

Cory J. Penca

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Education

2019 – Doctor of Philosophy, Entomology. Department of Entomology and Nematology, Gainesville, FL.

2019 – Doctor of Plant of Medicine. College of Agriculture and Life Sciences, University of Florida, Gainesville, FL.

2015 – Master of Science in Natural Resource Policy and Administration
School of Forestry and Resource Conservation, University of Florida, Gainesville, FL.

2011 – Bachelor of Science, Botany, Pre-professional Track and Biology, Natural Science Track, College of Agriculture and Life Sciences, University of Florida, Gainesville, FL.

Professional Experience

May 2023 – Present

Laboratory Director (acting), United States Department of Agriculture, Animal Plant Health Inspection Service, Treatment and Inspection Methods Laboratory, Miami, FL.

- Direct supervisor to 12 direct reports, including PhD-level scientists from multiple disciplines.
- Developed budgets, work plans, and strategic priorities for the laboratory.
- Oversaw facility maintenance, improvements and expansion.
- Contributed to management team initiatives that have impact across PPQ Science & Technology.
- Facilitated project development and execution focused on methods development for treatments, inspections and biological control.

May 2019 – Present

Biologist, United States Department of Agriculture, Animal Plant Health Inspection Service, Treatment and Inspection Methods Laboratory, Miami, FL.

- Conducted research on phytosanitary treatments and reviewed treatment research.
- Developed systems approaches to allow the movement of agricultural goods while mitigating the risk of spreading invasive quarantine pests.
- Applied toxicological and ecotoxicological methods to the analyses of phytosanitary treatments.
- Evaluated operational procedures for the eradication and containment of major plant pathogens.
- Developed technologies and methods for the detection of invasive pests and pathogens.

May 2015 – May 2019.

Graduate Research Assistant. Department of Entomology and Nematology, The University of Florida, Gainesville, FL.

- Conducted a survey of pests in Florida's subtropical peach industry and established the groundwork for the development of Florida Peach IPM.
- Produced and delivered extension workshops and materials related to invasive species in Florida.
- Assisted in the delivery of the Old World Bollworm identification workshop, including the production of educational materials, curation of museum materials, and travel to Puerto Rico for collection of field specimens.
- Performed laboratory/quarantine studies on the reproductive diapause and biological control of invasive heteropteran pests.
- Provided entomological support for an OREI project on organic high tunnel vegetable production in the southeast.

June 2017 – May 2019

Student Trainee (Biological Sciences), Pathways Internship Program, United States Department of Agriculture, Animal Plant Health Inspection Service, Plant Protection and Quarantine, Gainesville, FL.

- Received training, experience and professional development as an employee of the federal government.
- Participated in special projects related to plant health and plant protection in the state of Florida, with a focus on issues relevant to the greater Caribbean region.
- Analyzed insect detection data from tephritid survey and inspection programs to provide guidance for policy decisions.

July 2018 – November 2018

Research Internship, Global R&D -Entomology Department, Driscoll's, Watsonville, CA.

- Evaluated the efficacy of grower-produced botanical pesticides against mites and spotted wing drosophila.
- Conducted research on entomopathogenic nematode production targeting pests of berry crops.
- Investigate endophytic growth of entomopathogenic fungi in strawberries as a possible defense against twospotted spider mite.

March 2013 – January 2015

Laboratory Technician IV, Florida Department of Agriculture and Consumer Services, Division of Plant Industry, Gainesville, FL.

- Assisted DPI Biological Scientists in the design, testing and application of methods and techniques for the biological control of agricultural pests.
- Assisted with quarantine studies related to the biology and life cycle of the Giant African Land Snail, as well as its responses to attractants.
- Field collected specimens for use in choice/no-choice tests for the biological control of the brown marmorated stink bug.
- Performed DNA extraction/ PCR and flow cytometry on the invasive cotton seed bug *Oxycarenus hyalinipennis*.

August 2011 – March 2013

Horticulturist, Kanapaha Botanical Gardens, Gainesville, FL.

- Managed garden greenhouses and propagation efforts.
- Performed basic gardening tasks such as planting, irrigation, weeding and mulching.
- Carried out safe and effective use of herbicides and pesticides.
- Directed and supervised volunteers in the role of volunteer coordinator.
- Provided the public with information and assistance related to the garden's collection.

Publications

Journal Articles (refereed)

- Yee, Wee L., and C. Penca. (2023). Mortality of western cherry fruit fly (Diptera: Tephritidae) immature stages in cherries submerged in hypoxic water. *Florida Entomologist* 106 (4), 238-243.
- Chang, Y., Lei, J., Alvarez, A.E., Chappell, T., Tang, X., Chen, I.W., Penca, C., Bailey, W.D., Pillai, S., Tamborindeguy, C. and Du, Y. (2023). Electron beam irradiation reduces plant pathogen abundance and transmission by potato psyllids. *Entomologia Generalis*, 43 (2), 441-450.
- Penca, C., A.L. Beam and W. Bailey. (2023). The Applicability of Species Sensitivity Distributions to the Development of Generic Doses for Phytosanitary Irradiation. *Scientific Reports*, 13(1), 2358.
- Penca, C. N.C. Goltz, A.C. Hodges, N. C. Leppla, J.E. Eger, & T.R. Smith. (2022). The Use of Pyriproxyfen to Induce Oogenesis in Diapausing *Megacopta cribaria* (Heteroptera: Plataspidae), and the Evaluation of Pyriproxyfen-Induced Eggs for Rearing the Parasitoid *Paratelenomus saccharalis* (Hymenoptera: Scelionidae). *Insects*, 13 (1), 89.
- Birkmire, S., Penca, C., Talamas, E.J., Moore, M.R. & Hodges, A.C. (2021). *Psix striaticeps* (Dodd)(Hymenoptera, Scelionidae): an Old World parasitoid of stink bug eggs arrives in Florida, USA. *Journal of Hymenoptera Research*, 87, 503-521.
- Penca, C., Hodges, A. C., Leppla, M.C. & Cottrell, T.E. (2021). Analysis of the Spatial Distribution and Development of Sequential Sampling Plans for Heteropteran-Associated Fruit Injury in Florida Peaches. *Journal of Economic Entomology*, 114 (4), 1823-1833.
- Eger, J.E., Pitcher, A.J., Halbert, S.E., Penca, C., & Hodges, A. C. (2021) First Report of *Brachyplatys subaeneus* (Westwood) (Hemiptera: Plataspidae) in the United States. *Insecta Mundi*. 0814.

- Penca, C., Hodges, A. C., Leppla, N. C., & Cottrell, T. E. (2020). Trap-Based Economic Injury Levels and Thresholds for *Euschistus servus* (Hemiptera: Pentatomidae) in Florida Peach Orchards. *Journal of Economic Entomology*, 114 (3), 1347-1355.
- Penca, C. and A.C. Hodges. (2018). First report of brown marmorated stink bug (Hemiptera: Pentatomidae) reproduction and localized establishment in Florida. *Florida Entomologist*, 101 (4), 708-711.
- Penca, C., & Hodges, A. C. (2017). Pyriproxyfen treatment terminates *Halyomorpha halys* reproductive diapause, with an indirect mortality effect on its egg parasitoid *Trissolcus japonicus*. *Journal of Pest Science*, 90 (4), 1269-1276.
- Penca, C., A. C. Hodges, L. L. Davis, N. C. Leppla, & R. C. Hochmuth. 2017. Abundance and diversity of beneficial and pest arthropods in buckwheat on blueberry and vegetable farms in north Florida. *Florida Entomologist*, 100 (1), 186-189.
- Penca, C, D.C. Adams and J. Hulcr. 2016. The Cuba-Florida Pest Pathway. *Insecta Mundi*. 0490.

Journal Articles, Submitted/In Preparation

- Vastano, A.R., Allen, M.C., Penca, C., Stringham, O.C., Domingue, M.J., and J.L. Lockwood (2023). Can environmental DNA be used within pest insect agricultural biosecurity? Detecting Khapra beetle within stored rice. *Submitted to Environmental DNA*.

Extension Publications

- Halbert, S.E., Eger, J.E., Allen, J.S. and Penca, C. 2020. Pest Alert: *Brachyplatys subaeneus* (Westwood), black bean bug, detected in South Florida. FDACS-P-01936.
- Penca, C. and A.C. Hodges 2019. The Brown Marmorated Stink Bug. UF/IFAS Extension, EENY346
- Penca, C. and A.C. Hodges 2019. Caribbean Fruit Fly Management in Florida Peaches. UF/IFAS Extension, ENY343.
- Penca, C 2019. Non-Crop Hosts of Agriculturally Important Organisms in the Natural Area Teaching Lab. NATL Minigrant program, final report and brochure. UF/IFAS.
- Penca, C. 2018. Pest Alert Blog. End of Peach Season Stink Bug Counts (May) & The brown marmorated stink bug, now a pest of limited distribution in Florida (Sept). UF/IFAS Blogs, <http://blogs.ifas.ufl.edu/pestalert/>.
- Penca, C., S. Stocks, J. Hamel, A.C. Hodges and L. Whilby. 2017. Identification Guide to Florida's Invasive Plant-Pests. UF-IFAS Extension. 107 pp.

Presentations

Meetings & Invited Seminars

- 2024 – Penca, C. US Experience with the Use of a Systems Approach for Export Purposes. CPM-18 Science Session. IPPC Commission for Phytosanitary Measure. Rome, Italy (virtual presentation)
- 2023 - Penca, C. Systems approaches: monitoring success. APHIS-ARS Fruit Fly Scientific Strategies Meeting. Edinburg, Texas.
- 2022 – Penca, C. USDA-APHIS-PPQ phytosanitary irradiation treatment development and scientific support. 20th International Meeting on Radiation Processing. Bangkok, Thailand.
- 2022 – Penca, C. USDA-APHIS-PPQ irradiation program update. 20th International Meeting on Radiation Processing. Bangkok, Thailand.
- 2021 – Penca, C. Evaluating generic doses for phytosanitary irradiation using species sensitivity distributions. Annual Meeting of the Entomological Society of America. Denver, CO.
- 2020 – Penca, C. Using Species Sensitivity Distributions to Set Generic Doses. Methyl Bromide Alternatives Outreach, Virtual Meeting.
- 2020 – Penca, C. The Applicability of Species Sensitivity Distributions to the Development of Generic Doses for Phytosanitary Irradiation (Poster). Annual Meeting of the Entomological Society of America, Virtual Meeting.
- 2020 – Phytosanitary Irradiation Research Update. The Ninth Annual Chapman Phytosanitary Irradiation Forum, Melbourne, Australia. Canceled due to Covid-19 pandemic.
- 2020 – Penca, C. Supporting Agriculture as an APHIS Phytosanitary Scientist: Experiences from a Recent Graduate. UF Tropical Research and Education Center, Homestead, Florida.
- 2019 – Penca, C. and A.C. Hodges. Characterizing the Heteropteran Pest Complex in Florida Peaches with a Focus on the Establishment of the Brown Marmorated Stink Bug. Meeting of the Florida Entomology Society, Jupiter, FL.
- 2019 – Penca, C. and A.C. Hodges. Economic thresholds for cat-facing pests of Florida peaches. Meeting of the Southeastern Branch of the Entomological Society of America. Mobile, AL.
- 2019 – Penca, C. The Caribbean Pest Pathway: addressing areas of recent concern. Invited Seminar at the UF Tropical Research and Extension Center, Homestead, FL.
- 2018 – Penca, C and A.C. Hodges. Optimizing sampling plans for cat-facing pests of Florida peaches. Annual Meeting of the Entomological Society of America. Vancouver, B.C.

- 2018 – Penca, C. Economic Benefits of Fruit Fly Surveillance: a case study using the experiences of Florida and the Dominican Republic. Caribbean Plant Health Directors Forum. Montego Bay, Jamaica.
- 2018 – Penca, C and A.C. Hodges. Using outreach and extension to guide research in Florida's nascent subtropical peach industry. Meeting of the Southeastern Branch of the Entomological Society of America. Orlando, FL.
- 2018 – Penca, C. Analysis of fruit fly surveillance in the Dominican Republic. Presented to the USDA-APHIS-PPQ Greater Caribbean Safeguarding Initiative. Gainesville, FL.
- 2017 – Penca, C. and A.C. Hodges. Characterization of the cat-facing pest complex and the spatiotemporal dynamics of cat-facing injury in Florida's peach orchards. Entomology 2017. Denver, CO.
- 2017 – Penca, C. and A.C. Hodges. Insect Pests of Concern in Florida's Subtropical Peach Orchards. 2017 Southeastern Professional Fruit Workers Conference. Mills River, NC.
- 2017 – Penca, C. and A.C. Hodges. Pest Status of Cat-Facing Heteroptera in Subtropical Peach Production. 100th Meeting of the Florida Entomological Society. San Juan, Puerto Rico.
- 2017 – Penca, C. and A.C. Hodges. Dose response to pyriproxyfen in diapausing *Halyomorpha halys* (Hemiptera: Pentatomidae), *Megacopta cribraria* (Hemiptera: Plataspidae) and their hymenopteran egg parasitoids. Meeting of the Southeastern Branch of the Entomological Society of America. Memphis, TN.
- 2017 – Penca, C. Invasive Species, the Caribbean Pathway, and Cuba. Presentation to USDA-APHIS-PPQ State Plant Health Director's Office. Gainesville, FL.
- 2016 – Penca, C., M.C. Olmstead and A.C. Hodges. A Multi-Year Survey of Stink Bugs in Florida's Subtropical Peaches: 2016 Results. Southeast Fruit Professional Workers Conference, Gainesville, FL.
- 2016 – Penca, C. and A.C. Hodges. The effects of the JH analogues on diapausing *Halyomorpha halys*, *Megacopta cribraria* and *Nezara viridula* and associated hymenopteran egg parasitoids (Poster). International Congress of Entomology, Orlando, FL.
- 2016 – Penca, C, and A.C. Hodges. The effects of JH analogues on diapausing *Halyomorpha halys* and *Megacopta cribraria*. Meeting of the Southeastern Branch of the Entomological Society of America. Raleigh, NC.

Extension and Outreach

- 2020 - Using Pollen Barcoding to Track Moth Dispersal and Migration in the Caribbean. Tomato Leaf Miner, *Tuta absoluta*, Diagnostic and Surveillance Training Course. October 9th, 2020, Gainesville, Florida (presented virtually).
- 2020 – DPM Internships: A Pathway to Employment. Flora and Fauna Fest, February 8th, 2020 Gainesville, FL.
- 2018 – Practical Pest Management for Florida’s Subtropical Peaches. Stone Fruit Field Day. May 29th 2018, Citra, FL.
- 2018 – Preparing for the Arrival of the Old World Bollworm, *Helicoverpa armigera*, in Florida. Florida Ornamental IPM Workshop. February 7th 2018. Gainesville, FL.
- 2018 – Native and Exotic Stink Bugs. Florida First Detector Workshop, Marion County Cooperative Extension Office. Ocala, Florida.
- 2018 – Snails and Slugs of Note. Florida First Detector Workshop, Marion County Cooperative Extension Office. Ocala, Florida.
- 2017 – Palm Weevils, Florida First Detector Workshop, Sumter County Cooperative Extension Office. Bushnell, Florida.
- 2016 – Sentinel Plant Network, diagnosis and identification of insect damage to plants training session. New Orleans, LA. April 19-20th.
- Provided classroom and hands-on instruction to SPN members on the diagnosis and identification of insects.
 - Assisted in a curated “garden-walk” to identify signs of plant pests and diseases.
 - Presented information on pests of concern to participants.
- 2015 – Florida First Detector Workshop Series, Hands on training of identification of invasive exotic pests of concern.
- Presented materials related to the identification of invasive species to a diverse audience, including master gardeners and industry professionals.
 - Provided live and curated samples of insect pests for educational purposes.
 - Edited publicly available extension presentations.
- 2015 – Brown marmorated stink bug, Florida First Detector Workshop, Bradford County Cooperative Extension. Starke, FL.
- 2015 – Snails and Slugs of Note, Florida First Detector Workshop, Miami-Dade Cooperative Extension. Homestead, FL.
- 2015 – Snails and Slugs of Note, Sumter County Cooperative Extension Office. Bushnell, Florida.

2015 – Bagrada bug, Florida First Detector Workshop, St. Johns County Cooperative Extension, St. Augustine, FL.

Teaching Experience

2021 to 2024 – Adjunct Professor, IPM 2112 Principle of Entomology, Miami Dade College

- Developed course materials and hands-on learning activities for students in the horticulture program.
- Provided in-person and remote lectures on basic insect biology, identification and IPM.

2019 – Guest Lecturer, HOS 4283C Advanced Organic and Sustainable Crop Production, University of Florida

- Guest lectured on the use of traps for pest monitoring.
- Developed materials to introduce concepts to non-entomology students.
- Provided a hands on demonstration of insect monitoring tools and techniques.

2019 – Teaching Assistant, ALS 6921 Colloquium of Plant Pests of Regulatory Significance

- Provided input on regulatory entomology issues.
- Guest lectured on import restrictions and quarantine treatments .

2018 – Coordinator and Instructor, Natural Area Teaching Lab Insect Trap Demonstration Day.

- Organized an event aimed at teaching students about various insect trap designs and their effective deployment in the field.
- Hosted presenters from several laboratories and a survey specialist from the cooperative agricultural pest survey (CAPS).
- Presented on trapping methods for Curculionidae.

2017 – Co-instructor, ENY 6905 Economically Important Pests of Florida Agriculture: Identification and Management. Summer 2017.

- Helped design and instruct a course focused on the identification and management of agricultural pests and the principles of economic entomology.

2017 – Mentor for Undergraduate Student Richie Konowal.

- Guided a semester long research project (for credit).
- Provided Instruction on reproductive biology of Heteroptera.
- Focused on experimental design and statistical analysis.

2016 – Guest Lecturer, ALS 4161/6166 Exotic Species and Biosecurity Issues. September 14th.

- Provided a live and recorded lecture about invasive species, the Caribbean and Cuba.
- Lectured on the concept of propagule pressure and the potential impacts of changes to the US embargo of Cuba.
- Encouraged discussion about the nexus of economics, politics, science and agriculture issues and the role of biosecurity in global trade.

2016 – Old World bollworm, *Helicoverpa armigera*, identification training session, Gainesville, FL. April 7-8th.

- Assisted in the instruction of proper dissection technique of *Helicoverpa armigera*.
- Assembled instructor materials into a manual.
- Assisted in workshop logistics.

Service and Outreach

2023 (on going) – Member, USDA Radiation Safety Committee

2023 – U.S. Representative on the IPPC Expert Working Group for the revision of ISPM 26

2022-23 – Program Co-Chair, 2023 Entomological Society of America, Southeastern Branch Meeting.

2021 (on-going) – U.S. Representative to the Quadrilateral Methyl Bromide Alternatives Working Group.

2021 (on-going) – Member, Southern IPM Center Advisory Council.

2021 – Judge, Student 10-minute paper competition. Meeting of the Entomological Society of America, Denver, CO.

2021 – Grant Reviewer, PPA 7721 Goal 2 Domestic Inspection Review Team.

2021 – Member, ESA Southeastern Branch Awards Committee (2021-2023 term).

2020 – Member, Dr. George Agrios Scholarship Committee.

2020 – Grant Reviewer, PPA 7721 Goal 2 Domestic Inspection Review Team.

2020 – Judge, Student 10-minute paper competition. Entomological Society of America, Virtual Meeting.

2020 – (on-going) US Representative on the Plant Health Quadrilateral's Methyl Bromide Alternative Research Group.

2019 – Symposium Organizer/Moderator, Uncharted Territory: Entomology in Support of Florida's Emerging Crops and Production, Florida Entomological Society Annual Meeting, Jupiter, Florida.

2019 – Reviewer, The Florida Entomologist (1 article).

- 2018 – UF Entomology Department Outreach, Hernando County Home School Event, November 30th, 2018, Gainesville, FL.
- 2019 – Reviewer, The Florida Entomologist (1 article).
- 2018 – Search Committee, Student Representative for the Biosecurity/IPM lecturer position, March to August 2018.
- 2018 – Presentation Subcommittee for the 2018 meeting of the Southeastern Branch of the Entomological Society of America in Orlando, FL.
- 2018 – Student Representative to the local arrangement committee for the 2018 meeting of the Southeastern Branch of the Entomological Society of America in Orlando, FL.
- 2017 – Marion County Ag-Literacy Day. Legacy Elementary School, Ocala, FL. November 29th.
- 2017 – USDA-APHIS Charitable Campaign, Bread of the Mighty Foodbank Volunteer
- 2016 – Marion County Ag-Literacy Day. Legacy Elementary School, Ocala, FL. November 29th

Grants & Research Support

Listed are funded proposals in which I was the sole or primary author. Work since 2022 is not reported as funding sources are internal or from USDA APHIS PPQ-administered grants.

- 2021 – Research in support of the systems approach for mango reported from Puerto Rico to the European Union. Collaboration with Dr. Irma Cabrera-Asencio, UPR-Mayaguez (\$49,145)
- 2021 – Detection of Khapra beetle in stored grains using environmental DNA. Collaboration with Dr. Julie Lockwood, Rutgers. (\$95,138).
- 2020 – Internal (non-base) funding awarded to support current research projects on fruit waste disinfestation. Collaboration with Dr. Yee Wee, USDA-ARS, Wapato WA. (\$15,000).
- 2019 – Plant Protection Act Section 7721, Project 6.0194. Characterization of BMSB establishment in Florida to support biological control and mitigation (\$145,424).
- 2018 – Southern IPM Center Enhancement Grants. Foundational research for the development of IPM in Florida's subtropical peach industry (\$39,414).
- 2018 – UF Natural Area Teaching Lab Minigrant. Non-Crop hosts of agriculturally important organisms in the Natural Area Teaching Lab. (\$390.00).

2017 – USDA Farm Bill Section 10007, Project 1S.0195.00, A Survey of Hemipteran Cat - Facing Insects and Plum Pox Virus in Florida's Emerging "Low -Chill" Peach Industry (\$45,423).

Awards and Honors

2018 – Florida Fertilizer and Agrichemical Association Scholarship awarded by the University of Florida College of Agriculture and Life Sciences

2018 – First Place, Linnaean Games. Meeting of the Southeastern Branch of the Entomological Society of America. Orlando, FL.

2018 – Second Place, Graduate 10-min Oral Presentations: Teaching, Extension and Outreach. Meeting of the Southeastern Branch of the Entomological Society of America. Orlando, FL.

2017 – Second Place, Graduate 10-min Oral Presentations: P-IE, IPM, Horticulture. Meeting of the Entomological Society of America. Denver CO.

2017 – First Place, PhD Oral Presentations, 100th Meeting of the Florida Entomological Society. San Juan, Puerto Rico.

2017 – A.S. Herlong Graduate Scholarship awarded by the University of Florida College of Agriculture and Life Sciences

2017 – Florida Entomological Society Graduate Student Scholarship

2017 – UF Graduate Student Travel Scholarship

2017 – First Place – Linnaean Games, Meeting of the Southeastern Branch of the Entomological Society of America. Memphis, TN.

2016 – Second Place – PhD Oral Presentations, Meeting of the Southeastern Branch of the Entomological Society of America. Raleigh, NC.

2016 – Second Place, Linnaean Games. Meeting of the Entomological Society of America. Minneapolis, Minn.

Professional Associations

Entomological Society of America