student Association, 2014

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