Assistant Research Scientist
University of Maryland
College Park, MD

Alina Avanesyan

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SUMMARY

- *Areas of expertise*: invasion ecology, organismal biology, molecular biology
- *Research experience*: species collection, identification, field experiments, lab assays, data analysis (15 years); molecular biology techniques (9 years); light/scanning electron microscopy, histology, morphometry (8 years)
- *Selected courses taught*: Evolutionary Biology, Ecology, Animal Ecology, Invertebrate Zoology, Introductory Biology, Microbiology, Molecular Biology, Genetics and Cell Biology
- 20 publications, 28 conference presentations, 7 invited talks, 19 GenBank submissions; 7 grants, 3 presentation awards, 2 fellowships
- Guest editor (2019–2020), subject editor (2018–present), journal reviewer (2016–present)

EDUCATION

Ph.D., Biological Sciences (2014), University of Cincinnati, Cincinnati, OH
Candidate of Science (*Ph.D.- equivalent*), Biological Sciences (2002), Herzen State University, St. Petersburg, Russia
Diploma, Biology, Psychology, *cum laude* (1997), Herzen State University, St. Petersburg, Russia

PROFESSIONAL EXPERIENCE

Assistant Research Scientist, Dept. of Entomology, University of Maryland, College Park, MD (Aug 2020–present)

- Conduct research on novel species interactions (focus on native and introduced parasitoid interactions for biocontrol of the invasive brown marmorated stink bug)

Adjunct Instructor, Master of Chemical & Life Sciences Program, University of Maryland, College Park, MD (2019-present)

- Teach Evolutionary Biology (online graduate course)

Postdoctoral Associate, Dept. of Entomology, University of Maryland, College Park, MD (Jan 2018–Aug 2020)

- Conducted research on invasion ecology (focus on invasive insect pests, insect host plant usage, and novel species interactions)
- Proposed, developed and managed DNA barcoding flow for lab research: set up DNA extraction, PCR, and electrophoresis protocols, proposed and acquired reagents and equipment, set up sequencing software, managed sequencing service, trained and coordinated lab members
- Mentored 11 students in various research projects; resulted in 10 student GenBank submissions, 2 student school symposium presentations (with 1 award)
- Proposed, submitted, and received 3 grants on molecular gut content analysis and insect morphology
- Research results: 5 journal articles (+3 in prep), 11 conference presentations (1 award), 4 invited talks

Genetics Instructor, Biology Dept., Grand View University, Des Moines, IA (2016–2017)
- Taught upper-level Genetics and Molecular Biology laboratory courses for biotechnology majors
- Trained students in molecular biology techniques (DNA extraction, PCR, restriction analysis, etc.); resulted in 3 student conference presentations, 1 student GenBank submission

Research Associate, Dept. of Entomology, University of Wisconsin-Madison, Madison, WI (Apr–Jul 2016)
- Conducted research on phenology and population dynamics of invasive insect species
- Research results: 3 journal articles, 2 newsletter articles, 1 invited talk

Research/Teaching Assistant, Dept. of Biological Sciences, University of Cincinnati, Cincinnati, OH (2009–2014)
- Conducted research on novel plant-insect interactions (focus on invasive grasses and native insects, plant resistance and tolerance to herbivory, and insect feeding behavior)
- Proposed, submitted, and received 3 grants on ecology and evolution of species interactions
- Taught laboratory courses (Microbiology, Biology Laboratory, Genetics and Cell Biology)
- Research results: 5 journal articles, 10 conference presentations (2 awards), 1 invited talk

Researcher, Laboratory of Cell Biology in Culture, Institute of Cytology of the Russian Academy of Science, St. Petersburg, Russia (2008–2009)
- Performed routine tissue processing, DNA extraction, PCR, and sequence analysis; co-managed database for snail hybridization project; trained students in DNA extraction, PCR, electrophoresis
- Research results: 1 journal article

Visiting Research Scholar, Dept. of Biology, University of Northern Iowa (Jan–May 2008)
- Worked on phylogeography of North-American fiddler crabs populations; collaborated on a cross-cultural study of students' understanding of evolution
- Research results: 1 invited talk, 1 conference presentation, 1 research report

Research Assistant, Instructor, Dept. of Zoology, Herzen State University, St. Petersburg, Russia (1997–2009)
- Conducted research on host-parasite interactions (focus on snail immune responses and parasite development)
- Proposed, submitted, and received a grant on snail hematopoietic tissue analysis
- Taught lectures, laboratories and field courses in ecology, biology and invertebrate zoology
- Mentored 11 undergraduate students in microscopy, species morphology, morphometric analysis, and various ecological projects; resulted in 11 defended theses and 1 science fair award
- Research results: 2 journal articles, 4 abstracts, 4 conference presentations, 1 invited talk

PEER-REVIEWED PUBLICATIONS

Journal Articles

1. **Avanesyan, A.**, Illahi, N. and W.O. Lamp. (2020) Detecting ingested host plant DNA in potato leafhopper, *Empoasca fabae*: potential use of molecular markers for gut content analysis. Journal of Economic Entomology, doi: 10.1093/jee/toaa247.
2. **Avanesyan, A.**, and W.O. Lamp. (2020) Use of molecular gut content analysis to decipher the range of food plants of the invasive spotted lanternfly, *Lycorma delicatula*. Insects: Special Issue " Molecular gut content analysis: deciphering trophic interactions of insects", 11(4), 215, https://doi.org/10.3390/insects11040215. Invited paper.
3. **Avanesyan, A.**, Maugel T.K., and W. Lamp (2019) External morphology and developmental

changes of tarsal tips and mouthparts of the invasive spotted lanternfly, *Lycorma delicatula*. PLOS ONE, doi.org/10.1371/journal.pone.0226995.

4. **Avanesyan, A.**, Lamp, W., Snook, K., and P. Follett. (2019) Short-term physiological response of a native Hawaiian plant, *Hibiscus arnottianus*, to injury by the exotic leafhopper, *Sophonia orientalis* (Hemiptera: Cicadellidae). Environmental Entomology, 48(2): 363-369.
5. **Avanesyan, A.** (2018) Should I eat or should I go? Acridid grasshoppers and their novel host plants: potential for biotic resistance. Plants: Special Issue "Plants Interacting with other Organisms: Insects", 7(4), 83; https://doi.org/10.3390/plants7040083. Invited paper.
6. Guédot, C., **Avanesyan, A**., and K. Hietala-Henschell. (2018) Effect of temperature and humidity on the seasonal phenology of *Drosophila suzukii* (Diptera: Drosophilidae) in Wisconsin. Environmental Entomology, 47(6): 1365–1375.
7. Jaffe, B.D., **Avanesyan, A.**, Bal, H. K., Grant, J., Grieshop, M.J., Lee, J.C., Liburd, O.E., Rhodes, E., Rodriguez-Saona, C., Sial, A.A., Zhang, A., and C. Guédot (2018) Multistate comparison of attractants and the impact of fruit development stage on trapping *Drosophila suzukii* (Diptera: Drosophilidae) in raspberry and blueberry. Environmental Entomology, 47(4): 935–945.
8. **Avanesyan, A.,** Jaffe, B.D., and C. Guédot (2017) Isolating spermatheca and determining mating status of *Drosophila suzukii*: a protocol for tissue dissection and its applications. Insects: Special issue "Invasive Insect Species", 8(1), 32; doi:10.3390/insects8010032. Invited paper.
9. **Avanesyan, A.** and T.M. Culley (2016) Tolerance of native and exotic prairie grasses to herbivory by *Melanoplus* grasshoppers: application of a non-destructive method for estimating plant biomass changes as a response to herbivory. The Journal of the Torrey Botanical Society, 144(1):15-25.
10. **Avanesyan, A.**, and T.M. Culley (2015) Feeding preferences of *Melanoplus femurrubrum* grasshoppers on native and exotic grasses: behavioral and molecular approaches. Entomologia Experimentalis et Applicata. 157: 153-163.
11. Merritt, B.J., Culley, T.M., **Avanesyan, A.**, Stokes, R., and J. Brzyski (2015) An empirical review: Characteristics of plant microsatellite markers that confer greater levels of genetic variation. Applications in Plant Sciences 3 (8): 1500025.
12. **Avanesyan, A.**, and T.M. Culley (2015) Herbivory of native and exotic North-American prairie grasses by nymph *Melanoplus* grasshoppers. Plant Ecology. 216: 451-464.
13. **Avanesyan, A.** (2014) Plant DNA detection from grasshopper gut contents: a step-by-step protocol, from tissues preparation to obtaining plant DNA sequences. Applications in Plant Sciences 2 (2): 1300082.
14. Granovitch, A.I., Maximovich, A.N., **Avanesyan, A.V.**, Starunova, Z.I., and N.A. Mikhailova (2013) Micro-spatial distribution of two sibling periwinkle species across the intertidal indicates hybridization. Genetica 141 (7): 293-301.
15. Ataev, G.L., Dobrovolskij, A.A., **Avanessian, A.V.**, and E.S. Loker (2001) Germinal elements and their development in *Echinostoma caproni* and *Echinostoma paraensei* (Trematoda) miracidia. The Journal of Parasitology 87 (5): 1160-1164.
16. Ataev, G.L., **Avanessian, A.V.**, Loker, E.S., and A.A. Dobrovolskij (2001) The organization of germinal elements and dynamics of *Echinostoma* mother sporocyst reproduction (Trematoda: Echinostomatidae). Parazitologia 35 (4): 307-319. (In Russian)

Published Abstracts

1. **Avanesyan, A.** (2005) Cellular defense mechanisms of *Planorbis planorbis* and *Planorbarius corneus* snails. Journal of Ural Immunology 1 (4): 2. (In Russian)
2. **Avanesyan, A.,** and M.A. Gvozdev (2003) Epidemical importance of the pathogenic organism activity in water reservoirs. *In* Environment and Human Health: Intern. Ecological Forum, p. 30.
3. **Avanesyan, A.,** and M.A. Gvozdev (2003) Trematode infections of freshwater snails in small

water reservoirs of Leningrad Area. The Journal of Infectional Pathology 10 (4): 8-9. (In Russian)

4. Ataev, G.L., Dobrovolskij, A.A., **Avanessian, A.V.,** and C. Coustau (2000) Significance of the amebocyte-producing organ of *Biomphalaria glabrata* snails (strains selected for susceptibility/resistance) in cellular response to *Echinostoma caproni* mother sporocysts infection. Bulletin of the Scandinavian Society for Parasitology 10 (2): 65.

Manuscript in revision

1. **Avanesyan, A.**, Sutton, H., and W.O. Lamp. Choosing an effective molecular approach to diet analysis of insect herbivores: a systematic review.

Manuscripts in preparation

1. **Avanesyan, A.**, and W.O. Lamp. Variation in plant responses to grasshopper herbivory among the cultivars of the introduced *Miscanthus sinensis*.
2. **Avanesyan, A.**, Sutton, H., Lamp, W.O., and D. Hawthorne. Identification of host plant use by the invasive spotted lanternfly (*Lycorma delicatula*) using next-gen DNA sequencing technology.

CONFERENCE PRESENTATIONS (*undergraduate students)

1. **Avanesyan, A.**, and W. Lamp. (2020) Variation in plant responses to grasshopper herbivory among the cultivars of the introduced *Miscanthus sinensis*. Botany 2020: Annual Meeting of the Botanical Society of America. Oral presentation.
2. **Avanesyan, A.**, Maugel, T., and W. Lamp. (2019) External morphology and developmental changes of tarsal tips and mouthparts of the invasive spotted lanternfly, *Lycorma delicatula*. Annual Meeting of the Entomological Society of America, St. Lois, MO. Poster presentation.
3. Smith, D., **Avanesyan, A.**, and W. Lamp. (2019) Are natural enemies related to plant diversity in agricultural drainage ditches? Annual Meeting of the Entomological Society of America, St. Lois, MO. Poster presentation.
4. Kutz, D., **Avanesyan, A.**, and W. Lamp. (2019) Drainage ditches as sources of beneficial spiders on farms to enhance conservation biological control. Annual Meeting of the Entomological Society of America, St. Lois, MO. Oral presentation.
5. **Avanesyan, A.**, and W. Lamp (2019) External morphology of the spotted lanternfly, *Lycorma delicatula*, and its association with insect host plants. Postdoctoral Research Symposium. University of Maryland, College Park, MD. Poster presentation
6. **Avanesyan, A.**, and W. Lamp (2019) External morphology of the spotted lanternfly, *Lycorma delicatula*, and its association with insect host plants. Entomological Society of America Annual Meeting, Eastern Branch. Blacksburg, VA. Poster presentation
7. **Avanesyan, A.**, and W. Lamp (2019) Feeding preferences of native acridid grasshoppers for novel host plants: a case study of biotic resistance. Entomological Society of America Annual Meeting, Eastern Branch. Blacksburg, VA. Oral presentation
8. Kutz, D., **Avanesyan, A.**, and W. Lamp (2019) Drainage ditches as sources of beneficial spiders on farms: A closer look at plant-spider community associations. Entomological Society of America Annual Meeting, Eastern Branch. Blacksburg, VA. Oral presentation
9. **Avanesyan, A.**, and W. Lamp (2018) Use of molecular markers for plant DNA to determine host plant usage for potato leafhopper, *Empoasca fabae*. Annual Meeting of the Entomological Society of America: 2018 ESA, ESC, and ESBC Joint Annual Meeting, Vancouver, BC, Canada. Oral presentation
10. **Avanesyan, A.** (2018) Should I eat or should I go? Acridid grasshoppers and their novel host plants: implications for biotic resistance. Annual Meeting of the Entomological Society of

America: 2018 ESA, ESC, and ESBC Joint Annual Meeting, Vancouver, BC, Canada. Poster presentation

11. **Avanesyan, A.** (2018) Should I eat or should I go? Acridid grasshoppers and their novel host plants: implications for biotic resistance. Postdoctoral Research Symposium. University of Maryland, College Park, MD. Poster presentation
12. Omanovic, E.*, Welsch, A.*, Graving, S.*, Christiansen, K.*, **Avanesyan, A.**, and I. Hazan (2017) Sequencing of GAPDH Gene in Cilantro and Rosemary. Annual Grand View Scholarship Symposium. Grand View University. Des Moines, IA. Poster presentation
13. Christofferson, D.*, Miller, R.*, Piatt, D.*, Backer, S.*, Reyes-Zuniga, K.*, **Avanesyan, A.**, and I. Hazan (2017) Sequencing the GAPDH Gene of *Rosmarinus officinalis*. Annual Grand View Scholarship Symposium. Grand View University. Des Moines, IA. Poster presentation
14. Geisinger, S.*, Jones, K.*, Sopher, K.*, Salazar-Klock, L.*, **Avanesyan, A.**, and I. Hazan (2017). Sequencing of GAPDH Gene in *Coriandrum sativum* (Cilantro). Annual Grand View Scholarship Symposium. Grand View University. Des Moines, IA. Poster presentation
15. Merritt, B.J., Culley, T.M., **Avanesyan, A.**, Stokes, R., and J. Brzyski (2015) An empirical review: Characteristics of plant microsatellite markers that confer greater levels of genetic variation. Botany 2015: Annual Meeting of the Botanical Society of America, Edmonton, Alberta, Canada. Poster presentation
16. Culley, T. M., and **A. Avanesyan** (2014) Estimating the tolerance of native and exotic grasses to grasshopper herbivory. Botany 2014: Annual Meeting of the Botanical Society of America. Boise, ID. Oral presentation
17. **Avanesyan, A**., and T. M. Culley (2014) Prevalence of exotic and native plant food in the gut contents of *Melanoplus femurrubrum* grasshoppers: molecular confirmation of diet. 5th annual Midwest Graduate Research Symposium. Toledo, OH. Oral presentation
18. **Avanesyan, A**., and T. M. Culley (2013) Plant DNA detection from grasshoppers' gut contents: method and applications. 61st Annual Meeting of the Entomological Society of America, Austin, TX. Oral presentation
19. **Avanesyan, A**., and T.M. Culley (2013) Interaction of native and invasive grasses with a generalist herbivore insect (Updated: results from 2012-2013). 98th Annual Meeting of the Ecological Society of America. Minneapolis, MN. Oral presentation
20. **Avanesyan, A**., and T.M. Culley (2013) Interaction of native and invasive grasses with a generalist herbivore insect. 4th Annual Midwest Graduate Research Symposium. Toledo, OH. Oral presentation
21. **Avanesyan, A.**, and T.M. Culley (2013) Feeding preferences of the generalist insect herbivore, *Melanoplus femurrubrum* grasshopper, on invasive and native plants. Entomological Society of America Annual Meeting, Eastern Branch. Lancaster, PA. Oral presentation
22. **Avanesyan, A.**, and T.M. Culley (2013) A comparison of *Miscanthus sinensis* and two native grasses in their resistance and tolerance to herbivory by a generalist insect. Ohio Invasive Plants Council Research Conference. Columbus, OH. Poster presentation
23. **Avanesyan, A.**, Stamper, T.I. , Timm, A., Wong, E., Dahlem, G.A., and R. DeBry (2010) Phylogenetic relationships of the *Sarcophagidae* (Diptera), using three mitochondrial loci (COI, COII, and ND4) and one nuclear locus (PER). Entomological Society of America Annual Meeting, San Diego, CA. Poster presentation
24. **Avanesyan, A.**, Stamper, T.I., and R. DeBry (2010) Infection rate of grasshoppers in Montana, parasitized by *Sarcophagidae* flies: a host range and parasite species determination. Graduate Poster Forum, University of Cincinnati. Poster presentation
25. Berendzen, P.B., Ophus, J.D., and **A. Avanesyan** (2007) A cross-cultural study of students' understanding of evolution. The nature of science and their need for cognition. 10th Russian-

American Conference: Modern Concepts in Higher Education. Herzen State University, St. Petersburg, Russia. Oral presentation

26. Gvozdev, M.A., and **A. Avanesyan** (2006) Bioethical aspects of the development of aquaculture in Russia. 6th Annual Methodological Seminar: Issues and Prospects of Biological and Ecology Education. Herzen State University, St. Petersburg, Russia. Oral presentation
27. **Avanesyan, A.,** and G.L. Ataev (2001) The organization of the amebocyte-producing organ in different pulmonate snails. International Symposium: Animal Physiology, I. M. Sechenov Institute of Evolutionary Physiology and Biochemistry, St. Petersburg, Russia. Poster presentation
28. Ataev, G.L., Dobrovolskij, A.A., **Avanessian, A.V.,** and C. Coustau (2000) Significance of the amebocyte-producing organ of *Biomphalaria glabrata* snails (strains selected for susceptibility/resistance) in cellular response to *Echinostoma caproni* mother sporocysts infection. International Symposium: Ecological Parasitology at the Turn of the Millennium. Organized by the Russian Parasitological Society and the Scandinavian Society for Parasitology. St. Petersburg, Russia. Oral presentation

INVITED TALKS

1. **Avanesyan, A**. (2020) Using databases for exploring research questions. Department of Entomology, University of Maryland, College Park, MD; The Lamp lab, weekly meeting. Guest speaker.
2. **Avanesyan, A**. (2020) Molecular resources and protocols: from PLS4178 to PLS4172. Department of Entomology, University of Maryland, College Park, MD; The Lamp lab, weekly meeting. Guest speaker.
3. **Avanesyan, A**. (2019) Ecology of invasive species, consequences on society. Department of Entomology, University of Maryland, College Park, MD; HONR208D class. Guest lecturer.
4. **Avanesyan, A.** (2019) Spotted lanternfly: information and update. Maryland Organic Food & Farming Association, Maryland Dept. of Agriculture, Annapolis, MD.
5. **Avanesyan, A**. (2018) Novel plant-insect associations: implications of the lack of coevolution. Department of Entomology, University of Maryland, College Park, MD; weekly seminar series. Seminar speaker.
6. **Avanesyan, A**. (2018) Ecology of invasive species, consequences on society. Department of Entomology, University of Maryland, College Park, MD; HONR208D class. Guest lecturer.
7. **Avanesyan, A**. (2016) Identifying and controlling spotted wing drosophila. Berry Field Day organized by Wisconsin Berry Growers Association. River Falls, WI.
8. **Avanesyan, A**., and T. M. Culley (2014) Interaction of generalist grasshoppers with native and exotic grasses: behavioral and molecular approaches. 62nd Annual Meeting of the Entomological Society of America, Portland, OR.
9. **Avanesyan, A**. (2008) Biology education in Russia. Biology Department, University of Northern Iowa, Cedar Falls, IA; weekly seminar series. Seminar speaker.

NON PEER-REVIEWED PUBLICATIONS

Research Reports

1. **Avanesyan, A.,** Thurman C.L., and P.B. Berendzen (2008) Exploring effective methods of DNA extraction and the amplification of specific mtDNA and nDNA regions in fiddler crabs (*Uca*). Functional Morphology, Ecology and Animal Life Cycles 8: 15-20. (In Russian)
2. **Avanesyan, A.** (2005) Structural changes in the amebocyte-producing organ of *Biomphalaria pfeifferi* snails during *Echinostoma caproni* infection. Functional Morphology, Ecology and

Animal Life Cycles 5: 102-106. (In Russian)
3. **Avanesyan, A.** and G.L. Ataev (2004) Hematopoiesis in gastropods. Functional Morphology, Ecology and Animal Life Cycles 4: 105-111. (In Russian)
4. Ataev, G.L., and **A. Avanesyan** (2000) Snail defense responses to infection by trematodes. Functional Morphology, Ecology and Animal Life Cycles, pp. 118-122. (In Russian)

Extension Newsletters

1. **Avanesyan, A.** and P. Shrewsbury (2020) Beneficial of the week: At least two generalist predators attack the spotted lanternfly. UMD Extension, Landscape and Nursery IPM Report; Oct. 23, 2020.
2. **Avanesyan, A.** and C. Guédot (2016) Exclusion barriers as a sustainable strategy for management of Spotted Wing Drosophila. Wisconsin Fruit News, 1(6).
3. **Avanesyan, A.** and C. Guédot (2016) Raspberry varieties and their infestation by *Drosophila suzukii*. Wisconsin Fruit News, 1(4).

GENBANK SUBMISSIONS (*undergraduate students, **graduate students, ♦ high school students)

1. **Avanesyan, A.** and W. O. Lamp. (2020) *Betula pendula* isolate 1E4a ribulose-1,5-bisphosphate carboxylase/oxygenase large subunit (rbcL) gene, partial cds; chloroplast. Direct Submission, GenBank Accession no. MT119453
2. **Avanesyan, A.** and W. O. Lamp. (2020) *Acer pseudoplatanus* isolate 1F4b ribulose-1,5-bisphosphate carboxylase/oxygenase large subunit (rbcL) gene, partial cds; chloroplast. Direct Submission, GenBank Accession no. MT108179
3. **Avanesyan, A.** and W. O. Lamp. (2020) *Vitis vinifera* isolate 1B3 ribulose-1,5-bisphosphate carboxylase/oxygenase large subunit (rbcL) gene, partial cds; chloroplast. Direct Submission, GenBank Accession no. MN862495
4. **Avanesyan, A.** and W. O. Lamp. (2020) *Ailanthus altissima* ribulose-1,5-bisphosphate carboxylase/oxygenase large subunit (rbcL) gene, partial cds; chloroplast. Direct Submission, GenBank Accession no. MN853649
5. **Avanesyan, A.** and W. O. Lamp. (2020) *Celastrus orbiculatus* isolate TT4a ribulose-1,5-bisphosphate carboxylase/oxygenase large subunit (rbcL) gene, partial cds; chloroplast. Direct Submission, GenBank Accession no. MN862496
6. Illahi, N.*, **Avanesyan, A.** and W. O. Lamp. (2020) *Lonicera maackii* ribulose-1,5-bisphosphate carboxylase/oxygenase large subunit (rbcL) gene, partial cds; chloroplast. Direct Submission, GenBank Accession no. MN631052
7. Smith, D.K.**, **Avanesyan, A.** and W. O. Lamp. (2020) *Eupatorium serotinum* tRNA-Leu (*trn*L) gene, partial sequence; chloroplast. Direct Submission, *GenBank* Accession no. MN395725
8. Smith, D.K.**, **Avanesyan, A.** and W. O. Lamp. (2020) *Lonicera maackii* tRNA-Leu (*trn*L) gene, partial sequence; chloroplast. Direct Submission, *GenBank* Accession no. MN365276
9. Smith, D.K.**, **Avanesyan, A.** and W. O. Lamp. (2020) *Pisum sativum* isolate slf-2 tRNA-Leu (*trn*L) gene, partial sequence; chloroplast. Direct Submission, *GenBank* Accession no. MN335637
10. Smith, D.K. **, **Avanesyan, A.** and W. O. Lamp. (2020) *Acer platanoides* tRNA-Leu (trnL) gene, partial sequence; chloroplast. Direct Submission, GenBank Accession no. MN450067
11. Smith, D.K. **, **Avanesyan, A.** and W. O. Lamp. (2020) *Acer rubrum* tRNA-Leu (trnL) gene, intron; chloroplast. Direct Submission, GenBank Accession no. MN450068
12. Illahi, N.*, **Avanesyan, A.** and W. O. Lamp. (2019) *Ailanthus altissima* isolate BC4b ribulose-1,5-bisphosphate carboxylase/oxygenase large subunit (rbcL) gene, partial cds; chloroplast. Direct Submission, GenBank Accession no. MN856629

13. Illahi, N.*, **Avanesyan, A.** and W. O. Lamp. (2019) *Ailanthus altissima* ribulose-1,5-bisphosphate carboxylase/oxygenase large subunit (rbcL) gene, partial cds; chloroplast. Direct Submission, GenBank Accession no. MN853649
14. Stancliff, B.♦, **Avanesyan, A.** and W. Lamp. (2019) *Vicia faba* tRNA-Leu (trnL) gene, partial sequence; chloroplast. Direct Submission, *GenBank* Accession no. MK934667
15. Stancliff, B.♦, Smith, D.**, **Avanesyan, A.** and W. Lamp. (2019) *Pisum sativum* tRNA-Leu (*trn*L) gene, partial sequence; chloroplast. Direct Submission, *GenBank* Accession no. MK919208
16. Stancliff, B.♦, Abdelwahab, O.*, **Avanesyan, A.** and W. Lamp. (2019) *Vigna unguiculata* tRNA-Leu (*trn*L) gene, partial sequence; chloroplast. Direct Submission, *GenBank* Accession no. MK883492
17. Stancliff, B.♦, Ho, J.*, **Avanesyan, A.** and W. Lamp. (2019) *Helianthus annuus* tRNA-Leu (*trn*L) gene, partial sequence; chloroplast. Direct Submission, *GenBank* Accession no. MK875279
18. **Avanesyan, A.**, and W. Lamp. (2019) *Vicia faba var. major* isolate PLH_fb tRNA-Leu (*trn*L) gene, partial sequence; chloroplast. Direct Submission, *GenBank* Accession no. MK837073
19. Backer, S.*, Christiansen, K.*, Christofferson, D.*, Geisinger, S.*, Graving, S.*, Jones, K.*, Miller, R.*, Omanovic, E.*, Piatt, D.*, Reyes-Zuniga, K.*, Salazar-Klock, L.*, Sopher, K.*, Welsch, A.*, **Avanesyan, A.**, and I. Hazan (2017) *Salvia rosmarinus* isolate rs *GAPC-2* gene, partial cds. Direct Submission, *GenBank* Accession no. MF074139

RESEARCH SKILLS

- ***Field/greenhouse work*:** species collection and identification (plants, invertebrates); animal rearing and colony maintenance (snails, insects); establishing plots, planting, setting up lab assays; measuring plant biomass, cover, growth, insect food consumption and assimilation, etc.; insect population monitoring using traps, sticky cards, etc.; parasitoid release for insect biocontrol; multiple field trips in Ohio, Maryland, Montana, Iowa, Minnesota, Wisconsin, Pennsylvania, and Russia
- ***Molecular biology:*** DNA/RNA extraction, PCR (mitochondrial COI, COII, and ND4; nuclear PER, ITS-1, ITS-2, GAPDH, and RAPD marker; chloroplast *trn*L (UAA) and *rbc*L; plant microsatellite markers), agarose gel electrophoresis, DNA/RNA spectrophotometry, DNA purification; restriction digest analysis, DNA cloning, sample preparation for NGS; sequence analysis (editing, aligning, assembling, estimating sequence quality, determining gene structure, species identification using BLAST, annotating and depositing sequences to the NCBI GenBank database, etc.), phylogenetic analysis
- ***Histology, microscopy, cellular immunology*:** light microscopy and scanning electron microscopy; dissection, tissue isolation, processing, and tissue fixation; sectioning tissue using a microtome, differential staining of tissue sections, slide preparation; identification and characterization of hematopoietic tissue; measuring cell proliferation (by quantification of mitotic activity); morphological analysis of encapsulation of parasites by hemocytes (with a focus on formation of hemocyte aggregations, types of capsules, hemocyte layers in a capsule, adhesion and destruction of a parasite by hemocytes); morphometric analysis
- ***Cell biology*:** protein and enzyme assays (spectrophotometric, colorimetric methods), protein quantification, enzyme activity analysis; cell fractionation (isolating mitochondria and non-mitochondria fractions); morphological analysis of cell proliferation and differentiation (germinal cells), embryo development, cellular composition (invertebrates)
- ***Microbiology*:** aseptic/sterile techniques, culturing, staining (simple, Gram, acid-fast), KOH string

test, microscopic examination of morphological characteristics of bacteria; isolation streaking, measuring cell density, bacteriophage titer analysis; MIC determination, testing for antibiotic sensitivity (dilution method, Kirby-Bauer test); metabolic tests, preparation of Winogradsky columns; complementation test with yeast (*S. cerevisiae*), bacterial conjugation (*E. coli*)

- ***Data analysis, programming, computer skills*:** statistical modelling, systematic reviews, meta-analysis; work with public databases (data retrieving and data analysis); sequence analysis (various software); R (data analysis), Python (basic programming); Linux shell; HTML/CSS

GRANTS AND AWARDS

1. Maryland Agricultural Experiment Station Competitive Grant Program, Co-PI and Primary Researcher (Lead PI: William Lamp, co-PI: David Hawthorne), "Identification of host plant use by the invasive spotted lanternfly (*Lycorma delicatula*) using next-gen DNA sequencing technology"; 2020-2021; $29,509
2. Maryland Agricultural Experiment Station McIntire Stennis Forestry Research Program, co-PI and Primary Researcher (Lead PI: William Lamp), "Stylet morphology of the invasive spotted lanternfly: implications for host tree–associations and potential tree damage"; 2018-2019; $30,000
3. Maryland Specialty Block Grant Program, Primary Researcher (PI: William Lamp), "The invasive spotted lanternfly, *Lycorma delicatula*, and its specialty crop host plants: insect host usage at each developmental stage."; 2018-2020; $37,831
4. Postdoctoral Research Symposium. University of Maryland. 2nd place in Poster Competition. College Park, MD; 2018; $300
5. Planting Science Digging Deeper Fellowship. Botanical Society of America; 2017; $2000
6. Entomological Society of America. 1st place in Graduate Student Ten-Minute Paper Competition. Austin, TX; 2013; $175; 2nd place in Ph.D. Student Oral Competition. Lancaster, PA; 2013; $200
7. Wieman Wendel Benedict Awards. Department of Biological Sciences, University of Cincinnati; 2013: $200; 2012: $600; 2011: $1200
8. Graduate Research Fellowship for Outstanding Incoming Ph.D. Students Department of Biological Sciences, University of Cincinnati; 2009; $3000
9. The Ministry of Education and Science of the Russian Federation, Primary Researcher (Lead PI: Gennady Ataev); "The effect of cellular defense responses of snails to development of trematodes"; 2000-2004; $8,000

COURSES TAUGHT

Department of Entomology, University of Maryland, College Park (2018-present):

- Evolutionary Biology (online graduate course; 3 units; instructor of record; 2019-present)
- Insect Biodiversity (laboratory; 3 units; 2018; teaching assistant; 2018)
- Aquatic Entomology (laboratory; 3 units; 2018; teaching assistant; 2018)

Biology Department, Grand View University (2016–2017; instructor of record):

- Genetics (laboratory; 4 units; 2016–2017)
- Molecular Biology (laboratory; 4 units; 2017)

Department of Biological Sciences, University of Cincinnati (2010–2014; teaching assistant):

- Biology Laboratory (laboratory; 4 units; 2011)

- Genetics and Cell Biology (laboratory; 4 units; 2013–2014)
- Elementary Microbiology for Health Professionals (laboratory; 4 units; 2012)
- General Microbiology Laboratory (laboratory; 4 units; 2010–2013)

Department of Zoology, Herzen State University, St. Petersburg, Russia (2002–2009; instructor of record):

- Introductory Biology (lectures, laboratory; 2003–2006)
- General Biology (lectures; 2002–2005)
- General Ecology (lectures, laboratory, field course; 2005–2007)
- Human Ecology (lectures; 2007)
- Animal Ecology (lectures, laboratory; 2003–2009)
- Bioindication (lectures; 2008)
- Animal Behavior (lectures; 2004)
- Invertebrate Zoology (laboratory, field course; 2002–2003)

MENTORING (*undergraduate students, **graduate students, ♦ high school students)

Department of Entomology, University of Maryland, College Park (2018 – present):

Brock Couch**, Kevin Clements*, Nina McGranahan♦, Bryan Stancliff♦, Omar Abdelwahab*, Jessica Ho*, Darsy Smith**, Margaret Hartman**, Nurani Illahi*, Hannah Sutton*, Olivia Shaffer*
(*Term projects in DNA barcoding: species identification, host plant DNA detection from insect guts, phylogenetics, systematic review on molecular diet analysis, meta-barcoding of the gut contents using NGS approach, retrieving and analyzing plant trait data from public databases*)

Department of Entomology, University of Wisconsin-Madison (2016):

Claire Mattmiller♦
(*Term project: determining mating status of the spotted wing drosophila using light microscopy and histological analysis*)

Department of Zoology, Herzen State University, St. Petersburg, Russia (2002–2009):

Tanja Perminova*, Maria Lopatkina*, Natalia Shamkina* , Luba Komarova* , Julia Sackina* , Anastasia Arsenieva*, Ekaterina Shapkina*, Natalia Kogotkova*, Egor Silin* , Irina Potapova*, Alexandr Mogilev*
(*Senior thesis research projects and term projects in animal ecology and animal behavior: ecological monitoring of aquatic populations, environmental analysis, analysis of animal social behavior, etc.*)

PROFESSIONAL DEVELOPMENT (selected courses, workshops, and training)

- 2021 Virtual Advanced Landscape Plant IPM PHC Short Course, Department of Entomology, University of Maryland, College Park, MD (Jan 5-14, 2021)
- Spotted Lanternfly Working Group Meeting, PSU FREC, Biglerville, PA (Oct 29, 2019)
- Next Generation Sequencing: seminar; GENEWIZ, Bioscience Research, University of Maryland, College Park, MD (Sep 24, 2019)
- Spotted Lanternfly Regional Summit; Penn. Dept. of Agriculture, Harrisburg, PA (Mar 6-7, 2019)
- Scanning Electron Microscopy: training in tissue preparation and photo imaging; Laboratory for Biological Ultrastructure, University of Maryland, College Park, MD (Dec 2018-Jan 2019)
- Effective Student Learning: eight workshops; Teaching and Learning Transformation Center,

University of Maryland, College Park, MD (2018–2019)

- Bayesian Modeling for Socio-Environmental Data: nine-day course; The National Socio-Environmental Synthesis Center (SESYNC), Annapolis, MD (May 29-June 8, 2018)
- Spatial Analysis, ArcGIS Online and Story Maps, Introduction to GIS and Python: four workshops; University of Maryland Libraries, College Park, MD (Feb-Apr, 2018)
- Digging Deeper Summer Professional Development: a five-day workshop; Biological Sciences Curriculum Study (BSCS), Colorado Springs, CO (July 23-27, 2017)
- Coursework in mathematics (19 credit hours, GPA 4.0): Calculus I, Calculus II, Calculus III, Matrices & Linear Algebra, Differential Equations & Transformations; Department of Mathematics, Iowa State University, Ames, IA (June 2014 – May 2015).

SERVICE

- Subject editor: Journal of Orthoptera Research, subject areas - Molecular Biology, Biodiversity and Conservation, General Ecology (June 2018-present)
- Guest editor: Insects, Special Issue "Molecular gut content analysis: deciphering trophic interactions of insects" (2019)
- Reviewer Board Member: Agriculture (Jan 2021-present), Insects (2020-present)
- Reviewer: Bulletin of Entomological Research (2020), Basic and Applied Ecology (2020), Insects (2019, 2020), Environmental Entomology (2019, 2020); Water (2019), PeerJ (2019), PLOS One (2018); Molecular Phylogenetics and Evolution (2018); Journal of Biogeography (2018); International Journal of Molecular Sciences (2018); Acta Oecologica (2018); Global Change Biology (2017, 2018); Biodiversity Data Journal (2017); Journal of the Kansas Entomological Society (2017); Journal of Orthoptera Research (2016, 2017, 2019)
- Scientist Mentor and member of Master Plant Science Team, Planting Science Program, Botanical Society of America; www.plantingscience.org (2017-2020)
- Organizer and moderator of symposiums: “Novel plant-insect associations: interactions between exotic and native species”, Entomological Society of America Annual Meeting, Eastern Branch. Blacksburg, VA. (2019); “Novel plant-insect associations: implications of the lack of coevolution”, Annual Meeting of the Entomological Society of America, Portland, OR. (2014)
- Planning committee member: research symposium organized by Office of Postdoctoral Affairs, University of Maryland, College Park (2018)
- Moderator for student presentations: Grad 10-min; P-IE, Forestry; Annual Meeting of the Entomological Society of America: 2018 ESA, ESC, and ESBC Joint Annual Meeting, Vancouver, BC, Canada (2018)
- Judge for student presentations: Grad 10-min: P-IE, Behavior; Undergrad 10-min: SysEB, Annual Meeting of the Entomological Society of America: 2018 ESA, ESC, and ESBC Joint Annual Meeting, Vancouver, BC, Canada (2018); 4th Scholarship Symposium, Grand View University (2017); Undergraduate Research Poster Forum, University of Cincinnati (2014); 7th Annual Southwest Ohio District Science & Engineering Expo for students in grades 6–12 (2014)
- Volunteer: Maryland Day, University of Maryland, College Park (2018, 2019); Southwest Ohio District Science & Engineering Expo Coaching Day (2014)

MEDIA COVERAGE

- Avanesyan and Lamp successfully ID host plant DNA in gut content of lanternflies. University of Maryland, Department of Entomology. News and Events. April 3, 2020.

- UMD researchers study plant responses to leafhopper injury. University of Maryland, Department of Entomology. News and Events. February 5, 2019.
- Protect or destroy? The role of native grasshoppers in their home habitats. By Dylan Kutz and Serhat Solmaz. University of Maryland, Department of Entomology. Seminar blog. December 13, 2018.
- Meet the Journal of Orthoptera Research newest subject editor! University of Maryland, Department of Entomology. ENTM Newsletter | Summer 2018. August 16, 2018.
- Grasshoppers are what they eat. New method to extract plant DNA from grasshopper guts improves understanding of plant-insect interactions. Botanical Society of America News, ScienceDaily, ScienceNewsline, Phys.org, EurekAlert! February 5, 2014.
- New technique of studying insect physiology through DNA extractions. By Jen Ellis. LabRoots. February 18, 2014.
- Gut instinct. By Manupriya. Down to Earth, a magazine of The Society for Environmental Communications, India. March 15, 2014.
- UC doctoral student researches grasshopper guts to determine feeding patterns. University of Cincinnati News Release. April 9, 2014.
- Flying foe? By Dama Ewbank. University of Cincinnati Research Magazine. November, 2010.
- UNI biology researcher works with Russian counterpart. UNI newsletter. May 13, 2008.

SOCIETY MEMBERSHIP

- Botanical Society of America
- Entomological Society of America
- The Orthopterists' Society
- Maryland Native Plant Society