

James E. Hayden Jr., Ph.D.

Florida Department of Agriculture and Consumer Services, Division of Plant Industry
1911 SW 34th St., Gainesville, FL 32608 / 127 McGuire Hall, 3215 Hull Road, Gainesville, FL 32611
(352) 273-2003, james.hayden@fdacs.gov

OCCUPATION Research Scientist I, Florida Department of Agriculture and Consumer Services, Division of Plant Industry; Curator of Lepidoptera, Florida State Collection of Arthropods
March 2011 – present

EDUCATION

Ph.D. Entomology February 2010
Field of Entomology, Cornell University, Ithaca, NY. Advisor: Prof. J.K. Liebherr
Dissertation: *Phylogenetic Classification of the eurhypsine Odontiinae and Revision of the Major Neotropical Genera (Lepidoptera: Crambidae).*

B.S. Environmental Biology February 2004
Columbia University, School of General Studies, New York, NY. Magna Cum Laude.

Assoc. of Arts General Studies
Deep Springs College, Deep Springs, CA June 1999

EXPERTISE & INTERESTS

Systematic entomology: Pyraloidea (Lepidoptera): generic revisions, phylogenetic analysis, identification tools and keys
Methodology of phylogenetic systematics
Lepidoptera, especially endemic, adventive, and economically important taxa

PROFESSIONAL DUTIES

1. Expert & timely sample identification for regulatory purposes. Evaluated on percentage ability.
2. Attend meetings & workshops, conduct outreach, and publish on job-related subjects, to educate ourselves & public. Evaluated on quantity.
3. Section Duties. Curate collection; keep literature, records, equipment, etc. safe and in order; help visitors. Evaluated on timeliness and initiative to do tasks. Three particular Bureau Duties:
2013–present Permits Coordinator for ENPP Entomology Section
2017–2018 Entomology Database Manager, interim
2011–present Liaison to McGuire Center and FLMNH
4. Special requests. Evaluated on willingness.

RESEARCH EXPERIENCE

2/2010–3/2011 **Rea Postdoctoral Fellow**, Carnegie Museum of Natural History, Pittsburgh, PA
Research on Pyraloidea systematics

6–12/2006 & '07 **Research Assistant**, CUIC
Curate Pyraloidea and quadrifine Noctuoidea, data entry

9/2004–present **Dissection and imaging** of Lepidoptera internal structures: 7,117 dissection slides to date

9–12/04, 9–12/05 **Research Assistant**, J.K. Liebherr
Dissections and photomicrography of Carabidae

6–8/2004 & '05 **Research Assistant**, Cornell U. Insect Collection
Accession type specimens of J.G. Franclemont; organize collections, Index Franclemont Library; organize Pyraloidea slide collection

2–5/2004 **Research Assistant**, USDA Agric. Res. Service, Beneficial Insects Introduction Research Unit, 501 S. Chapel St., Newark, DE. *Supervisor:* Dr. Paul Schaefer

6–8/2003 **Research Experiences for Undergraduates Intern (NSF)**, Center for Biodiversity and Conservation, American Museum of Natural History. ScarabNet. *Supervisor:* Dr. S. Spector

6–12/2002 **Thesis research**, Columbia U. Center for Environmental Research & Conservation (CERC). *Species Composition of Moths in Three Maine Habitats: Salt Marsh, Pine Barren, and Mixed Forest.* Research mentor, Dr. D. Grimaldi; thesis advisor, Dr. W. Hahn

COLLECTIONS VISITED

5/2022 The Natural History Museum (British Museum)

1/2021, 3/2022 Stuttgart Naturkundemuseum (SMNS)
 5/2019 National Museum of Natural History (USNM)
 7/2018 Canadian National Collection (Ottawa)
 4/2018 Carnegie Museum of Natural History
 5/2014, 7/2017 Mississippi Entomological Museum, Starkville, MS
 2/2014 Archbold Biological Research Station collection, Lake Placid, FL
 9/2009 V.O. Becker Collection, Serra Bonita, Camacan, BA, Brazil
 6–7/2008 Europe: BMNH, MHNG, MNHN, OUMNH, RMCA, RMNH, SNSD, ZMHB, ZSM
 5/2008 Strickland Coll., U. Alberta, Canada
 3/2008 Museum of Comparative Zoology (Cambridge MA); Peabody Mus. of Nat. Hist. (New Haven CT)
 12/2007 NHM Los Angeles, San Diego NHM
 6/2007 Academy of Natural Sciences (Philadelphia)
 5/2007 New York State Museum (Albany)
 1/2007 McGuire Center for Lepidoptera and Biodiversity / Dept. of Plant Industry, Gainesville, FL.
 6/2006 Canadian National Collection (Ottawa)
 3/2006 The Natural History Museum (British Museum)
 7/2004–11/09 National Museum of Natural History (Washington, DC)
 1/2005–10/09 Carnegie Museum of Natural History
 2004; 3/2007 American Museum of Natural History

PRESENTATIONS and PROFESSIONAL CONFERENCES

6/2022 A new *Mimorista* species in Florida and cladistics of Nomophilini (Lepidoptera: Crambidae). Florida Entomological Society annual meeting.
 9/2021 “What I did this summer” 10-minute talk for Emmel Seminar, McGuire Center
 8/2021 The relationships of some more aberrant pyralids. Lepidopterists’ Society / Southern Lep. Soc. / Assoc. Trop. Lep. / Soc. Europ. Lep. joint annual meeting (remote). 12-min. talk.
 6/2021 Casuso, N. and J. Hayden. Understanding permits for organisms regulated by DPI. FDACS AgScience Café. Hour-long talk.
 4/2021 Big, weird pyralids. Center for Systematic Entomology annual meeting (remote). 15-min. talk.
 7/2018 The tribal classification of Spilomelinae (Pyraloidea: Crambidae): implications for the New World fauna. The Lepidopterists’ Society Meeting, Ottawa, Ontario
 7/2018 Three gelechioid pests in Florida. North American Microlepidopterists’ Meeting, Ottawa, Ontario
 3/2018 Phylogenetic systematics of Spilomelinae & Pyraustinae. McGuire Ctr., Gainesville, FL
 10/2017 Micro matters. McGuire Center Seminar, Gainesville, FL
 8/2017 Precision in "predicting" missing data. Willi Hennig Society XXXVI Meeting, St. Petersburg, FL, USA, 30 August 2017.
 9/2016 Hayden, J.E. and M.A. DaCosta. Phylogenetic prediction: analytical considerations. Poster at XXV International Congress of Entomology, Orlando, FL, USA, 30 September 2016.
 1/2015 Systematics and bionomics of Mexican rice borer, *Eoreuma loftini* (Dyar). McGuire Center Seminar, Gainesville, FL.
 9-10/2015 “*Diaphania*” *costata* (F.), a misidentified pest of Apocynaceae in the Southeastern United States. Poster at XIXth European Congress of Lepidopterology, Dresden, Germany.
 11/2014 Systematics of Haimbachiini with focus on *Eoreuma* Ely. Entomological Society of America, Portland, Oregon.
 5/2014 "Aquatic Pyraloidea." Florida Association of Benthologists semiannual workshop, Gainesville, FL
 7/2013 Review of the *Leucinodes* group (Pyraloidea: Crambidae: Spilomelinae). Lepidopterists' Society annual meeting, Gainesville, FL
 9/2012 Microlepidoptera on Solanaceae: an on-line resource. Southern Lep. Soc. & Assoc. Trop. Lepid. meeting, Gainesville, FL.
 7/2012 Larvae of *Penestola* and *Sufetula* in Florida (Crambidae). Lepid. Soc. and Soc. Eur. Lepid. Joint meeting, Denver, CO.
 11/2011 Hayden, J.E. Systematics of the European Pepper Moth, *Duponchelia* Zeller (Lepidoptera: Crambidae: Spilomelinae). Poster at Entomological Society of America 59th annual meeting, Reno, NV, 15 November 2011.
 12/2010 Hayden, J.E. Phylogenetically relevant characters of Crambidae (Lepidoptera). Entomological Society of America 58th annual meeting, San Diego, CA. 14 December 2010.

- 5/2010 Morphological and ecological diversity of Pyraloidea, the "middle kingdom" of moths. R.W. Moriarty Science Seminar, Carnegie MNH.
- 12/2009 Entomological Society of America Conference, Indianapolis, IN. 10-min. talk: "Revision of *Cliniodes* (Lepidoptera: Crambidae): cloud-forest endemics and stridulatory courtship."
- 11/2008 Entomological Society of America Conference, Reno, NV. 10-min. talk: "Toward a revision of *Cliniodes* Guenée (Lepidoptera: Crambidae)." Available at <http://esa.confex.com/esa/2008/webprogram/Paper35688.html>
- 5/2008 Symposium "Tree Thinking at Cornell," Cornell Univ. Lab of Ornithology. Poster: *A Theoretical Key Based on Phylogenetic "Uncertainty."*
- 12/2007 Entomological Society of America Conference, San Diego, CA. Poster session, competition for President's Award. *Phylogenetic analysis of the Eurrhyni (Lepidoptera: Crambidae), with special reference to the male stridulatory apparatus.*
- 8/2005 Lepidopterists' Society annual meeting, Sierra Vista, AZ
- 4/2004 Northeast Ecology and Evolution Conference, U. Connecticut, Storrs, CT
- 8/2003 *ScarabNet: Interactive Identification Services for Systematics, Ecology and Conservation.* Powerpoint presentation, AMNH 15th annual REU Symposium
- 7/2003 Willi Hennig Society 22nd conference, NYBG
- 4/2003 Northeast Ecology and Evolution Conference, Inaugural Meeting, Rutgers U., NJ
Poster: *Species Composition of Moths in Three Maine Habitats*
- 7/2002 Lepidopterists' Society annual meeting, College of Charleston, SC
- 5-6/2002 Assembling the Tree of Life, symposium on phylogenetic systematics, AMNH

PUBLICATIONS

Peer-reviewed

- Hayden, J.E. 2009a. Taxonomic revision of Neotropical *Dicepolia* Snellen (Lepidoptera: Crambidae). *Zootaxa* 2237:1–33.
- Hayden, J.E. 2009b. A new genus of Caribbean Odontiinae with Palaeotropical Affinities (Lepidoptera: Crambidae). *Journal of the Lepidopterists' Society* 63(4):185–208.
- Hayden, J.E. 2010. Phylogeny, distribution, and description of a Caribbean species of *Dicepolia* (Lepidoptera: Crambidae). *Tropical Lepidoptera Research* 20(2):77–84.
- Hayden, J.E. 2011. Revision of *Cliniodes* Guenée (Lepidoptera: Crambidae: Odontiinae). *Annals of Carnegie Museum* 79(4):231–347.
- Hayden, J.E. 2012. Revision of *Odilla noralis* Schaus and transfer of Erupini to Midilinae. *Annals of Carnegie Museum* 80(4): 309–322.
- Hayden, J.E. 2012. First U.S. records of *Amorbia concavana* (Zeller) (Lepidoptera: Tortricidae). *Insecta Mundi* 0271:1–4. Available at http://centerforsystematicentomology.org/default.asp?action=show_pubs&id=insecta_new
- Hayden, J.E. 2013. *Sufetula* Walker in Florida (Lepidoptera: Crambidae). *Insecta Mundi* 0296:1–15. Available at http://centerforsystematicentomology.org/default.asp?action=show_pubs&id=insecta_new
- Hayden, J.E. 2019 [2018]. The palm leaf skeletonizer situation in Florida. *Southern Lepidopterists' News* 40(4): 275–281.
- Hayden, J.E. 2020. Monophyletic classification and information content. *Cladistics* (Early View): 1–13. DOI: 10.1111/cla.12410
- Hayden, J.E. 2020. A new *Laniifera* species from the Dominican Republic (Lepidoptera: Crambidae). *Annals of Carnegie Museum* 86(1): 37–42. [issued 31 March 2020]
- Hayden, J.E. 2020 (December). *Hyalorista exuvialis* (Guenée) in Florida. *Southern Lepidopterists' News* 42(4): 327–328.
- Hayden, J.E. 2021. Two new species of palm-leaf skeletonizers (Lepidoptera: Pterolonchidae: *Homaledra* Busck). *Insecta Mundi* 0859: 1–24. [issued 26 March 2021]

- Hayden, J.E., L.J. Buss, K.E. Schnepf and L. Xiao. 2017. First reports of non-phytophagous Nearctic chrysaugine moths (Lepidoptera: Pyralidae). *Insecta Mundi* 553:1–8.
- Hayden, J.E. and T.S. Dickel. 2014. New North American records of Pyraloidea (Lepidoptera: Crambidae, Pyralidae) from southern Florida. *Insecta Mundi* 0361: 1–16.
http://centerforsystematicentomology.org/insectamundi/PDF-download.asp?FileName=0361_HaydenandDickel_2014.pdf
- Hayden, J.E. and T.S. Dickel. 2015. A new *Antaeotricha* species from Florida sandhills and scrub (Lepidoptera, Depressariidae, Stenomatinae). *ZooKeys* 533: 133–150. doi: 10.3897/zookeys.533.6004
<https://zookeys.pensoft.net/article/6004/>
- Hayden, J.E., E.R. Hoebeke, M.A. Bertone, and V.A. Brou, Jr. 2017. *Diaphania costata* (F.) (Lepidoptera: Crambidae: Spilomelinae), a Commonly Misidentified Pest of Ornamental Apocynaceae in the Southern United States. *Proceedings of the Entomological Society of Washington* 119(2): 173-190.
<http://www.bioone.org/doi/full/10.4289/0013-8797.119.2.173>
- Hayden, J.E. and J.-F. Landry. 2020. *Arcola malloi* (Pastrana), the alligatorweed stemborer, a new synonym of *Macrorrhinia endonephele* (Hampson) (Lepidoptera: Pyralidae: Phycitinae). *Insecta Mundi* 0768: 1–25.
- Hayden, J.E., S. Lee, S.C. Passoa, J. Young, J.-F. Landry, V. Nazari, R. Mally, L.A. Somma, and K.M. Ahlmark. 2013. Digital Identification of Microlepidoptera on Solanaceae. USDA-APHIS-PPQ Identification Technology Program (ITP). Fort Collins, CO. <http://idtools.org/id/leps/micro/>
- Hayden, J.E., G.S. Wheeler & K. Dyer. 2019. Amended identification of *Oxydia* (Lepidoptera: Geometridae) on Brazilian peppertree. *Biocontrol Science and Technology* <https://doi.org/10.1080/09583157.2018.1562042>
- Landry, B., L. Roque-Albelo, and J.E. Hayden. 2011. A new genus and species of Spilomelinae (Lepidoptera, Pyralidae) from the Galapagos Islands, Ecuador. *Revue suisse de Zoologie* 118(4):639-649.
- Lee, G.-E. and J.E. Hayden. 2019. A new *Calliprora* species mining lead trees in Florida (Lepidoptera: Gelechiidae). *Zootaxa* 4555(3): 301–318. <https://doi.org/10.11646/zootaxa.4555.3.1>
- Lee, G.-E., J.E. Hayden and A. Kawahara. 2014. External egg morphology of the Hawaiian dancing moth, *Dryadula terpsichorella* (Lepidoptera: Tineidae). *Journal of Natural History* 48(15–16):969–974.
- Martinez, J.I, J.E. Hayden, J.B. Heppner, J.E. Peña, L. Xiao, and D. Carrillo. *Banisia argutula* (Lepidoptera: Thyrididae) is the dominant sapodilla borer in Southern Florida. *Florida Entomologist* 100(1):57–62. doi: <http://dx.doi.org/10.1653/024.100.0110>
- Mally, R., J.E. Hayden, C. Neinhuis, B.H. Jordal, and M. Nuss. 2019. The phylogenetic systematics of Spilomelinae and Pyraustinae (Lepidoptera: Pyraloidea: Crambidae) inferred from DNA and morphology. *Arthropod Systematics and Phylogeny* 77(1):141–204.
- Regier, J.C., C. Mitter, M.A. Solis, J.E. Hayden, B. Landry, M. Nuss, T.J. Simonsen, S.-H. Yen, A. Zwick, and M.P. Cummings. 2012. A molecular phylogeny for the pyraloid moths (Lepidoptera: Pyraloidea) and its implications for higher-level classification. *Systematic Entomology* 37:635–656.
- Solis, M.A., J.E. Hayden, F. Vargas Sanabria, F. Gonzalez, C. Sanabria Ujueta, and C.J. Gulbranson. A new species of *Sufetula* Walker (Lepidoptera: Crambidae) feeding on the roots of pineapple, *Ananas comosus* (L.) (Bromeliaceae), from Costa Rica. *Proceedings of the Entomological Society of Washington* 121(3):497–510.
- Steele Cabrera, S.R., J.E. Hayden, J.C. Daniels, J.M. Farnum, C.V. Covell, Jr., and M.J. Standridge. 2020. Legume-feeding Lepidoptera of the Florida Keys: potential competitors of an endangered lycaenid butterfly. *Florida Entomologist*. *Florida Entomologist* 103(3): 360–368. [29 Sept. 2020]

Non-refereed

- Covell, C. V. Jr. and J. E. Hayden. 2014. *Lineodes multisignalis* Herrich-Schäffer (Crambidae, Spilomelinae) - new to the U.S. *News of the Lepidopterists' Society* 56(3): 135–136.
- Hayden, J.E. 2003. Interactive Key to Eastern North American Scarabaeidae: www.discoverlife.org
- Hayden, J.E. 2008. Notes on *Metrea ostreonalis* Grote. *News of the Lepidopterists' Society* 50(1): 20-21.

Hayden, J.E. 2019. *Anatrachyntis simplex* (Walsingham) in Florida and Texas, with diagnostic notes (Lepidoptera: Cosmopterigidae). *Southern Lepidopterists' News* 41(3): 194–197.

Hayden, J.E. and L.J. Buss. 2020 [2019]. *Tinea translucens* Meyrick, the tropical casebearing clothes moth (Lepidoptera: Tineidae). *Southern Lepidopterists' News* 41(4): 279–281.

Hayden, J.E., P. Dennehy, and J. Vargo. 2011. *Pyrausta cardinalis*, a new continental record (Lepidoptera: Crambidae). *News of the Lepidopterists' Society* 53(2):58–59.

Hayden, J.E., H.A. Rohrer, and J. Brambila. 2019 [2018]. Collecting *Melanocinlis* (Cosmopterigidae) in Florida. *Southern Lepidopterists' News* 40(4): 271–272.

Hayden, J.E. and M.C. Minno. 2016. A persistent population of *Hodebertia testalis*, a milkweed leaf-tier, in Florida (Pyraloidea: Spilomelinae). *News of the Lepidopterists' Society* 58(4): 168–170, 186.

Hayden, J.E. and J. Troubridge. 2015. *Nacoleia charesalis* (Walker) spreading in Florida. *News of the Lepidopterists' Society* 57(1): 8–10.

Durden, L.A., J.T. Vargo, J.E. Hayden, J.R. Sloten, D.R. Tangren, and D.L. Matthews. 20xx. A moth bioblitz inventory for Rock Hill Preserve and Apalachee Wildlife Management Area in northwestern Florida. *Southern Lepidopterists' News*: check volume, pages.

Gray literature

Circulars:

Hayden, J.E. 2014. The Stained-glass Moth, *Samea ecclesialis* Guenée (Lepidoptera: Crambidae). FDACS Division of Plant Industry Entomology Circular 431: 1–5.

<http://www.freshfromflorida.com/content/download/39659/866504/ento431.pdf>

Hayden, J.E. 2017. *Prepona laertes* (Lepidoptera: Nymphalidae), an exotic butterfly. FDACS Division of Plant Industry Entomology Circular 434: 1–5.

http://www.freshfromflorida.com/content/download/76358/2212033/Entomology_Circular_-_Preona_laertes_-_an_exotic_butterfly1.pdf

Hayden, J.E. 2019. *Syngamia florella* (Stoll), the orange-spotted flower moth (Lepidoptera: Crambidae: Spilomelinae). FDACS Division of Plant Industry Entomology Circular 440: 1–4.

<https://www.fdacs.gov/ezs3download/download/83432/2473909/Media/Files/Plant-Industry-Files/Entomology-Circular/CIRCULAR-Syngamia-Florella-Stoll.pdf>

Hayden, J.E. and L. Buss. 2012 [2013]. Olive shootworm (*Palpita persimilis*) in Florida. FDACS-DPI Entomology Circular Number 426. 6 pp. <http://www.freshfromflorida.com/pi/enpp/ento/entcirc/ent426.pdf>

Tri-ology:

2011–present: Numerous paragraphs report new state and continental records for Lepidoptera:

<https://www.fdacs.gov/Divisions-Offices/Plant-Industry/Plant-Industry-Publications/Tri-ology>. For example:

Hayden, J.E. 2017. *Aristotelia* Hübner species, a gelechiid moth, a new Continental USA record. p. 7 in: Hodges, G. and P.J. Anderson (eds.). *Tri-ology* 56(1).

Hayden, J.E. 2017. *Eulepte* Hübner species, a crambid moth, a new Continental USA record. p. 7 in: Hodges, G. and P.J. Anderson (eds.). *Tri-ology* 56(1).

Hayden, J.E. 2017. *Siskiwitia* Hodges species, a cosmopterigid moth, a new Continental USA record. p. 9 in: Hodges, G. and P.J. Anderson (eds.). *Tri-ology* 56(1).

Hayden, J.E. 2017. *Tinea translucens* Meyrick, a tropical casemaking clothes moth, a Notable Find. p. 10 in: Hodges, G. and P.J. Anderson (eds.). *Tri-ology* 56(1).

Hayden, J.E. 2019. *Cycloplasis* sp., mosiera miner, a new Continental USA Record. pp. 3, 8 in: Hodges, G. and P.J. Anderson (eds.). *Tri-ology* 58(1).

- Hayden, J.E. 2019. *Nealyda* sp., a leafmining moth, a new Continental USA Record. p. 8 in: Hodges, G. and P.J. Anderson (eds.). Tri-ology 58(1).
- Hayden, J.E. 2019. *Mimorista* sp., a crambid moth miner, a new Florida State Record. p. 9 in: Hodges, G. and P.J. Anderson (eds.). Tri-ology 58(1).
- Hayden, J.E. 2019. *Monochroa* sp. cf. *cytisella*, a bracken-galling moth, a species new to science, found on *Pteridium aquilinum* (bracken fern). p. 9 in: Hodges, G. and P.J. Anderson (eds.). Tri-ology 58(2).
- Hayden, J.E. 2020. *Palpita freemanalis* Monroe [sic], a crambid moth, a new Florida State record. p. 8 in: Hodges, G. and P.J. Anderson (eds.). Tri-ology 58(4).
- Hayden, J.E. 2020. *Haplochrois* Meyrick sp., an elachistid moth, a new Florida State record. p. 8 in: Hodges, G. and P.J. Anderson (eds.). Tri-ology 59(1).
- Hayden, J.E. and M.R. Moore. 2022. *Leucoptera coffeella* (Guérin-Méneville & Perrottet), coffee leafminer, a new Continental USA record. Tri-ology 60(4).
- Landry, J.-F. and J.E. Hayden. 2021. *Symmetrischema pallidochrella* (Chambers), a gelechiid moth, a new Florida State record. p. 7, 8 in: Hodges, G. and P.J. Anderson (eds.). Tri-ology 60(1).

Pest alerts:

- Hayden, J.E. 2012. Mexican Rice Borer, *Eoreuma loftini* (Dyar) (Lepidoptera: Crambidae: Crambinae) in Florida. FDACS-DPI Pest Alert, 2 p. http://www.freshfromflorida.com/content/download/68337/1613991/Pest_Alert_-_Eoreuma_loftini_Mexican_Rice_Borer.pdf
- Hayden, J.E. 2015. *Helicoverpa armigera* (Lepidoptera: Noctuidae), the Old World Bollworm. FDACS-DPI Pest Alert, 2 p. <http://freshfromflorida.s3.amazonaws.com/Media%2FFiles%2FPlant-Industry-Files%2FPest-Alerts%2FPEST+ALERT+Helicoverpa+armigera-1.pdf>
- Hayden, J.E. 2016. *Prepona laertes* (Lepidoptera: Nymphalidae), an exotic butterfly. FDACS-DPI Pest Alert, 2 p. http://www.freshfromflorida.com/content/download/72906/1917983/Pest_Alert_-_Prepona_laertes_-_exotic_butterfly.pdf

FUNDED PROJECTS

9/2012–3/2014 PI: Digital Identification of Microlepidoptera on Solanaceous Plants (2012 Farm Bill). \$115,962

AWARDS

- | | |
|----------------|--|
| 1/2009 | Palmer Fellowship, CU Entomology (spring semester support) |
| 9/2008 | Griswold Endowment, Cornell Entomology; \$1,014 |
| 6/2008–6/2010 | NSF Doctoral Dissertation Improvement Grant; \$10,137, 2 years funding |
| 8/2007 | Rawlins Endowment, Cornell Entomology; \$800 |
| 12/2007 | CU Graduate School Travel Grant; \$425 |
| 8/2006–12/2008 | Telluride Association Scholarship: room & board, ca. \$3,100/semester |
| 4/2006 | Rawlins Travel Grant, \$800: collections research, British Museum of Natural History |
| 3/2005 | Rawlins Travel Grant, \$900: conference and collecting in SE Arizona |
| 9/2004–8/2005 | Cornell Entomology Recruitment Fellowship: ca. \$20,000 |

WORKSHOPS

- | | |
|---------|--|
| 10/2020 | Tomato Leaf Miner Diagnostic and Surveillance Training Course, Greater Caribbean Safeguarding Initiative. UF Entomology. Presentation “ <i>Tuta absoluta</i> and similar moths.” |
| 4/2016 | Old World Bollworm, <i>Helicoverpa armigera</i> Identification Training Session. UF Entomology. |
| 5/2014 | "Aquatic Pyraloidea." Florida Assoc. Benthologists 2014 Spring Workshop. UF Entomology. |
| 5/2008 | Histological dissection, staining and imaging, Dr. T. Simonsen, U. of Alberta (attendee) |
| 6/2006 | Lepidoptera Assembling the Tree of Life: DNA extraction and sequencing workshop, Prof. J. Regier, U. Maryland (attendee) |

FIELDWORK & SURVEYS

9/2022 **Werner-Boyce Salt Springs State Park**, Pasco Co., Florida
5/2022 **Central Florida**, DeLuca Preserve
6–7/2017 **Eastern CA & NV**
4/2017 **Rock Hill Preserve & Apalachee WMA**, Northern FL, Southern Lep. Soc. Field Trip
9/2016–2019 **Split Rock Conservation Area**, Gainesville, FL. Periodic survey of moth fauna.
2011–2016 **Goethe State Forest**, Levy Co. FL
7/2010 **Powdermill Nature Reserve**, Rector, Pennsylvania
8/2008 **Puerto Rico, Cordillera Central**: Lepidoptera
6–7/2007 **Maryland; West Virginia; Algonquin Prov. Park (Ontario); Michigan**: hostplants & larvae
4/2007–2009 **New York State**: general collecting, various habitats
8/2005 **SE Arizona**: Lepidoptera
5/2004 **Western USA**, various habitats (desert, montane, temperate rainforest): Lepidoptera
3/2003 **Veracruz State, Mx**, various habitats—vegetational transects, tree demography
6–8/2002 **Maine, USA**, forests and salt marsh—blacklighting. Basis for unpublished undergraduate thesis.
6/2002 **Great Smoky Mts. Nat. Park, TN/NC, USA**, Appalachian forest—blacklighting, GSMNP ATBI.