

Katja C. Seltmann, PhD

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University of California, Santa Barbara,

Katherine Esau Director, Cheadle Center for Biodiversity & Ecological Restoration

UCSB Researcher II

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Websites: <https://www.begoniasociety.org>, <https://www.ccber.ucsb.edu>, <https://big-bee.net>

Wikipedia: https://en.wikipedia.org/wiki/Irene_Moon

Current Position:

December 1, 2015 - present. **Researcher II & Katherine Esau Director, Cheadle Center for Biodiversity and Ecological Restoration, University of California, Santa Barbara.** As the Director of the Cheadle Center for Biodiversity and Ecological Restoration, I oversee three core research and program areas: natural history collections, environmental education, and ecological restoration at UC Santa Barbara. My background in biology and expertise in data science informs my research into biodiversity, with a focus on insects. As an entomologist, my research interests include insect conservation, evolution, and the intersection of insects and media arts.

Additional Affiliations:

Research Associate, Department of Invertebrate Zoology, Santa Barbara Museum of Natural History

Education:

2011 – 2013. **PhD. School of Biology, Department of Ecology, Faculty of Science and Informatics, University of Szeged.** Supervisors: Dr. Z. Péntzes (Dept. of Ecology, Univ. of Szeged), Dr. A.R. Deans (Dept. of Entomology, Pennsylvania State University).

Summa Cum Laude.

Dissertation: *Advancement in Hymenoptera Research through Anatomy Ontology Development.*

2002 - 2005. **MSc. University of Kentucky, Department of Entomology.** Supervisor: Dr. Michael Sharkey.

Thesis: *Development of interactive keys to the Hymenopteran families using D.E.L.T.A. (DEscription Language for Taxonomy).*

1993 - 1998. **BFA. University of Georgia.** Magna Cum Laude.

Including additional studies at North Carolina State University, Department of Zoology.

1995-1996. Ecole d'Art d'Aix en Provence, France. Guest student and artist's assistant in the Department of New Media.

Professional Positions:

December 2012 - October 2015. **Research Project Manager. American Museum of Natural History, Department of Invertebrate Zoology.** Plants, Herbivores, and Parasitoids: A Model System for the Study of Tri-Trophic Associations. Worked to maintain collaboration across 30+ varied natural history

collections in museums, botanical gardens, herbaria, and universities across the project. Designed a multi-trophic database for specimen data aggregation across institutions. Wrote the Darwin Core Archive publishing module software to extend the PHP/MySQL Arthropod Easy Capture (AEC) database. Developed a Darwin Core Archive extension to share robust species interaction data with the Integrated Digitized Biocollections (iDigBio) and Discover Life projects. Promoted the development of controlled vocabularies for species interactions and inclusion of species-level interaction terminology in the Relations Ontology. Performed research involving modeling multi-species predictive distributions of plant bugs and host associations derived from natural history collection data. Collaborated extensively with iDigBio, Encyclopedia of Life (EOL), Discover Life, OBO Foundry ontology, and TDWG biodiversity standards communities.

July 2009 - January 2012. **Research Project Manager. North Carolina State University, Department of Entomology.** Hymenoptera Anatomy Ontology Project.

Responsible for developing a domain-specific anatomy ontology and innovation of software directly supporting the Hymenoptera Anatomy Ontology (HAO) project. Researched the application of domain-specific terminology by biologists. Including fieldwork for Hymenoptera survey in North Carolina.

2006 - 2009. **OPS Assistant and Curator. School of Computational Sciences, Florida State University, Morphbank Project.** Dr. F. Ronquist and Dr. G. Riccardi. Project research leader with Morphbank <<http://www.morphbank.net>> biological image portal. Including field work in for Hymenoptera in Northern Florida.

2002 - 2006. **Graduate Research Assistant. University of Kentucky, Department of Entomology.** Tree of Life. Research in Hymenoptera systematics and evolution. Including field work in Kentucky and Appalachia.

March 1998 - January 2002. Research Assistant. University of Georgia, Department of Entomology. C. Wayne Berisford. Joe McHugh. Forest health, pest, and parasitoid inventory study in Georgia, USA. Investigated the use of plant semiochemicals in forest ecosystems.

May 1997 - 1999. Undergraduate Research Assistant. University of Georgia, Department of Entomology. Fecundity experiments to study the evolution of resistance in transgenic crop pests.

1989 - 1992. Undergraduate Research Assistant. North Carolina State University, Department of Entomology. Researched parasitoid interrelations with hosts on toxic plants in the presence of other natural enemies.

1987 - 1989. Summer Research Assistant. North Carolina State University, Department of Entomology.

Major Competitive Funding Received

- **\$3,099,333.** Awarded. National Science Foundation. *Collaborative Research: Digitization TCN: Extending Anthophila research through image and trait digitization (Big-Bee) [DBI: 2102006].* Principal Investigator: Lead PI: Katja Seltmann. 2021 to 2024

- **\$90,329.** Awarded. USDA - NCRS - Conservation Innovation Grant. *Automated wildlife monitoring: enabling producers to measure their conservation impacts [USDA-NIFA-SCRI-003562]*. Principal Investigators: Christopher Evelyn & Katja Seltmann. 2021 to 2024
- **\$123,931.** Awarded. USDA Natural Resources Conservation Service. *Benefits of downed wood - Developing cost-effective and transferable tools for assessing the benefit of downed wood to amphibian and reptile populations [NR209104XXXXG004]*. Principal Investigator: Katja Seltmann & Christopher Evelyn. 2020 to 2023
- **\$111,847.** Awarded. Institute of Museum and Library Services (IMLS) Museums for America. *Enhanced stewardship of the Seaweeds of the Pacific Coast of North America collection at UCSB [Award # MA-245711-OMS-20]*. Principal Investigator: Greg Wahlert & Katja Seltmann. 2020 to 2023
- **\$19,000.** Awarded. UC Associated Students. *The proof is in the pollen: Using pollen metabarcoding techniques to monitor*. Principal Investigators: Katja Seltmann, Michelle Lee. 03-06-2019 to 05-31-2021
- **\$17,632.** Awarded. UCSB Faculty Outreach Grant. *CCBER Junior Scientists – A Citizen Science Partnership Between Entomologists and 5th Grade Researchers*. Principal Investigators: Katja Seltmann & Janet Myers. 2020
- **\$29,023.** Awarded. National Science Foundation. *Collaborative Research: Digitization TCN: Digitizing collections to trace parasite-host associations and predict the spread of vector-borne disease [DEB:1841715]*. Principal Investigators: Katja Seltmann. 2019-2022
- **\$199,779.** Awarded. National Science Foundation. *EAGER: Does host specificity drive species diversification of fungal endophytes? [DEB:1841715]*. Principal Investigators: Ryoko Ono, Michelle O'Malley, Katja Seltmann. 2018 - 2020
- **\$49,884.** Awarded. California Coastal Conservancy. *Kids in Nature Explore the Coast (KIN)*. 2016 - 2018
- **\$255,844.** Awarded. National Science Foundation. *Digitization TCN: Collaborative: Capturing California's Flowers: using digital images to investigate historical and geographic phenological change in a biodiversity hotspot. [DBI:1759869]* Principal Investigators: Susan Mazer & Katja Seltmann. 2019 - 2023
- **\$225,498.** Awarded. Institute of Museum and Library Services (IMLS), Museums for America. Title: *Upgrade of the historical Wenner insect collection: Utilizing collection data in Restoration Ecology. [MA-30-16-0387-16]. 2016 - 2019*
- **\$1,411,508.** Awarded. NSF Advances in Biological Informatics. Title: *The Hymenoptera Ontology: part of a transformation in systematic and genome science [DBI-0850223]*. Awarded to: A. R. Deans (PI), listed as senior personnel. 2009-2012

Publications:

Refereed Journal Articles:

1. Ostwald, M.M., Thrift, C.N. & Seltmann, K.C. (2023). Phenotypic divergence in an island bee population: Applying geometric morphometrics to discriminate population-level variation in wing venation. **Ecology and Evolution**, 13(5), e10085. <https://doi.org/10.1002/ece3.10085>
2. Motta C.I., Hasenstab-Lehman K.E., Williams C.M., Mazer S.J., Wahlert G.A., Ferren W.R., Seltmann K.C. (*recommended for publication, Jan 2023*) Genome skimming of herbarium specimens

reveals phylogenetic trends among populations of an estuarine seablite (Chenopodiaceae: *Suaeda esteroa*). **Madroño**

3. Evelyn C.J., Woodman C., Frazer S., Foley C., Brightsmith D.J., Seltmann K.C. Animating the Dead: Creating Site Specific Synthetic Datasets to Train Machine Learning Models for Ecology and Conservation. **Scientific Reports**. <https://www.authorea.com/users/608968/articles/639400>
4. Luong J.C. Lefley K.R., Orozco C.F., Rodriguez Frausto C.A., Kim E.Y., Chung C.L., Rios J.V., Lao B. & Seltmann K.C. (*recommended for publication, Dec 2022*) Conservation of remnant grasslands can help provide refuge for native coccinellids. **Ecological Entomology**
5. Baskauf S.J., Girón Duque J.C., Nielsen M., Cobb N.S., Singer R., Seltmann K.C., Kachian Z., Pérez M., Agosti D., Klompen A.M.L. (2023) Implementation Experience Report for Controlled Vocabularies Used with the Audubon Core Terms subjectPart and subjectOrientation. **Biodiversity Information Science and Standards** 7: e94188. <https://doi.org/10.3897/biss.7.94188>
6. Motta C., Luong, J.C. and Seltmann, K.C. (2022). Plant–arthropod interactions of an endangered California lupine **Ecology and Evolution**, 12 (3) e8688
7. Mikó, I., Masner, L., Ulmer, J.M., Raymond, M., Hobbie, J., Tarasov, S., Margaría, C.B., Seltmann, K.C. and Talamas, E.J. (2021). A semantically enriched taxonomic revision of Gryonoides Dodd, 1920 (Hymenoptera, Scelionidae), with a review of the hosts of Teleasinae. **Journal of Hymenoptera Research**, 87, 523-573. doi.org/10.3897/jhr.87.72931
8. Hulcr J., Barnes I., De Beer Z.W., Duong T.A., Gazis R., Johnson, A.J., Jusino, M.A., Kasson, M.T., Li, Y., Lynch, S., Mayers, C., Musvuugwa, T., Roets, F., Seltmann, K.C., Six, D., Vanderpool, D., and Villari C. (2020). Bark beetle mycobiome: Collaboratively defined research priorities on a widespread insect-fungus symbiosis **Symbiosis**, 81(2), pp101-113
9. Pearson K.D., Yost J.M., Alexander J., Gilbert E., Hains L.A., Barry T., Bencie R., Bowler P., Carter B., Crowe R.E., Ellen D., Der J., Fisher A., Fisher K., Flores-Renteria L., Guilliams C.M., Hatfield C., Hendrickson L., Huggins T., Janeway L., Lay C., Litt A., Markos S., Mazer S.J., McCamish D., McDade L., Mesler M., Mishler B., Nazaire M, Rebman J., Rosengreen L., Rundel P.W., Potter D., Sanders A., Seltmann K.C., Simpson M.G., Waselkov K., Wahlert G.A., Williams K., Wilson P.S. (2020). The California Phenology Collections Network: using digital images to investigate phenological change in a biodiversity hotspot. **Madroño**. 66(4): 130-141. [doi:10.3120/0024-9637-66.4.130](https://doi.org/10.3120/0024-9637-66.4.130)
10. Lendemer, J., Thiers, B., Monfils, A.K., Zaspel, J., Ellwood, E. R., Bentley, A., LeVan, K., Bates, J., Jennings, D., Contreras, D., Lagomarsino, L., Mabee, P., Ford, L.S., Guralnick, R., Gropp, R. E., Revelez, M., Cobb, N., Seltmann, K.C., Aime, M. C. (2020). The Extended Specimen Network: A Strategy to Enhance US Biodiversity Collections, Promote Research and Education [published correction appears in *Bioscience*. Feb 1;70(2):195]. **Bioscience**. 2020;70(1):23-30. [doi:10.1093/biosci/biz140](https://doi.org/10.1093/biosci/biz140)
11. Stucky, B., K.C. Seltmann et. al. (2019). Developing a vocabulary and ontology for modeling insect natural history data: example data, use cases, and competency questions., **Biodiversity Data Journal** 7, e33303. [doi:10.3897/BDJ.7.e33303](https://doi.org/10.3897/BDJ.7.e33303)
12. Luong, J. C., Turner, P. L., Phillipson, C. N., and Seltmann, K. C. (2019). Local grassland restoration affects insect communities. **Ecological Entomology**. [doi:10.1111/een.12721](https://doi.org/10.1111/een.12721)
13. Seltmann, K.C., Lafia, S., Paul, D., James, S., Bloom, D., Rios, N., Ellis, S., Farrell, U., Utrup, J., Yost, M. and Davis, E. 2018. Georeferencing for Research Use (GRU): An integrated geospatial training paradigm for biocollections researchers and data providers. **Research Ideas and Outcomes** 4, e32449.

14. Seltmann, K.C., Cobb, N.S., Gall, L.F., Bartlett, C.F., Basham, M.A., et al. (2017). LepNet: The Lepidoptera of North America Network. **Zootaxa** 4247(1), 73-77. 10.11646/zootaxa.4247.1.10
15. Weirauch, C., Seltmann, K.C., Schuh, R., Schwartz, M., Johnson, C., Feist, M-A, and Soltis, P. (2016). Areas of endemism in the Nearctic: a case study of 1,339 species of Miridae (Insecta: Hemiptera) and their plant hosts. **Cladistics**. doi:10.1111/cla.12169
16. Ellwood, E.R., Dunckel, B., Flemons, P., Guralnick, R., Nelson, G., Newman, G., Newman, S., Paul, D., Riccardi, G., Rios, N., Seltmann, K.C., Mast, A.R. Accelerating Digitization of Biodiversity Research Specimens through Online Public Participation. (2015). **BioScience**. 65(3). doi: 10.1093/biosci/biv005
17. Deans A.R., Lewis S.E., Huala E., Seltmann, K.C., et al. (2015). Finding our way through phenotypes. **PLoS Biology** (1), e1002033. doi: 10.1371/journal.pbio.1002033
18. Wright, C.M. & Seltmann, K.C. (2014). Color representation of blue flowers by Encyclopedia of Life content providers. **Biodiversity Data Journal**, e1143. doi: 10.3897/BDJ.2.e1143
19. Popovici O., Mikó I., Seltmann K.C., and Deans A.R. (2014). The maxillo-labial complex of Sparasion (Hymenoptera, Platygastroidea). **Journal of Hymenoptera Research** 37:77-111. doi: 10.3897/jhr.37.5206
20. Fulop D., Mikó, I., Seltmann, K.C., Péntzes, Z., and Melika, G. (2013). The description of *Alloxysta chinensis*, a new Charipinae species from China (Hymenoptera, Figitidae). **ZooTaxa** 3637 (3), 394–400.
21. Seltmann, K.C., Péntzes Z., Yoder M.J., Bertone M.A., Deans A.R. (2013). Utilizing Descriptive Statements from the Biodiversity Heritage Library to Expand the Hymenoptera Anatomy Ontology. **PLoS ONE** 8 (2), e55674. doi:10.1371/journal.pone.0055674
22. Bertone, M.A., Mikó I., Yoder M.J., Seltmann K.C., and Deans A.R. (2013). Matching arthropod anatomy ontologies to the Hymenoptera Anatomy Ontology: Results from a manual alignment. **Database: The Journal of Biological Databases and Curation**. Oxford University Press. doi:10.1093/database/bas057
23. Seltmann K.C., Yoder M.J., Mikó I., Forshage M., Bertone M.A., Agosti D., Austin A.D., Balhoff J.P., Borowiec M.L., Brady S.G., Broad G.R., Brothers D.J., Burks R.A., Buffington M.L., Campbell H.M., Dew K.J., Ernst A.E., Fernández-Triana J.L., Gates M.W., Gibson G., Jennings J.T., Johnson N.F., Karlsson D., Kawada R., Krogmann L., Kula R.R., Mullins P.L., Ohl M., Rasmussen C., Ronquist F., Schulmeister S., Sharkey M.J., Talamas E., Tucker E., Vilhelmsen L., Ward P.S., Wharton R.A., and Deans A.R. (2012). A hymenopterists' guide to the Hymenoptera Anatomy Ontology: utility, clarification, and future directions. **Journal of Hymenoptera Research** 27, 67-88. doi: 10.3897/jhr.27.2961
24. Bertone M.A., Blinn R.L., Dew K.J., Seltmann K.C., and Deans A.R. (2012). Results and insights from the NCSU Insect Museum GigaPan project. **ZooKeys** 115. doi: 10.3897/zookeys.209.3083
25. Mikó, I., Friedrich, F., Yoder, M.J., Hines, H.M., Deitz, L.L., Bertone, M.A., Seltmann, K.C., Wallace, M.S., and Deans, A.R. (2011). Multiple lines of evidence refute the presence of prothoracic wings in treehoppers (Hemiptera: Membracidae). **PLoS ONE** 7(1): e30137. doi:10.1371/journal.pone.0030137
26. Yoder M.J., Mikó I, Seltmann K.C., Bertone M.A., and Deans A.R. (2010). A Gross Anatomy Ontology for Hymenoptera. **PLoS ONE** 5(12): e15991. doi:10.1371/journal.pone.0015991
27. Lyubomir P., Sharkey M., Erwin T., van Noort S., Buffington M., Seltmann K.C., Johnson N., Taylor M., Thompson F.C., and Dallwitz M. (2009). Data publication and dissemination of interactive keys under the open access model. **ZooKeys** 21. <http://dx.doi.org/10.3897/zookeys.21.274>

28. Sharkey M.J., Yu D.S., van Noort S., Seltmann K.C., and Penev L. (2009). Revision of the Oriental genera of Agathidinae (Hymenoptera, Braconidae) with an emphasis on Thailand and interactive keys to genera published in three different formats. **ZooKeys** 21.
<http://dx.doi.org/10.3897/zookeys.21.271>
29. Seltmann, K. (2008). Digital Image Vouchering in Morphbank, Linking to Publications, and a Few Words about Sharing. **American Entomologist**, Volume 54, Number 4. <http://tinyurl.com/3d3xlay>
30. Seltmann, K.C. and Sharkey, M.J. (2007). A new genus and species of apterous Doryctinae (Hymenoptera: Braconidae) from Costa Rica. **Zootaxa** 1415: 17-24.
<http://www.mapress.com/zootaxa/2007f/zt01415p021.pdf>
31. Sullivan, B.T., Petterson E.M., Seltmann K.C., and Berisford C.W. (2000). Attraction of the Bark Beetle Parasitoid *Roptrocerus xylophagorum* to Host-Associated Olfactory Cues. **Environmental Entomology** 29(6): 1138-1151. doi:10.1603/0046-225X-29.6.1138
32. Sullivan, B.T., Seltmann K.C., and Berisford C.W. (1999). A Simple and Continuous Rearing Technique for the Bark Beetle Parasitoid, *Roptrocerus xylophagorum*. **Journal of Entomological Sciences** 34(2): 260-264.

Conference Proceedings and Published Meeting Abstracts:

33. Seltmann, K.C., Allen, J., Brown, B.V., Carper, A., Engel, M.S., Franz, N., Gilbert, E., Grinter, C., Gonzalez, V.H., Horsley, P. and Lee, S. (2021) Announcing Big-Bee: An initiative to promote understanding of bees through image and trait digitization Biodiversity Information Science and Standards, 5(e74037)
34. Seltmann K.C., Poelen J., Sullivan K., Zaspel J. (2020). Making Parasite-Host Associations Visible using Global Biotic Interactions. Biodiversity Information Science and Standards 4, e58985. doi.10.3897/biss.4.58985
35. Mikó I., Yoder M.J., Seltmann K.C., Bertone M.A., and Deans A.R. (2011). Multispecies anatomy ontology development requires a pluralist approach to label-class mapping. Proceedings of the International Conference on Biomedical Ontology.
36. Seltmann, K.C., Bertone M.A., Yoder M.J., Mikó I., Macleod E.S., Ernst A., and Deans A.R. (2010). Building the Hymenoptera Anatomy Ontology through Exploration of the Journal of Hymenoptera Research. 7th International Congress of Hymenopterists. Koszeg, Hungary.
37. Bertone, M.A., Mikó I., Yoder M.J., Seltmann K.C., and Deans A.R. (2010). Aligning insect anatomy ontologies: identifying congruence between Hymenoptera and Diptera. 7th International Congress of Hymenopterists. Koszeg, Hungary.
38. Yoder, M.J., Mikó I., Bertone M.A., Seltmann K.C., and Deans A.R. (2010). Four years later: the Hymenoptera Anatomy Ontology, an overview and call for participation. 7th International Congress of Hymenopterists. Koszeg, Hungary.
39. Mikó, I., Vilhelmsen L.B., Gibson G.A.P., Yoder M.J., Seltmann K.C., Bertone M.A., and Deans A.R. (2010). Towards a compendium of Hymenoptera muscles. 7th International Congress of Hymenopterists. Koszeg, Hungary.
40. Riccardi, G., Deans, A.R., Jammigumpula, N., Jörgensen, C., Jörgensein, P. Mast, A., Maneva-Jakimosika, K., Paul, D., Ronquist, F., Seltmann, K.C. and Winner S. (2007). Adding value to biodiversity images through community annotation. WWW 2007, Banff, Canada.

41. Prieto-Marquez, A., Erickson, G. M., Seltmann, K.C et al. (2007). Morphbank, an avenue to document and disseminate anatomical data: Phylogenetic and paleohistological test cases. *Journal of Morphology* 268: 1120.
42. Seltmann, K.C., Prieto-Marquez, A., Ronquist, F. et al. (2007). Image management for effective collaboration using presently existing web tools in Morphbank (www.morphbank.net). *Journal of Morphology* 268: 1132-1133.
43. Seltmann, K.C., F. Ronquist, G. A. Riccardi, A. Mast, N. Jammigumpula, K. Maneva-Jakimoska, S. Winner, D. Paul, A. Deans, C. Cprek, W. Blanco & D. Gaitros. (2007). Encouraging Users to Share Biodiversity Information. Biodiversity Information Standards (TDWG) Annual Conference, Bratislava, Slovakia.

Booklets and Governmental Policy:

44. Network Integrated Biocollections Alliance (NIBA) workshop to develop an Implementation Plan for the Network Integrated Biocollections Alliance. (2012). <http://www.spnhc.org/news/view/82>
45. Nowak, J.T., Fettig, C.J., McCravy, K.W., Asaro, C.S., Seltmann, K.C., Reardon, R.C. and Berisford, C.W. (2001). Guide to Common Natural Enemies of the Nantucket Pine Tip Moth. United States Forest Service, Forest Health Technology Enterprise Team.

Web Products and Software Development:

46. Hymenoptera Anatomy Consortium. Hymenoptera Anatomy Ontology Portal. Accessed on Aug 07 2013. <http://glossary.hymao.org>
47. Arthropod Easy Capture Specimen Database Software. Accessed on Nov 20, 2014. <http://sourceforge.net/projects/arthropodeasy>
48. Seltmann, K.C. and Gates, M. Online version of the Handbook to Nearctic Chalcidoidea by Grissell, E. E., and M. E. Schauff, 1990. Accessed on Aug 07 2013. <http://mx.speciesfile.org/projects/77/public/site/chalcidkey/home>
49. Deitz, L.L., Wallace, M.S., Seltmann, K.C., and Yoder, M.J. Treehoppers: Aetalionidae, Melizoderidae, and Membracidae (Hemiptera). Accessed in Aug 2013. <http://treehoppers.insectmuseum.org>
50. Yoder, M.J., Dole, K., Deans, A.R., and Seltmann, K.C. mx: biosystematics workbench. Accessed on May 15 2007. <<http://mx.phenomix.org>>
51. Morphbank Development Team. Morphbank. Accessed on May 15 2007. <http://www.morphbank.net>

Datasets:

52. Seltmann, K.C. (2022). Global Bee Interaction Data (v1.0.1) [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.6564738>
53. Seltmann, K.C, Dewey D., McLaren L., & Thrift, C.. (2022). Native and non-native bees (Anthophila) of Santa Cruz Island: An annotated checklist (0.03). Zenodo. <https://doi.org/10.5281/zenodo.7216845>
54. Cheadle Center for Biodiversity and Ecological Restoration, University of California Santa Barbara. (2021). UC Santa Barbara Invertebrate Zoology Collection (UCSB-IZC) Data Archive and Biodiversity Dataset Graph (0.1) [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.5557670>. Data publication that includes full UCSB Invertebrate Zoology Collection image corpus
55. Seltmann, K.C., Poelen, J.H., Engel, M., & Gonzalez, V.. (2022). Big Bee indexed biotic interactions and review summary (0.4.0) [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.6950082>

56. Poelen, J.H., Seltmann, K.C., & Campbell, M. (2020). Terrestrial Parasite Tracker indexed biotic interactions and review summary (Version 0.2) [Data set]. Zenodo.
<http://doi.org/10.5281/zenodo.3778773>
57. Sullivan, K., Seltmann, K., Poelen, J., and Zaspel, J.M. (2020, May). Making Parasite-Host Associations Visible in Terrestrial Parasite Tracker (TPT) (Version 0.0.1). Zenodo.
<http://doi.org/10.5281/zenodo.3780543>
58. Seltmann, K.C.. 2016. AOE analysis subset of the Arthropod Easy Capture (AEC) database. [Accessed: 06 Jan 2016]. figshare. doi: <https://dx.doi.org/10.6084/m9.figshare.2060979>
59. Seltmann, K.C.. 2016. AOE software for dataset creation. [Accessed: 06 Jan 2016]. zenodo. doi: <https://dx.doi.org/10.5281/zenodo.44387>
60. Bertone, M.A., Mikó I., Yoder M.J., Seltmann K.C., and Deans A.R. 2013. Matching arthropod anatomy ontologies to the Hymenoptera Anatomy Ontology: Results from a manual alignment. Database: The Journal of Biological Databases and Curation. Oxford University.
doi:10.5061/dryad.vq587
61. Seltmann, K.C., Péntes Z., Yoder M.J., Bertone M.A., Deans A.R. 2013. Utilizing Descriptive Statements from the Biodiversity Heritage Library to Expand the Hymenoptera Anatomy Ontology. *PLoS ONE* 8 (2), e55674. doi:10.5061/dryad.3g57k

Organized Workshops and Symposia

- October 2019. We Can('t) Get There From Here: Aligning Local to Global Efforts for Realizing a Biodiversity Data Commons. Biodiversity Next Meeting. Leiden, Netherlands. Co-organized with Deborah Paul (FSU, iDigBio) and Vince Smith (NHM)
- October 2016. Georeferencing for Research Use. National Center for Ecological Analysis and Synthesis, University of California Santa Barbara, CA, USA. Co-organized with Deborah Paul (FSU, iDigBio)
- September 2016. Building the Biodiversity Knowledge Graph for Insects - Components, Progress, Challenges. XXV International Congress of Entomology Symposium. Orlando, FL.
- February 2016. Establishing a Regional Natural History Collection and Data Network for South Central California. Online, University of California Santa Barbara, CA, USA.
- March 2014 - 2015. Developing a series of STEM education workshops (Data Carpentry) for biologists. Online, Gainesville, FL, & Phoenix, AZ, USA.
- October 2012. Entomological Collections Network Meeting. Austin, TX, USA.
- November 2011. Entomological Society of America Systematics, Evolution and Biodiversity Section Symposium. Title: [*illuminating the phenome: the future of morphology in entomology*](#). Reno, NV, USA.
- October 2010. Encyclopedia of Life Biodiversity Synthesis Group Meeting. Title: [*Integrating ontologies with biodiversity research: an example from Hymenoptera and the EOL*](#). Raleigh, NC, USA.
- May 2008. Morphbank. Title: [*Usability & Ontology Workshops*](#). Tallahassee, FL, USA.
- December 2007. Entomological Society of America Systematics, Evolution and Biodiversity Section Symposium. Title: [*From Field to Screen: Digital Imaging Technology in Entomology*](#). San Diego, CA, USA.

Teaching and Advising Experience:

- EEMB 96/ENVS 96 - Natural History Collections Skill Course, UCSB, Spring/Winter 2016-2023.

- **EEMB 118 - Entomology, UCSB, Summer 2016, 2018, 2020.**
- EEMB 84/184/197/199/597 - Internships in Biology, UCSB, 2016-2022.
- ENV5 199RA - Internships in Environmental Studies, UCSB, 2016-2022.
- PSTAT 197B - Capstone Project in Data Science, Fall/Spring 2021-2022.
- **English in the Field.** Biological research internships for humanities students. 2018.
- Software Carpentry - Introduction to R programming, UCSB, April 2016-2018.
- Mentor for over 21 data assistants and 5 volunteers/research interns, NSF Thematic Collections Network, American Museum Natural History. January 2011 - 2015.
- Invited artist, studio visit, and discussion with Sound Arts MFA students, Columbia University. November 2014. Invited by **Douglas Repetto**.
- Teacher for Richard Gilder Graduate School, Introductory Confocal Microscopy, with Dr. Eunsoo Kim. 2014.
- Teacher for **Richard Gilder Graduate School** independent study course, Introductory Programming for Biologists (Python/MySQL), with Dr. Susan Perkins. 2014.
- Data Carpentry Biological Informatics Instructor (R, SQL, data standards). September 2014
- Advisor for Chantal Marie Wright, **EOL Rubenstein Fellowship** recipient. March 2013 - July 2014.
- Advisor for Melissa Ross, Manhattan Theater Club, **Alfred P. Sloan Foundation** awardee. October 2012-2014.
- Co-advisor for NSF Research Experience for Undergraduates, American Museum of Natural History. June-August, 2013.
- Teacher at Hollingworth Summer Science Camp at Teacher College, Columbia University. July 2013. Elementary through Middle School.
- Co-teacher for the [short course in specimen-based research](#), American Museum of Natural History. May 2013.
- Teacher at Hollingworth Summer Science Camp at Teacher College, Columbia University. 2012. Girls, grades 5-7.
- Mentor for Babi Hammond, student of Jane Greenberg, Information and Library Science at the University of North Carolina at Chapel Hill. 2011.
- **Stockholm Biodiversity Informatics Symposium**, Swedish Museum of Natural History. *Using Morphbank for image management and seminar in basic database design*. December 2008.
- Beginning Web programming teaching assistant. Ruby on Rails for Information Science, with Dr. Greg Riccardi, Florida State University. 2007.

Select Art & Bio-div-science Endeavors:

- Author and composer of 40+ science-based musical recordings released on record, cd, and tape between 1996 - present.
- Performance. Scientifically Speaking with Irene Moon presents Lovely Moth. **2220 Arts + Archives**. Los Angeles, California. March 2022
- Performance. Scientifically Speaking with Irene Moon presents Lovely Moth. Cafe Oto. London, England. November 2021
- Performance. Scientifically Speaking with Irene Moon presents Lovely Moth. **Museum of Contemporary Art Santa Barbara** with Shana Moulton. July 2021
- Exhibition. audiosphere, Bad Auk presented at the **Museo Nacional Centro de Arte Reina Sofia** curated by Francisco López (Madrid, Spain). October 2020 - January 2021

- Performance. Scientifically Speaking with Irene Moon presents You the Charmer. **4th Annual Digital Data Conference**, Indiana University. June 2020
- Science Talk Radio Show. **KCSB 91.9fm Santa Barbara** (streaming kcsb.org). Title: *Unknown Territories*. January 2016-2020
- Performance. 2016. **San Francisco Electronic Music Festival**. Scientifically Speaking with Irene Moon (<http://www.sfemf.org/archive/sfemf-2016>)
- Invited lecture. **Royal College of Art**. Title: *Biological metamorphosis and transformation*. February 27, 2015.
- Performance. [Nerdnite Global Festival](#) with **Popular Science and the producers of Radiolab**. Title: *Itchy Itchy Scratch: Insects That Make Your Skin Crawl*. August 16-18, 2013. New York, NY. With Yon Visell.
- EcoHack3. Title: [Plant Bug Project Hack](#). November 2012. New York, NY.
- Invited speaker. Dorkbot. Title: [Scientifically Speaking](#). October 3, 2012. Curated by **Douglas Repetto**.
- Performance. Title: *My Queen and I: An introduction to the bees and their closest relatives*. Part of the Bee Symphony, Rymar Auditorium. December 2010. York, England. With **Chris Watson** and **Marcus Davidson**. Curated by Touch Radio.
- Performance. Title: *Entomology in Contemporary Art and Music*. North Carolina State University Department of Entomology. October 2010. Raleigh, NC.
- Performance. Entertaining Science at the Cornelia Street Cafe. Title: *What Is Beautiful?* Musical presentation with animated films about insects. March 11, 2012. With **David Rothenberg**.
- Radio series. Title: [Let's Talk Science](#). For A/V festival 12 and rebroadcast on WFMU radio. March 2014. New York, NY and Newcastle, England. Interview with **Chris Watson**. Curated by **Vicki Bennett** (People Like Us).
- Visiting Scientist/Artist. **Institute for Electronic Arts and the School of Art and Design. Alfred University**. February 2009. Alfred, NY.
- Radio series. Title: *Insect Corner*. Broadcast on **WFMU radio**. 2009. New York, NY. Curated by Vicki Bennett.
- Performance. Title: *An Evening of Film, Insects, Fables, and Electronic Microscopes*. April 2007. **Anthology Film Archive**. New York, NY.
- Performance. Title: *You, the Charmer* and *My Queen and I*. Musical presentation about insects for Art and Education symposium. March, 2006. **Ontario School of Art and Design**. Ontario, Canada.
- Performance. Title: *You, the Charmer; A musical lecture about cockroaches and pest control*. Musical presentation with animated films about insects. **Entomological Society of America Meeting** student banquet. December, 2005. Fort Lauderdale, FL.
- Performance & Group Exhibition. ART*^<! WORK. Re-imagined office cubicles. 8th Avenue, New York, NY. May 2005. With **LoVid, Douglas Repetto**, & others.
- Radio series. Title: *Entomelodical Moments*. Broadcast on WRFL 88.1 fm. Entomology graduate students are interviewed about research projects, University of Kentucky extension program. January 2004. Lexington, KY.
- Poster. Insect Art and Culture Symposium. Title: *NewWave Entomology and the Postmodern Lecture*. **Entomological Society of America Meeting**. November 2003. Cincinnati, OH.
- Radio performance. Title: *Parasitoid and Our Best Behavior*. Australian Radio National, **Other Worlds with Brent Clough**. October 2000.

- Performance & Group Exhibition. Title: *Educational Opportunity #29*. Here, Kitty, Kitty. Nexus Contemporary Arts Center. January 15 - February 26, 2000. With Nicole Eisenman, **Carolee Schneeman** & others.
- Solo exhibition. Title: *Moth vs. Mothman*. Live insects and video installation. Gallery Eyedrum, Atlanta, GA. August 1999
- Performance. Title: *I'll Be Seeing You Dreadful Creature*. **Knitting Factory**. September, 1998.
- Performance. "Pas L'Amour, mais de Films". Original showing of the "Insectavore" 16mm film buried with maggots to decompose image, **Gallery Roulette**, Marseille, France. May, 1996.

Select Presentations:

1. Seltmann K.C., Miller J.T. & Poelen J.H. Title: Global bee interaction database. November 2022. Entomological Society of America. Vancouver, BC, Canada.
2. Seltmann K.C. Extended thoughts about the extended specimen. September 2022. BioDigiCon. Virtual.
3. Seltmann K.C. Extending Anthophila research through image and trait digitization (Big-Bee). August 2022. sDevTrait - Streamlining Development Efforts in Tools for Ecological Trait Analyses Halle-Jena-Leipzig, Germany. Virtual.
4. Miller J.T. & Seltmann K.C. Bee species richness quantification and analysis in California's EPA-defined ecoregions. May 2022. Digital Data conference. Virtual.
5. Thrift, C.N. & Seltmann K.C. Identifying species and detecting population variation using geometric morphometrics in *Halictus* (Hymenoptera: Halictidae). November 2021. Entomological Society of America. Denver, CO, USA.
6. Seltmann K.C. 🐝 interacts with 🌻. June 2021. Digital Data conference. Florida Museum of Natural History, Gainesville, FL, USA
7. Paul, D.L., Seltmann K.C., Buttigieg P. & Alonso J. Standards bridge sciences, operations, and policy. June 2021. **United Nations Science Summit at United Nations General Assembly 77 (UNGA77)**. Finnish Embassy, New York, NY.
8. Seltmann K.C. Strengthening the Bioeconomy. December 2020. **American Institute of Biological Sciences Council Meeting**, Strengthening the Bioeconomy Guest Speaker. American Institute of Biological Sciences, Herndon, VA, USA
9. Seltmann K.C. & Paul D.L. Digitization and Biodiversity Data News: An Update From TDWG 2020, ADBC TCNs, and the International Community. November 2020. Entomological Collections Network. Virtual.
10. Stearns N., Seltmann K.C. & Mikó I. Skeletomuscular system of Andrenidae: The male genitalia of *Andrena* and *Calliopsis*. November 2020. Entomological Society of America. Virtual
11. Seltmann K.C. BID: A project to share biotic interaction and ecological trait data about bees (Hymenoptera: Anthophila). November 2020. Entomological Society of America. Virtual
12. Seltmann K.C. Making Parasite-Host Associations Visible using Global Biotic Interactions. September 2020. Biodiversity Information Standards (TDWG) meeting. Virtual
13. Seltmann, K.C. Title: *Understanding Biotic Interaction Data and Natural History Collections*. February 2020. iDigBio Terrestrial Parasite Tracker Workshop, Field Museum of Natural History, Chicago, IL.
14. Seltmann, K.C., and Poelen, J. Title: *Introduction to Global Biotic Interactions*. October 2019. iDigBio Summit Meeting, Gainesville, FL.

15. Seltmann, K.C. Title: *Georeferencing for research use - Exposing natural history data*. July 2019. Expert Meeting on Spatial Discovery III. Santa Barbara, CA
16. C. Motta, Guilliams M., Ferren W., Mazer S., Lehman K., Seltmann K.C. Title: *A phylogenetic analysis of a putative species radiation in the genus Suaeda (Chenopodiaceae) from the estuaries of northwestern Mexico*. July 2018. Botany Conference. Rochester, Minnesota
17. K.C. Seltmann. Title: *Restarting Entomology at UC Santa Barbara by Starting an Insect Collection*. May 2018. UC Riverside.
18. K.C. Seltmann. Title: *Natural history collections in support of conservation and ecological restoration*. August 2016. Ecological Society of America. Ft. Lauderdale, Florida.
19. Talia Karim, Misha Leong, Molly Phillips, Mari Roberts and Katja C. Seltmann. 2016. Title: *Insights from the Thematic Collections Networks and beyond on using digitized specimens for education and outreach*. September 2016. XXV International Congress of Entomology. Orlando, Florida.
20. Neil Cobb, Edward Gilbert, Nico Franz, Katja C. Seltmann. Title: *Arthropod collection digitization and networking across the new world*. September 2016. XXV International Congress of Entomology. Orlando, Florida.
21. K.C. Seltmann. 2016. Title: *Natural history collections in support of conservation and ecological restoration*. September 2016. XXV International Congress of Entomology. Orlando, Florida.
22. K.C. Seltmann. 2015. Title: [Derivative research from the Tri-Trophic Associations Thematic Collection Network project](#). Invited speaker. Using biodiversity specimen-based data to study global change. December 2015. Missouri Botanical Garden, St. Louis, MO.
23. Seltmann, K.C. 2015. Title: *Estimating the number of declining Hemiptera species based on host associations with red-listed plants*. Ecological Society of America. August 2015. Baltimore, MD.
24. N. Franz, N. Cobb and K.C. Seltmann. 2015. Title: [Digitization of arthropod diversity data: Progress, biases, and research readiness](#). Society for the Preservation of Natural History Collections. May 2015. Gainesville, FL.
25. A.T. Kramer, K.C. Seltmann, S. Still, N. Talkington, T.E. Wood. 2015. Title: [Using the past to inform future seed mixes for pollinator health](#). National Native Seed Conference. April 2015. Santa Fe, NM.
26. N. Cobb, K.C. Seltmann and N. Franz. 2014. Title: [The current state of arthropod biodiversity data: Addressing impacts of global change](#). Entomological Collections Network. November 2014. Portland, OR.
27. K.C. Seltmann and D. Paul. Title: [Recreating biomes one label at a time](#). Entomological Society of America. November 2014. Portland, OR.
28. K.C. Seltmann, R.F.C. Naczi, and C. Marshall. Title: *Plants, Herbivores, and Parasitoids: A Model System for the Study of Tri-trophic Associations*. Integrated Digitized Biocollections Summit. October 2014. Gainesville, FL.
29. K.C. Seltmann, C. Johnson, and R. Schuh. Title: *Interaction visualizations of North American red listed plant and phytophagous insect data assimilated from natural history collections*. Entomological Society of America. October 2013. Austin, TX.
30. R. Schuh, K.C. Seltmann, and C. Johnson. Title: *The structure of insect—plant host data as derived from museum collections: An analysis derived from the NSF-funded Tri-trophic Database Thematic Collections Network (TTD-TCN)*. Entomological Collections Network Meeting. October 2012. Austin, TX.
31. R.T. Schuh, R. Naczi, C. Weirauch, and K.C. Seltmann. Title: *NSF ADBC Digitization TCN-TTD: Plants, Herbivores, and Parasitoids: A Model System for the study of Tri-Trophic Associations, Ten months later*. **Invited speaker**. iDigBio Summit II. October 2013. Gainesville, FL.

32. K.C. Seltmann. Title: *iDigBio Paleocollections Workshop 2012: Tri-Trophic TCN*. **Invited speaker**. iDigBio Paleocollections Workshop. April 2012, Gainesville, FL.
33. K.C. Seltmann. Title: *Plants, Herbivores, and Parasitoids: A Model System for the study of Tri-Trophic Associations*. **Invited speaker**. iDigBio IT Standards Workshop. March 2012. Gainesville, FL.
34. A.R. Deans, M.J. Yoder, J.P. Balhoff, I. Mikó, K.C. Seltmann, and M.A. Bertone. Title: *Changing the way we describe biodiversity*. XXIV International Congress of Entomology. August 2012. Daegu, Korea.
35. K.C. Seltmann, B. Hammond, M.A. Bertone, A.R. Deans. Title: *GigaPan megapixel imaging and best practices for digitizing entomological collections*. Entomological Collections Network meeting. November 2011. Reno, NV.
36. A.R. Deans, K.C. Seltmann, M.A. Bertone, M.J. Yoder, and I. Mikó. Title: *New tools for deploying the Hymenoptera Anatomy Ontology*. International Society of Hymenopterists symposium, Entomological Society of America. November 2011. Reno, NV.
37. A.R. Deans, K.C. Seltmann, M.A. Bertone, I. Mikó, J.P. Balhoff, and M.J. Yoder. Title: *Changing the way we describe biodiversity*. Entomological Society of America. November 2011. Reno, NV.
38. K.C. Seltmann, B. Hammond, J. Greenberg, and A.R. Deans. Title: *What is the best way to digitize entomological collections? Preliminary results from an online survey*. Biodiversity Information Standards (TDWG) annual meeting. October 2011. New Orleans, LA.
39. M.J. Yoder, J.P. Balhoff, I. Mikó, K.C. Seltmann, and A.R. Deans. Title: *The final frontier of taxonomic standards - descriptive content*. Biodiversity Information Standards (TDWG) annual meeting. October 2011. New Orleans, LA.
40. I. Mikó, M.J. Yoder, M.A. Bertone, K.C. Seltmann, and A.R. Deans. Title: *Multi-species anatomy ontology development requires a pluralist approach to label-class mapping*. International Conference on Biomedical Ontology, University at Buffalo. July 2011. Buffalo, NY.
41. I. Mikó, K.C. Seltmann, M.A. Bertone, M.J. Yoder and A.R. Deans. Title: *Divorcing theory and datum: objectification of morphological data using anatomy ontologies*. 2nd International Conference of Invertebrate Morphology, Harvard University. June 2011. Cambridge, MA.
42. K.C. Seltmann, I. Mikó, M.J. Yoder, M.A. Bertone, and A.R. Deans. Title: *Illuminating the Hymenoptera Lexicon*. **Invited speaker**. Swedish Malaise Trap Project 3rd Hymenoptera Workshop. May 2011. Öland, Sweden.
43. K.C. Seltmann, and HAO Group. Title: *Anatomy Ontology for Revolutionary Taxonomy*. **Invited speaker**. University of North Carolina Digital Scholarship Group. April 2011. Chapel Hill, North Carolina.
44. M.J. Yoder, M.A. Bertone, K.C. Seltmann, I. Mikó, and A.R. Deans. Title: *Interfaces to the Hymenoptera Anatomy Ontology*. Entomological Society of America annual meeting. December 2010. San Diego, California.
45. M.A. Bertone, M.J. Yoder, K.C. Seltmann, I. Mikó, and A.R. Deans. Title: *Anatomy ontologies for Hymenoptera and other arthropods: status, development and alignment*. Entomological Society of America annual meeting. December 2010. San Diego, California.
46. A.R. Deans, M.J. Yoder, I. Mikó, K.C. Seltmann, and M.A. Bertone. Title: *The Hymenoptera Anatomy Ontology project: revelations and future directions*. Entomological Society of America annual meeting. December 2010. San Diego, California.

47. K.C. Seltmann, M.A. Bertone, M.J. Yoder, I. Mikó, E.S. Macleod, A. Ernst, and A.R. Deans. Title: *Building the Hymenoptera Anatomy Ontology through Exploration of the Journal of Hymenoptera Research*. 7th International Congress of Hymenopterists June 2010. Koszeg, Hungary.
48. K.C. Seltmann, M.J. Yoder, A.R. Deans, I. Mikó, and M.A. Bertone. Title: *Getting started with the Hymenoptera Anatomy Ontology*. European Biodiversity Informatics Workshop, Swedish Museum of Natural History. **Invited speaker**. September 2009. Stockholm, Sweden.
49. K.C. Seltmann, M.J. Yoder, K. Dole, A.R. Deans. Title: *mx: a collaborative web-based content management system for evolutionary systematists*. **Invited speaker**. European Biodiversity Informatics Workshop, Swedish Museum of Natural History. September 2009. Stockholm, Sweden.
50. G.A. Riccardi, A. Mast, F. Ronquist, N. Jammigumpula, K.C. Seltmann, K. Maneva-Jakimoska, S. Winner, D. Paul, and A.R. Deans. Title: *Illustrating relationships among images, specimens, taxa, ontologies and character matrices in the Morphbank image repository*. Biodiversity Information Standards (TDWG) Meeting. September 2007. Bratislava, Slovakia.
51. G.A. Riccardi, A. Mast, F. Ronquist, N. Jammigumpula, K.C. Seltmann, K. Maneva-Jakimoska, S. Winner, D. Paul, and A.R. Deans. Title: *Moving to fully distributed, interoperable repositories for biodiversity information*. Biodiversity Information Standards (TDWG) Meeting. September, 2007. Bratislava, Slovakia.
52. K.C. Seltmann, A.R. Deans, F. Ronquist, G.A. Riccardi, N. Jammigumpula, A. Mast, K. Maneva-Jakimoska, S. Winner, D. Paul, C. Cprek, W. Blanco, and D. Gaitros. Title: *New collaborative tools in Morphbank: image annotations, collections, Web linking and future developments*. **Invited speaker**. New York Botanical Gardens. April 2007. Bronx, NY.
53. K.C. Seltmann, A.R. Deans, F. Ronquist, G.A. Riccardi, N. Jammigumpula, A. Mast, K. Maneva-Jakimoska, S. Winner, D. Paul, C. Cprek, W. Blanco, and D. Gaitros. Title: *New collaborative tools in Morphbank: image annotations, collections, Web linking and future developments*. **Invited speaker**. American Museum of Natural History. April 2007. New York, NY.
54. K.C. Seltmann, F. Ronquist, A.R. Deans, G.A. Riccardi, N. Jammigumpula, A. Mast, K. Maneva-Jakimoska, S. Winner, D. Paul, W. Blanco, and D. Gaitros. Title: *New collaborative tools in MorphBank (www.morphbank.net): image annotations, collections, and developments*. **Invited speaker**. Partnerships for Enhancing Expertise in Taxonomy (PEET) meeting. March 2007. Athens, GA.
55. A.R. Deans and K.C. Seltmann. Title: *Morphbank and mx: Web-based tools for taxonomy*. The Field Museum. February 2007. Chicago, IL.
56. K.C. Seltmann, F. Ronquist, A.R. Deans, G.A. Riccardi, N. Jammigumpula, A. Mast, K. Maneva-Jakimoska, S. Winner, D. Paul, W. Blanco, and D. Gaitros. Title: *Introducing Morphbank (www.morphbank.net) a biological image database for research scientists*. **Invited speaker**. American Museum of Natural History. January 2007. Washington, DC.
57. K.C. Seltmann, F. Ronquist, A.R. Deans, G.A. Riccardi, N. Jammigumpula, A. Mast, K. Maneva-Jakimoska, S. Winner, D. Paul, W. Blanco, and D. Gaitros. Title: *New collaborative tools in Morphbank (www.morphbank.net): image annotations, collections, and future developments*. Entomological Collections Network Meeting. December 2006. Indianapolis, IN.
58. K.C. Seltmann and M.J. Sharkey. Title: *Building Interactive Keys to the Families of Hymenoptera*. University of Kentucky. October 2004. Lexington, KY.
59. K.C. Seltmann and M.J. Sharkey. Title: *Web based dissemination of materials for the Hymenoptera AToL*. International Society of Hymenopterists, Entomological Society of America Meeting. November, 2004. Salt Lake City, UT.

60. K.C. Seltmann. Title: *Imaging for keys, Photoshop techniques, and interactive keys for the AToL*. Hymenoptera Assembling the Tree of Life Meeting, Canadian National Collections. February, 2004. Ottawa, Canada.
61. K.C. Seltmann and M.J. Sharkey. Title: *Building an Interactive Key for the Hymenoptera*. Entomological Society of America Meeting. November, 2003. Cincinnati, OH.
62. K.C. Seltmann and M.J. Sharkey. Title: *Building a Pleasing Key to the Families of Hymenoptera*. Summer Symposium of the Center for Ecology, Evolution and Behavior. University of Kentucky. May, 2002. Lexington, KY.

Professional Affiliations and Working Groups:

- Entomological Society of America (since 2002)
- President, Systematics, Evolution and Ecology (SysEB) Governing Board, Entomological Society of America
- International Society of Hymenopterists (past **Executive Committee**, Webmaster and Archivist, member since 2010)
- Biodiversity Information Standards Working Group (since 2014)
- The Society for the Preservation of Natural History Collections (since 2016)
- Entomological Collections Network (past **President**, member 2011 - present)
- Reviewer for Zootaxa, Journal of Hymenoptera Research, Scientific Reports and Biodiversity Data Journal

Press & Books:

1. [Creating a Buzz](#). UCSB Current. 2021.
2. [Improving the efficiency of scientific research](#). Biodiversity Heritage Library Blog. 2013.
3. [Book](#). Performance Documentation. Alfred University. 2011
4. [Say from whence you owe this strange intelligence](#). Sound Projector magazine. 2010.
5. [Outsider music](#). Blastitude #25. 2007.
6. [A bug's life](#). Creative Loafing. 2001.

Online Collections:

1. [The films of Irene Moon and the Begonia Society](#). Ubuweb. 2007.
2. [Irene Moon](#). ArtFem.TV.
3. [Music of Irene Moon and the Begonia Society](#). Free Music Archive.