Nico M. Franz

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Research Interests

I am an evolutionary biologist and insect systematist who specializes in the megadiverse plant-feeding lineage of weevils (Coleoptera: Curculionoidea), estimated to include 220,000 species globally. My research program also focuses on developing innovative biocollections infrastructure and biodiversity data science services; including AI- and logic-enabled tools to integrate evolving systematic knowledge robustly, equitably, and at scale. At Arizona State University (ASU), I am the principal investigator of the National Ecological Observatory Network (NEON) Biorepository and the iDigBio Symbiota Support Hub, which sustains more than 1,900 collections and 90 million global occurrence records. I serve as Curator of Insects and direct the ASU Biocollections and Biodiversity Knowledge Integration Center (BioKIC).

Education

2003-2005	Mellon Foundation Postdoctoral Research Fellow, National Center for Ecological Analysis and Synthesis, University of California at Santa Barbara, CA.
1999-2005	Ph.D. in Systematic Entomology, Cornell University, NY.
1999	Graduate Research Fellow, Smithsonian Tropical Research Institute, Panama.
1996-1999	M.Sc. in Biology, University of Costa Rica, Costa Rica.
1996	Graduate studies in Systematic Botany and Ecology, University of Ulm, Germany.
1993-1996	Prediploma in Biology, University of Hamburg, Germany.
Languages	English, German, Spanish (fluent); French, Latin, Vietnamese (proficient).

Academic Appointments

2021-present	Virginia M. Ullman Professor of Ecology, School of Life Sciences (SoLS), ASU.
2021-present	Co-Leader of the Genomics, Evolution and Bioinformatics Faculty Group, SoLS, ASU.
2019-present	Director of Biocollections, School of Life Sciences, ASU.
2017-2021	Professor, School of Life Sciences, ASU.
2015-present	Director of the Biodiversity Knowledge Integration Center (BioKIC), SoLS, ASU.
2012-2018	Lead Coordinator of Natural History Collections, SoLS, ASU.
2011-present	Curator of Insects, School of Life Sciences, ASU.
2011-2017	Associate Professor, School of Life Sciences, ASU.
2008-2011	Director of Invertebrate Collections, Department of Biology, University of Puerto Rico at Mayagüez (UPRM), Puerto Rico.

2006-2011	Curator of Entomology, Department of Biology, UPRM.
2006-2011	Assistant Professor, Department of Biology, UPRM.

AWARDS AND HONORS

2014	Systematics and Biodiversity Editorial Board: Outstanding Paper for 2013 Award.
2014	Global Biodiversity Information Facility U.S. Delegation: Ebbe Nielsen Prize Nomination.
2007	The Coleopterists Society: Jean Theodore Lacordaire Prize, Best Published Paper Based Upon a Doctoral Dissertation.
2004	National Science Foundation, Entomological Society of America Competition: XII International Congress of Entomology Travel Grant.
2003-2005	Andrew W. Mellon Foundation Postdoctoral Training Fellowship: Research in Information Technology for the Science Environment for Ecological Knowledge Project (SEEK).
1999-2000	German National Merit Fund: Doctoral Student Scholarship.
1999	Smithsonian Tropical Research Institute (STRI): Short-Term Research Fellowship.
1998	Organization for Tropical Studies (OTS): Research Fellowship (La Selva).
1997	University of Costa Rica Graduate School: Best Grade Point Average in Basic Sciences.
1996-1998	German National Merit Fund: Graduate Student Fellowship.
1996-1997	German Academic Exchange Service: Integrated Foreign Studies Scholarship.

SELECT RESEARCH GRANTS

I. CURRENT

NSF DBI 1724433 / Battelle Memorial Institute **Aug 2018 - Oct 2028**
National Ecological Observatory Network, NEON Biorepository operations.
Role: Principal Investigator (ASU subaward) $16,268,465 (100% recognition)

NSF DBI 2027654 **Sep 2021 - Aug 2026**
iDigBio Phase 3: Sustaining the digitization, mobilization, accessibility, and use of biodiversity specimen data in U.S. museum and academic collections.
Role: Principal Investigator (ASU subaward) $2,568,801 (50% recognition)

NSF GEO CI RISE 2324690 **Nov 2023 – Oct 2025**
Collaborative Research: GEO OSE Track 1: Community-driven enhancement of information ecosystems for the discovery and use of paleontological specimen data.
Role: Principal Investigator $83,103 (50% recognition)

NSF DBI 2223878 **Sep 2022 – Aug 2025**
Collaborative Research: Digitization and enrichment of U.S. herbarium data from tropical Africa to enable urgent quantitative conservation assessments.
Role: Principal Investigator $159,490 (100% recognition)

USA ARS NACA 58-8042-3-066 and 58-8062-3-011 **Oct 2023 – Sep 2024**

Symbiota Portal for the ARS Collection of Entomopathogenic Fungal Cultures (ARSEF) and U.S. National Fungus Collections
Role: Principal Investigator $75,000 (100% recognition)

USDA ARS NACA 58-8020-2-006 **Oct 2022 – Sep 2024**
Developing a collection management system for the USDA United States National Herbarium.
Role: Principal Investigator $192,042 (100% recognition)

NSF DBI 2101913 **Sep 2021 - Aug 2024**
Collaborative Research: Digitization TCN: Extending Anthophila research through image and trait digitization (Big-Bee).
Role: Principal Investigator (ASU award) $171,235 (50% recognition)

NSF DBI 2001394 **Sep 2020 - Aug 2024**
Digitization TCN: Collaborative Research: Building a global consortium of bryophytes and lichens: Keystones of cryptobiotic communities.
Role: Co-Investigator (ASU award) $344,385 (33% recognition)

USDA APHIS PPQ T00-23-0083 **Jul 2023 – Jul 2024**
Improving the identification capacity of hyperdiverse *Anthonomus* weevils (Coleoptera: Curculionidae) from Mexico, the United States, and Canada.
Role: Principal Investigator $91,359 (100% recognition)

NSF DEB 1754731 **Jul 2018 - Jun 2024**
Weevils of Sonora: Discovering species distributions and historical patterns of symbiont associations.
Role: Principal Investigator $613,248 (100% recognition)

II. COMPLETED

NSF OAC 2118240 **Oct 2021 – Sep 2023**
HDR Institute: Imageomics: A new frontier of biological information powered by knowledge-guided machine learning.
Role: Principal Investigator (ASU subaward) $138,190 (100% recognition)

USDA APHIS PPQ T00C068 **Jul 2022 – Jul 2023**
Improving the identification capacity of hyperdiverse *Conotrachelus* weevils from Mexico, the U.S., and Canada.
Role: Principal Investigator $80,817 (100% recognition)

NIH R21 AI164268-01 **Jun 2021 - May 2023**
Intelligently predicting viral spillover risks from bats and other wild mammals.
Role: Postdoctoral Mentor (PI Nathan Upham, ASU) $432,564 (0% recognition)

NSF DBI 1702516 **Sep 2017 - Aug 2022**
Digitization TCN: Collaborative Research: Using herbarium data to document plant niches in the high peaks and high plains of the Southern Rockies – past, present, and future.
Role: Principal Investigator (ASU subaward) $119,024 (50% recognition)

NSF STS 1827996 **Aug 2018 – Jul 2021**
Productive ambiguity in classification.
Role: Co-Investigator (PI Beckett Sterner, ASU) $158,162 (15% recognition)

USDA APHIS PPQ T00C087 **Jun 2019 - May 2021**
Augmentative biological control of the coffee berry borer.
Role: Principal Investigator (external PI Sangmi Lee, ASU) $140,983 (100% recognition)

NSF DBI 1756327 **Mar 2018 - Feb 2021**
CSBR: Natural History: Building a specimen-based Biologia Centrali-Americana for weevils: Improved access to the Charles W. and Lois B. O'Brien Collection.
Role: Principal Investigator $497,809 (100% recognition)

NSF DBI 1601659 **Jul 2016 – Jun 2020**
Digitization TCN: Collaborative Research: Lepidoptera of North America Network: Documenting diversity in the largest clade of herbivores.
Role: Principal Investigator (ASU award) $186,570 (100% recognition)

NSF DBI 1601697 **Sep 2016 - Aug 2019**
Digitization TCN: Collaborative Research: The Mid-Atlantic Megalopolis: Achieving a greater scientific understanding of our urban world.
Role: Principal Investigator (ASU subaward) $88,409 (100% recognition)

NSF DBI 1410069 **Aug 2014 - Jul 2018**
Digitization TCN: Collaborative Research: The key to the cabinets: Building and sustaining a research database for a global biodiversity hotspot.
Role: Principal Investigator (ASU subaward) $107,609 (100% recognition)

USDA APHIS PPQ 14-8130-0438-CA **Aug 2014 - Jul 2017**
Cooperative Agreement: Identification and curation of rangeland grasshopper and Mormon Cricket pests and associated non-target organisms from the grasshopper and Mormon Cricket ecosystem.
Role: Principal Investigator $260,249 (100% recognition)

NSF DBI 1410683 **Jun 2014 - May 2017**
Digitization TCN: Collaborative Research: Documenting the occurrence through space and time of aquatic non-indigenous fish, mollusks, algae, and plants threatening North America's Great Lakes.
Role: Principal Investigator (ASU subaward) $105,972 (100% recognition)

NSF EF 1207107 **Jul 2013 - Jun 2016**
Digitization TCN: Collaborative Research: Southwest Collections of Arthropods Network (SCAN): A model for collections digitization to promote taxonomic and ecological research.
Role: Principal Investigator (ASU award) $284,3131 (100% recognition)

NSF DEB 1155984 **Jul 2011 - Jun 2016**
CAREER: Systematics of eustyline and geonemine weevils: Connecting and contrasting Caribbean and Neotropical mainland radiations.
Role: Principal Investigator $639,747 (100% recognition)

NSF DEB 1258154 **Apr 2013 - Mar 2016**
ARTS: Systematics of the darkling beetle genus *Eleodes:* Integrating morphology, DNA, and biodiversity informatics to resolve a taxonomically impeded genus.
Role: Co-Investigator (PI Aaron Smith, ASU) $458,104 (40% recognition)

NSF DBI 1342595 **Mar 2013 - Dec 2014**

Collaborative Research: ABI: Innovation: The Global Names Architecture, an infrastructure for unifying taxonomic databases and services for managers of biological information.
Role: Principal Investigator (succeeding David Patterson, ASU) $285,090 (100% recognition)

USDA ARS 58-1275-1-335 **Oct 2011 – Jul 2014**
Specific Cooperative Agreement: Systematic research support for economically important insects.
Role: Principal Investigator $110,000 (100% recognition)

Howard Hughes Medical Institute - Undergraduate Science Program **Aug 2008 - Jul 2011**
ROLE-MODEL: Research oriented laboratory enhancements by module development for laboratories.
Role: Co-Investigator (PI Nanette Diffoot-Carlo, UPRM) $1,400,000 (15% recognition)

NSF DBI 0749434 (UPRM) **Mar 2008 - Feb 2011**
BRC: A new infrastructure for invertebrate biodiversity Research in Puerto Rico.
Role: Principal Investigator $318,292 (75% recognition)

NSF DEB 0641231 (UPRM) **Apr 2007 - Mar 2009**
Towards a systematic and evolutionary synthesis of the Neotropical *Exophthalmus* genus complex (Coleoptera: Curculionidae: Entiminae).
Role: Principal Investigator $174,755 (100% recognition)

SELECT INSTITUTIONAL AND PHILANTHROPIC SUPPORT

2023-2032 **ASU Foundation / Robert A. Johnson Biodiversity Research Scientist Fund.**
100,000 pinned insects and $870,750 anticipated, in support of ant diversity research.

2023-2026 **ASU Foundation / Shirley Tucker Lichen Herbarium Research Fund.** $355,000.
Awarded to the ASU Biocollections (Dr. Frank Bungartz, Collections Manager), to provide research support for curation of ASU Lichen Herbarium.

2018-2022 **ASU Office of the President Special Initiative Fund.** $300,000.
Biodiversity Data Science Initiative. Co-Principal Investigator with Beckett Sterner.

2017-present **ASU Foundation / Charles W. and Lois B. O'Brien Insect Systematics Endowment.**
1.25 million pinned insects and $1.335 million donated to date. $2.5 million anticipated.

2014-2018 **ASU Office of the President Special Initiative Fund.** $300,000.
Creation of the Biodiversity Knowledge Integration Center (BioKIC).

2012-2017 **Virginia M. Ullman Foundation.** Role: Principal Investigator. $250,000.
Arizona Biocollections and Biodiversity Informatics Center. Award to offer in-person and virtual collections education and outreach experiences.

2012-2015 **ASU / Smithsonian Institution Partnership.** $256,500.
An extensible strategy to integrate biodiversity data repositories and evolving research and outreach goals at the Smithsonian Tropical Research Institute.

PUBLICATIONS

Google Scholar: https://scholar.google.com/citations?user=qiIpsToAAAAJ
Summary, Oct 2023: Citations **2,190** H-index **25** I10-index **56**

Trainees: [U] undergraduate; [G] graduate student; [P] postdoctoral; [S] staff and other trainees.

I. PEER-REVIEWED ARTICLES

82. Thibault TM, Laney CM, Yule KM, **Franz NM,** Mabee PM. 2023. The US National Ecological Observatory Network and the Global Biodiversity Framework: national research infrastructure with a global reach. Journal of Ecology and Environment. (in Review)

81. Zhang G[P], Browne P, Zhen G[U], Johnston MA[G], Cadillo-Quiroz H, **Franz NM.** 2023. Endosymbiont diversity and evolution across the weevil tree of life. (In Review)
Preprint in biorXiv: DOI 10.1101/171181

80. Yule KM, Gilbert EE[G], Husain AP, Johnston MA, Rocha Prado L, Steger L, **Franz NM.** 2023. Designing biorepositories to monitor ecological and evolutionary responses to change. BioScience. (Accepted) Preprint in Zenodo: DOI 10.5281/zenodo.3880411

79. Chamorro ML, Atkinson TH, Engasser EL[S], **Franz NM,** Matsunagathe J. 2022. Curculionoidea of the Hawaiian Archipelago and outlying islands. Diversity. (In Press)

78. Sandall EL, Maureaud AA, Guralnick R, McGeoch MA, Sica YV, Rogan MS, Booher DB, Costello MJ, Edwards R, **Franz N,** Ingenloff K, Lucas M, Marsh CJ, McGowan J, Pinkert S, Ranipeta A, Uetz P, Wieczorek J, Jetz W. 2023. A globally integrated structure of taxonomy supporting biodiversity science and conservation. Trends in Ecology & Evolution. DOI 10.1016/j.tree.2023.08.004

77. Sterner BW, Elliott S, Gilbert EE[G], **Franz NM.** 2023. Unified and pluralistic ideals for data sharing and reuse in biodiversity. Database, Volume 2023, baad048. DOI 10.1093/database/baad048

76. Johnston MA, Waite ES[G], Wright ER[U], Reily BH[G], De Leon GJ[U], Esquivel AI[U], Kerwin J[U], Salazar M[U], Sarmiento E[U], Thiatmaja T[U], Lee S, Yule K, **Franz N.** 2023. Insect collecting bias in Arizona with a preliminary checklist of the beetles from the Sand Tank Mountains. Biodiversity Data Journal 11: e101960. DOI 10.3897/BDJ.11.e101960

75. O'Brien KM, Crockett EL, Adams BJ, Amsler CD, Appiah-Madson HJ, Collins A, Desvignes T, Detrich III W, Distel DL, Eppley SM, Frable BW, **Franz NM,** Grim JM, Kocot KM, Mahon AR, Mayfield-Meyer J, Mikucki JA, Moser WE, Schmull M, Seid CA, Smith CR, Todgham AE, Watkins-Colwell GJ. 2022. The time is right for an Antarctic Biorepository Network. Proceedings of the National Academy of Sciences 199(50): e2212800119. DOI 10.1073/pnas.2212800119

74. Johnston MA[G], Smith AD[P], Kanda K, Kamiński MJ, Navarette P, Sanchez LA, Aalbu RL, Miller KB, Wheeler QD, **Franz NM.** 2022. Testing the taxonomy of Amphidorini LeConte (Coleoptera: Tenebrionidae): a molecular phylogeny leveraging museum sequencing.
Annales Zoologici 72(1): 49-68. DOI 10.3161/00034541ANZ2022.72.1.003

73. Upham NS[P], Poelen JH, Paul DL, Groom QJ, Simmons NB, Vanhove MPM, Bertolino S, Reeder DM, Bastos-Silveira C, Sen A[P], Sterner B, **Franz N,** Guidoti M, Penev L, Agosti D. 2021. Liberating host-virus knowledge from biological dark data. The Lancet Planetary Health 5(10): e746-e750.
DOI 10.1016/S2542-5196(21)00196-0

72. Sen A[P], Sterner B, **Franz N,** Powell C[G], Upham N[P]. 2021. Combining machine learning and reasoning for biodiversity data intelligence. Proceedings of the AAAI Conference on Artificial Intelligence 35(17): 14911-14919. URL https://ojs.aaai.org/index.php/AAAI/article/view/17750

71. Jansen MA[G], Niverty S, Chawla N, **Franz NM.** 2021. Reducing the risk of rostral bending failure.
Acta Biomaterialia 126: 350-371. DOI 10.1016/j.actbio.2021.03.029

70. Sterner B, Elliott S, Upham N[P], **Franz N.** 2021. Bats, objectivity, and viral spillover risk. History and Philosophy of the Life Sciences 43: 7. DOI 10.1007/s40656-021-00366-x

69. Sterner BW, Gilbert EE[G], **Franz NM.** 2020. Decentralized but globally coordinated biodiversity data. Frontiers in Big Data 3: 519133. DOI 10.3389/fdata.2020.519133

68. Sterner B, Witteveen J, **Franz N.** 2020. Coordinating dissent as an alternative to consensus classification: insights from systematics for bio-ontologies. History and Philosophy of the Life Sciences 42: 8. DOI 10.1007/s40656-020-0300-z

67. Anzaldo SS[G], Wilson JS, **Franz NM.** 2020. Phenotypic analysis of aposematic conoderine weevils (Coleoptera: Curculionidae: Conoderinae) supports the existence of three large mimicry complexes. Biological Journal of the Linnean Society 129(3): 728-739. DOI 10.1093/biolinnean/blz205

66. Reily BH[G], **Franz NM.** 2019. Case 3792 – *Pachnaeus* Schoenherr, 1826 (Insecta, Coleoptera, Curculionidae): proposed precedence over *Docorhinus* Schoenherr, 1823. Bulletin of Zoological Nomenclature 76(1): 179-185. DOI 10.21805/bzn.v76.a055

65. Jansen MA[G], Williams J, Chawla, N, **Franz NM.** 2019. Avoidance of catastrophic structural failure as an evolutionary constraint: Biomechanics of the acorn weevil rostrum. Advanced Materials 31(41): 1903526. DOI 10.1002/adma.20190352

64. **Franz NM,** Musher LJ, Brown JW, Yu S[G], Ludäscher B. 2019. Verbalizing phylogenomic conflict: representation of node congruence across competing reconstructions of the neoavian explosion. PLoS Computational Biology 15(2): e1006493. DOI 10.1371/journal.pcbi.1006493

63. Jansen MA[G], **Franz NM.** 2018. Descriptions of four new species of *Minyomerus* Horn, 1876 sec. Jansen & Franz, 2018 (Coleoptera: Curculionidae), with notes on their distribution and phylogeny. PeerJ 6: e5633: 1-63. DOI 10.7717/peerj.5633

62. McKenna DD, Clarke DJ, Anderson R, Astrin JJ, Brown S, Chamorro L, Davis SR, de Medeiros B, del Rio MG, Haran J, Kuschel G, **Franz N,** Jordal B, Lanteri A, Leschen RAB, Letsch H, Lyal C, Marvaldi A, Mermudes JR, Oberprieler RG, Schütte A, Sequeira A, Shin S, Van Dam MH, Zhang G[P]. 2018. Morphological and molecular perspectives on the phylogeny, evolution, and classification of weevils (Coleoptera: Curculionoidea): Proceedings from the 2016 International Weevil Meeting. Diversity 2018, 10, 64: 1-33. DOI 10.3390/d10030064

61. Tang W, Xu G, O'Brien CW, Calonje M, **Franz NM,** Johnston MA[G], Taylor A, Vovides AP, Pérez-Farrera MA, Salas-Morales SH, Lazcano-Lara JC, Skelley P, Lopez-Gallego C, Lindström A, Rich S. 2018. Molecular and morphological phylogenetic analyses of New World cycad beetles: what they reveal about cycad evolution in the New World. Diversity 2018, 10, 38: 1-26. DOI 10.3390/d10020038

60. Johnston MA[G], Aalbu RL, **Franz NM.** 2018. An updated checklist of the Tenebrionidae sec. Bousquet et al. 2018 of the Algodones Dunes of California, with comments on checklist data practices. Biodiversity Data Journal 6: e24927. DOI 10.3897/BDJ.6.e24927

59. Cao Y, **Franz N,** Macklin J, Mao J, Cui H. 2017. Resolving taxonomic names using evidence extracted from text. iConference 2018 Proceedings: 1-5. URL hdl.handle.net/2142/100260

58. **Franz NM,** Zhang C[S], Lee J. 2018. A logic approach to modeling nomenclatural change. Cladistics 34(3): 336–357. DOI 10.1111/cla.12201

57. Senderov V, Simov K, **Franz N,** Stoev P, Catapano T, Agosti D, Sautter G, Morris RA, Penev L. 2018. OpenBiodiv-O: ontology of the OpenBiodiv knowledge management system. Journal of Biomedical Semantics (2018) 9:5. DOI 10.1186/s13326-017-0174-5

56. **Franz NM,** Sterner BW. 2018. To increase trust, change the social design behind aggregated biodiversity data. Database, Volume 2018, 01 January 2018, bax100. DOI 10.1093/database/bax100

55. Cheng YY[G], **Franz NM,** Schneider J, Yu S[G], Rodenhausen T, Ludäscher B. 2017. Agreeing to disagree: reconciling conflicting taxonomic views using a logic-based approach. Proceedings of the Association for Information Science and Technology 54(1): 46-56. DOI 10.1002/pra2.2017.14505401006

54. Sterner BW, **Franz NM.** 2017. Taxonomy for humans or computers? Cognitive pragmatics for big data. Biological Theory 12(2): 99-111. DOI 10.1007/s13752-017-0259-5

53. Seltmann KC, et al. (47 co-authors, including **Franz NM**). 2017. LepNet: the Lepidoptera of North America Network. Zootaxa 4247(1): 73-77. DOI 10.11646/zootaxa.4247.1.10

52. **Franz NM,** Zhang G[P]. 2017. Three new species of entimine weevils in Early Miocene amber from the Dominican Republic (Coleoptera: Curculionidae). Biodiversity Data Journal 5: e10469. DOI 10.3897/BDJ.5.e10469

51. Zhang G[P], Basharat U[U], Matzke N, **Franz NM.** 2017. Model selection in the historical biogeography of Neotropical weevils – the *Exophthalmus* genus complex (Insecta: Curculionidae: Entiminae). Molecular Phylogenetics and Evolution 109 (April 2017): 226-239. DOI 10.1016/j.ympev.2016.12.039

50. **Franz NM,** Ludäscher B, Gilbert EE[G], Weakley AS. 2016. Controlling the taxonomic variable: taxonomic concept resolution for a southeastern United States herbarium portal. Research Ideas and Outcomes 2: e10610. DOI 10.3897/rio.2.e10610

49. Singh SS, Jansen MA[G], **Franz NM,** Chawla N. 2016. Microstructure and nanoindentation of the rostrum of *Curculio longinasus* Chittenden, 1927 (Coleoptera: Curculionidae). Materials Characterization 118: 206-211. DOI 10.1016/j.matchar.2016.05.022

48. Jansen MA[G], Singh SS, Chawla N, **Franz NM.** 2016. A multilayer micromechanical model of the cuticle of *Curculio longinasus* Chittenden, 1927 (Coleoptera: Curculionidae). Journal of Structural Biology 195(2): 139-158. DOI 10.1016/j.jsb.2016.05.007

47. **Franz NM,** Pier NM[U], Reeder DM, Chen M[G], Yu S[G], Kianmajd P, Bowers S, Ludäscher B. 2016. Two influential primate classifications logically aligned. Systematic Biology 65(4): 561-582. DOI 10.1093/sysbio/syw023

46. **Franz NM,** Chen M[G], Kianmajd P, Yu S[G], Bowers S, Weakley AS, Ludäscher B. 2016. Names are not good enough: reasoning over taxonomic change in the *Andropogon* complex. Semantic Web 7(6): 1-23. DOI 10.3233/SW-160220

45. Panhwar WA, **Franz NM,** Lakhiar A, Meregalli M. 2015. On some *Leptomias* Faust, 1886 from Pakistan (Coleoptera: Curculionidae: Entiminae). Arquivos Entomolóxicos 14: 43-46. URL https://www.aegaweb.com/arquivos_entomoloxicos/vol_14_2015.htm

44. Thessen AE, et al. (21 co-authors, including **Franz NM,** Zhang G[P]). 2015. Emerging semantics to link phenotype and environments. PeerJ 3:e1470. DOI 10.7717/peerj.1470

43. Johnston MA[G], Fleming D[U], Franz NM & Smith AD[P]. 2015. Amphidorini Leconte (Coleoptera: Tenebrionidae) of Arizona: keys and species accounts. Coleopterists Bulletin 69(4): 27-54. DOI 10.1649/0010-065X-69.mo4.27

42. Dang TN, **Franz NM,** Ludäscher B, Forbes AG. 2015. ProvenanceMatrix: a visualization tool for multi taxonomy alignments. CEUR Workshop Proceedings 1456: 13-24. URL http://ceur-ws.org/Vol-1456/paper2.pdf

41. Jansen MA, Franz NM. 2015. Phylogenetic revision of *Minyomerus* Horn, 1876 sec. Jansen & Franz, 2015 (Coleoptera, Curculionidae) using taxonomic concept annotations and alignments. ZooKeys 528: 1-133. DOI 10.3897/zookeys.528.6001

40. Chen M[G], Yu S[G], Kianmajd P, **Franz N,** Bowers S, Ludäscher B. 2015. Provenance for explaining taxonomy alignments. Lecture Notes in Computer Science 8628: 258-260. DOI 10.1007/978-3-319-16462-5_27

39. **Franz NM,** Chen M[G], Yu S[G], Kianmajd P, Bowers S, Ludäscher B. 2015. Reasoning over taxonomic change: exploring alignments for the *Perelleschus* use case. PLoS ONE 10(2): e0118247. DOI 10.1371/journal.pone.0118247

38. Deans AR, et al. (73 co-authors, including Anzaldo SS[G], **Franz NM**). 2015. Finding our way through phenotypes. PLoS Biology 13(1): e1002033. DOI 10.1371/journal.pbio.1002033

37. Chen M[G], Yu S[G], **Franz N,** Bowers S, Ludäscher B. 2014. A hybrid diagnosis approach combining black-box and white-box reasoning. Lecture Notes in Computer Science 8620: 127-141. DOI 10.1007/978-3-319-09870-8_9

36. Gries C, Gilbert EE, **Franz NM.** 2014. Symbiota – a virtual platform for creating voucher-based biodiversity information communities. Biodiversity Data Journal 2: e1114. DOI 10.3897/BDJ.2.e1114

35. Patterson DJ, Egloff W, Agosti D, Eades D, **Franz N,** Hagedorn G, Remsen D. 2014. Scientific names of organisms: attribution, rights and licensing. BMC Research Notes 2014, 7:79. DOI 10.1186/1756-0500-7-79

34. **Franz NM.** 2014. Anatomy of a cladistic analysis. Cladistics 30(3): 294-321. DOI 10.1111/cla.12042

33. **Franz NM,** Cardona-Duque J[G]. 2013. Description of two new species and phylogenetic reassessment of *Perelleschus* Wibmer & O'Brien, 1986 (Coleoptera: Curculionidae), with a complete taxonomic concept history of *Perelleschus* sec. Franz & Cardona-Duque, 2013. Systematics and Biodiversity 11(2): 209-236. DOI 10.1080/14772000.2013.806371

32. **Franz NM,** Goldstein AM. 2013. Phenotype ontologies: are homology relations central enough? A reply to Deans et al. Trends in Ecology & Evolution 28(3): 131-132. DOI 10.1016/j.tree.2012.08.001

31. Cardona-Duque J[G], **Franz NM.** 2012. Description and phylogeny of *Azotoctla,* a new Neotropical genus of Acalyptini (Coleoptera: Curculionidae: Curculioninae) associated with the staminodes of Cyclanthaceae. Zoological Journal of the Linnean Society 166(3): 559-623. DOI 10.1111/j.1096-3642.2012.00851.x

30. Girón JC[G], **Franz NM.** 2012. Phylogenetic assessment of the Caribbean weevil genus *Lachnopus* Schoenherr (Coleoptera: Curculionidae: Entiminae). Invertebrate Systematics 26(1): 67-82. DOI 10.1071/IS11033

29. **Franz NM.** 2012. Phylogenetic reassessment of the *Exophthalmus* genus complex (Curculionidae: Entiminae: Eustylini, Geonemini). Zoological Journal of the Linnean Society 164(3): 510-557. DOI 10.1111/j.1096-3642.2011.00774.x

28. **Franz NM.** 2011. *Melathra huyenae,* a new genus and new species of entimine weevil from s outhwestern Hispaniola (Coleoptera: Curculionidae: Entiminae). Coleopterists Bulletin 65(4): 352-362. DOI 10.1649/072.065.0406

27. Girón JC[G], **Franz NM.** 2010. Revision, phylogeny, and historical biogeography of the genus *Apodrosus* Marshall, 1922 (Coleoptera: Curculionidae: Entiminae). Insect Systematics and Evolution 41(4): 339-414. DOI 10.1163/187631210X538799

26. **Franz NM,** Thau D. 2010. Biological taxonomy and ontology development: scope and limitations. Biodiversity Informatics 7(1): 45-66. DOI 10.17161/bi.v7i1.3927

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II. Contributed Chapters and Reviews

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12. Orellana KS[G], **Franz NM.** 2023. Checklist of Anthribidae (Coleoptera: Curculionoidea) of Guatemala, including new country records and a key to genera; pp. 87-102. In Yoshimoto J, Schuster JC, Monzón J (editors): Biodiversidad de Guatemala, Volumen 3. Universidad del Valle de Guatemala, Guatemala.

11. Schlosser P, Laubichler M, Edwards C, Beschloss S, Berman N, van der Leeuw S, Adamson J, Barton M, Bernstein M, BurnSilver S, Dirks G, Franz J, **Franz NM,** Grimm NB, Gwiszcz J, Helitzer D, Lloyd C, Merrigan K, Sala O, Wharton C, White D. 2020. COVID-19: The ultimate stress test for our global futures. Medium. https://asuglobalfuture.medium.com/

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8. Caldara R, **Franz NM,** Oberprieler RG. 2014. 3.7.10. Curculioninae Latreille, 1802; pp. 589-628. In Leschen RAB, Beutel RG (editors): Handbook of Zoology. Arthropoda: Insecta. Coleoptera, Beetles. Volume 3: Morphology and Systematics (Phytophaga). Walter de Gruyter, Berlin. DOI 10.1515/9783110274462.423

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III. PUBLISHED ABSTRACTS

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20. Gilbert EE[G], Sterner B, Fisher MA, Orellana KS[G], Pearson K, Post G, Walker LJ, Wilt L, Yost JM, **Franz N.** 2023. Symbiota integrations: exploration of historical and current methods of data sharing across a decentralized portal network and goals of extending interoperability globally. Biodiversity Information Science and Standards 7: e111680. DOI 10.3897/biss.7.111680

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17. Orellana KS[G], Gilbert E[G], Walker LJ, Pearson K, Prado LR, Post G, Yost J, **Franz N.** 2022. Taxonomic curation in a multi-taxa Symbiota portal. Biodiversity Information Science and Standards 6: e93671. https://doi.org/10.3897/biss.6.93671

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14. Pearson K, Gilbert E[G], **Franz N,** Orellana S[G], Post G, Rocha Prado L, Walker LJ, Yost JM. 2022. Leveraging the Symbiota Support Hub for biodiversity data mobilization. Biodiversity Information Science and Standards 6: e93893. https://doi.org/10.3897/biss.6.93893

13. Sterner B, Upham N[P], Gupta[P], Powell C[G], **Franz NM.** 2021. Wanted: standards for FAIR taxonomic concept representations and relationships. Biodiversity Information Science and Standards 5: e75587. DOI 10.3897/biss.5.75587

12. Seltmann KC, Allen J, Brown BV, Carper A, Engel MS, **Franz N,** Gilbert E[G], Grinter C, Gonzalez VH, Horsley P, Lee S, Maier C, Miko I, Morris P, Oboyski P, Pierce NE, Poelen J, Scott VL, Smith M, Talamas EJ, Tsutsui ND, Tucker E. 2021. Announcing Big-Bee: an initiative to promote understanding of bees through image and trait digitization. Biodiversity Information Science and Standards 5: e74037. DOI 10.3897/biss.5.74037 and https://escholarship.org/uc/item/0856h3d2 (Spanish)

11. **Franz NM,** Sterner BW, Upham NS[P], Cortés Hernández KA[G]. 2020. Redesigning the trading zone between systematics and conservation: insights from Malagasy mouse lemur classifications, 1982 to present. Biodiversity Information Science and Standards 4: e59234. DOI 10.3897/biss.4.59234

10. Gilbert E[G], **Franz N,** Sterner B. 2020. Historical overview of the development of the Symbiota specimen management software and review of the interoperability challenges and opportunities informing future development. Biodiversity Information Science and Standards 4: e59077. DOI 10.3897/biss.4.59077

9. Sen A[P], **Franz N,** Sterner BW, Upham N[P]. 2020. The Automated Taxonomic Concept Reasoner. Biodiversity Information Science and Standards 4: e59074. DOI 10.3897/biss.4.59074

8. Sterner BW, Upham N[P], Sen A[P], **Franz NM.** 2020. Avenues into integration: communicating t axonomic intelligence from sender to recipient. Biodiversity Information Science and Standards 4: e59006. DOI 10.3897/biss.4.59006

7. **Franz NM,** Gilbert EE[G], Sterner BW. 2019. Distributed, but global in reach: Outline of a de-centralized paradigm for biodiversity data intelligence. Biodiversity Information Science and Standards 3: e37749. DOI 10.3897/biss.3.37749

6. Gilbert E[G], Gries C, **Franz NM,** Landrum LS, Nash III TH. 2019. SEINet: a centralized specimen resource managed by a distributed network of researchers. Biodiversity Information Science and Standards 3: e37424. DOI 10.3897/biss.3.37424

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2. Chen M[G], Yu S[G], **Franz N,** Bowers S, Ludäscher B. 2014. Euler/X: a toolkit for logic-based taxonomy integration. WFLP 2013 – 22nd International Workshop on Functional and (Constraint) Logic Programming. DOI 10.48550/arXiv.1402.1992

1. **Franz NM,** Thau D. 2010. Biological taxonomy and ontology development: scope and limitations. Nature Preceedings. DOI 10.1038/npre.2010.4593.1

IV. Significant Online Products

2023-present **BioKIC Services ASU Recharge Center**
https://services.biokic.asu.edu/
Role: Recharge Center lead. Developed in collaboration with the ASU W.P. Carey School of Business, BioKIC Services provides fee-based, sustainability-conducive services for Symbiota and NEON Biorepository clients.

2018-present **Charles W. O'Brien and Lois B. O'Brien Insect Collections**
https://ecdysis.org/collections/misc/collprofiles.php?collid=2
https://ecdysis.org/collections/misc/collprofiles.php?collid=3
Role: Collections curator. 49,000 occurrences; 2,400 images.

2018-present **Weevils of Sonora**
https://scan-bugs.org/portal/checklists/checklist.php?cl=102
Role: Lead checklist author (editor). 2,500 occurrences; 300 species.

2016-2020 **Libraries of Life – 3D Augmented Reality Collection Specimen Card Sets**
Role: http://www.libraries-of-life.org/
Role: Principal investigator of the project award (LepNet).

2015-present **Biodiversity Knowledge Integration Center (BioKIC)**
https://biokic.asu.edu/, https://github.com/BioKIC
Role: Center director, project leader, website coordinator, blog contributor.

2014-2018 **Euler Project - Reasoning over Taxonomies**
https://github.com/EulerProject
Role: Principal domain scientist; software design, testing and application.

2013-2017 **Taxonbytes – from Specimens to Language, Logic, and Learning**
https://web.archive.org/web/20190621192234/http://taxonbytes.org/
Role: Website developer and manager, principal blogger (225 blog posts).

2012-present **Weevils of North America**
https://scan-bugs.org/portal/checklists/checklist.php?cl=1
Role: Lead checklist author (editor). 6,700 occurrences; 1,300 species.

2012-present **Arizona State University Hasbrouck Insect Collection**
https://ecdysis.org/collections/misc/collprofiles.php?collid=1
Role: Collection curator. 180,000 occurrences; 12,000 images.

2012-present **Symbiota Software Platform and iDigBio Symbiota Support Hub** (since 2021)
https://symbiota.org/, https://biokic.github.io/symbiota-docs/,

https://github.com/BioKIC/Symbiota, https://www.gbif.org/participant/429
Role: Principal investigator (academic leader), service planning and provision.

The Symbiota Support Hub at ASU sustains 56 portal installations; 90 million occurrences; 46 million images; 1,000 live-managed collections; 900 snapshot collections, 5,000 users.

Major portals include: Big Bee Library, Consortium of California Herbaria, Consortium of Pacific Herbaria, Consortium of Small Vertebrate Collections, Ecdysis, Gabon Biodiversity, GLOBAL (bryophytes and lichens), Great Lakes Invasives Network, Guatemala Biodiversity, InvertEBase, Macroalgal Herbarium Consortium, NEON Biorepository, Paleobotany, Red de Herbarios Mexicanos, SCAN, SEINet, SERNEC, Panama Biota (including Smithsonian Tropical Research Institute).

2010 **Southern Plant Diagnostic Network – Weevil Workshop Images**
https://www.ipmimages.org/collections/viewcollection.cfm?id=69682
Role: Workshop organizer, instructor, coordinator of image creation and publication.

PRESENTATIONS

I. INVITED COLLOQUIA AND SEMINARS

30. Invited Presentation, **Paving the Way for Continental Scale Biology: Technology, Techniques, and Teamwork for Connecting Research Across Scales** – NASEM, National Academies Sciences Engineering Medicine – Webinar Series. August, 2023. "The Symbiota software project: Advancing the integration of biodiversity collections and long-term ecological research data".

29. **Invited Presentation, iDigBio Workshop, Assembling Continental Biotas from the Cretaceous of Gondwana** – Denver Museum of Nature and Science, CO. November 2022. "Symbiota developments for fossil collections".

28. **Invited Presentation, Antarctic Biorepository NSF Workshop, Virtual Conference** – University of Alaska Fairbanks, AK. February 2022. "Overview of the NEON Biorepository as an example of an NSF funded repository".

27. **Invited Presentation, NSF/AIBS International Workshop Series.** How Does Sharing Genetic Sequence Data Impact Biodiversity Science – Virtual Event. November 2021. "Enabling large-scale ecological research with open genetic data – NEON Biorepository".

26. **Keynote Address, 3rd Annual Digital Data Conference** – Yale University, New Haven, CT. June 2019. "De-centralized but global: Redesigning biodiversity data aggregation for improved engagement and impact".

25. **Invited Presentation, Information & Library Science Colloquium Series** – Indiana University, Bloomington, IN. April 2019. "Discover, monitor, publish, disagree, align: Advancing the social design of biodiversity data science".

24. **Workshop, The Future of Systematics in Data-Centric Biology** – Marine Biological Laboratory, Woods Hole, MA. October 2017. " Machine-scalable solutions for future taxonomy must begin with a philosophical recommitment to embrace trained judgment".

23. **Center for Biology and Society Conversation Series** – School of Life Sciences, Arizona State University, Tempe, AZ. October 2017. " The limits of synthesis for integrative biology".

22. **CIRSS Seminar, School of Information Sciences** – University of Illinois Urbana-Champaign, Champaign, IL. February 2017. "Non-unitary syntheses of taxonomic and phylogenetic knowledge".

21. **Plenary Session, Practical Hacking On Identifiers at BiOSphere2 (PHOIBOS2) –** Biosphere2, Oracle, AZ. February 2016. "Identifying and aligning taxonomic concepts".
20. **School of Life Sciences Café Seminar** – Arizona State University, Tempe, AZ. February 2016. "Tracking taxonomic meanings".
19. **Invited Presentation, Joint Annual Meeting, Entomological Societies of Canada and Québec** – Montréal, Canada. November 2015. "Logic resolution of the taxonomic variable for evolutionary and biodiversity information environments."
18. **Graduate School of Library and Information Science Seminar** – University of Illinois Urbana-Champaign, Champaign, IL. May 2015. "Overview of the Euler/X multi-taxonomy alignment toolkit reasoning and visualization capabilities".
17. **Workshop – Understanding Taxon Ranges in Space and Time** – University of California at Berkeley, Global Change Biology, Berkeley, CA. October 2014. "Tracking taxonomic change across classifications and phylogenies".
16. **The Meaning of Names: Naming Diversity in the 21st Century** – University of Colorado, Boulder, CO. September 2014. "Explaining taxonomy's legacy to computers – how and why?"
15. **Third International Tenebrionoidea Symposium** – Tempe, AZ. August 2013. "Constructing a Coleoptera Anatomy Ontology – how and why".
14. **Museo de Historia Natural Tomás Romay** – Santiago de Cuba, Cuba. February 2012. "Sistemática, evolución, y biogeografía de los gorgojos Entiminae del Caribe".
13. **School of Life Sciences Seminar** – Arizona State University, Tempe, AZ. December 2010. "Systematics of acalyptine flower weevils, with comments on the taxonomic concept approach".
12. **Symposium on Biodiversity, Taxonomy and Systematics in the 21st Century** – UNAM, Mexico. October 2010. "Revisionary taxonomy in the age of computer ontologies".
11. **Department of Entomology Seminar** – University of Arizona, Tucson, AZ. May 2010. "Systematics and evolution of acalyptine flower weevils: from associations to homology".
10. **Seminario, Escuela de Biología** – Universidad Autónoma de Santo Domingo, Dominican Republic. June 2008. "Sistemática e historia natural de los gorgojos Neotropicales; y Entomología en la UPRM".
9. **Biology Seminar** – Universidad de Puerto Rico, Río Piedras, PR. August 2006. "Evolution of pollination and seed predation in Neotropical derelomine flower weevils".
8. **Primate Life-History Databank: Setting the Agenda** – Wenner-Gren Foundation, New York, NY. September 2005. "Long-term taxonomic resolvability in the Primate Life-History Databank".
7. **Invited Presentation, Biennial Meeting of the Systematics Association, New Taxonomy Conference** – Cardiff, United Kingdom. August 2005. "The SEEK project: new concepts and tools to support biodiversity research and taxonomy".
6. **EcoLunch Series, National Center of Ecological Analysis and Synthesis** – Santa Barbara, CA. October 2004. "The SEEK project: new concepts and tools to support meta-analyses and taxonomy".
5. **Entomologists' Meeting, Santa Barbara Museum of Natural History** – Santa Barbara, CA. September 2004. Evolution of derelomine flower weevils".
4. **Jugatae Entomology Seminar** – Cornell University, Ithaca, NY. August 2004. "Systematics of derelomine flower weevils".

3. **Keynote Address, Annual Meeting of the Coleopterists Society** – Fort Lauderdale, FL. December 2002. "Natural history of derelomine flower weevils systematized".

2. **Seminario, Escuela de Biología** – Central University of Venezuela, Maracay, Venezuela. June 2002. "Biología reproductiva de Cyclanthaceae y de los Curculionidae asociados".

1. Bambi Seminar, Barro Colorado Island – Smithsonian Tropocal Research Institute, Panama. August 1999. "Pollination in Cyclanthaceae".

II. CONTRIBUTED PAPERS AND POSTERS (PAST 3 YEARS)

Totals: 114 presentations (60 as primary presenter; 32 by trainees)
48 posters (10 as primary presenter; 30 by trainees)

Trainees: [U] undergraduate; [G] graduate student; [P] postdoctoral; [S] staff and other trainees.

162. **Franz NM,** Gilbert EE[G], Husain A, Liao R, Johnston MA, Pearson KD, Post G, Steger LD, Walker LJ, Yule KM. "Symbiota-based services for publishing genomic collections data". 4th International Global Genome Biodiversity Network Conference, Aguascalientes, Mexico. October 2023.

161. Gilbert E[G], **Franz N,** Pearson K, Sterner B, Yost JM, Orellana KS[G], Fisher MA, Walker LJ, Post G, Wilt L. "Symbiota 3.0: Exploration of historical and current methods of data sharing across a decentralized portal network and goals of extending interoperability globally". TDWG 2023, Biodiversity Information Standards Annual Meeting, Hobart, Tasmania, Australia. October 2023.

160. Pearson K, Gilbert E[G], Orellana KS[G], Post G, Walker LJ, Yost J, **Franz N.** "Growth and evolution of the Symbiota portal network". TDWG 2023, Biodiversity Information Standards Annual Meeting, Hobart, Tasmania, Australia. October 2023.

159. **Franz NM,** Gilbert E[G], Husain A, Johnston A, Liao R, Rocha Prado L, Steger L, Yule. "The Symbiota software project: Advancing the integration of biodiversity collections and long-term ecological research data". Ecological Society of America Annual Meeting, Portland, OR. August 2023.

158. Steger LD, Husain A, Liao R, **Franz N,** Yule K. "Exploring the National Ecological Observatory Network (NEON) Biorepository small mammal collections, samples and data". 13th International Mammalogical Congress, Anchorage, AK. July 2023.

157. **Franz N,** Yule K, Gilbert E[G], Husain A, Johnston A, Liao R, Rocha Prado L, Steger L. "Open discussion: the NEON Biorepository infrastructure model". 7th Annual Digital Data Conference: Leveraging Digital Data in Service to Conservation, Ecology, Systematics, Phylogenetics, and Novel Biodiversity Research, Tempe, AZ. June 2023.

156. Walker L, Fisher M, **Franz N,** Gilbert E[G], Pearson K, Post G, Orellana S[G], Yost J. "What is Symbiota?" 7th Annual Digital Data Conference: Leveraging Digital Data in Service to Conservation, Ecology, Systematics, Phylogenetics, and Novel Biodiversity Research, Tempe, AZ. June 2023.

155. Yule K, Gilbert E[G], Husain A, Johnston A, Rocha Prado L, Steger L, **Franz N.** "Expanding biodiversity occurrences for ecological collections". 7th Annual Digital Data Conference: Leveraging Digital Data in Service to Conservation, Ecology, Systematics, Phylogenetics, and Novel Biodiversity Research, Tempe, AZ. June 2023.

154. Pearson K, **Franz N,** Gilbert E[G], Orellana S[G], Post G, Rocha Prado L, Walker L, Yost J. "Symbiota tools to support Digital Specimen curation". SPNHC 2023, Annual Meeting of Society for the Preservation of Natural History Collections, San Francisco, CA. May 2023.

153. Yule K, Gilbert E[G], Husain A, Johnston A, Liao R, Rocha Prado L, Steger L, **Franz N.** "Tips and tools for managing digital biodiversity specimens (featuring Symbiota)". SPNHC 2023, Annual Meeting of Society for the Preservation of Natural History Collections, San Francisco, CA. May 2023.

152. Palmrose-Krieger C[U], **Franz N,** Lee S. "Big-Bee: Trait digitization to advance buzz ecology and taxonomy research". ASU SOLS Undergraduate Research Symposium, Tempe, AZ. April 2023.

151. Pandey J et al. (12 co-authors, including **Franz NM**). "Kick-off webinar and discussion on the need for a specimen management plan requirement". Biodiversity Collections Network (BCoN) and the U.S. Culture Collection Network (USCCN), Online Webinar. February 2023.

150. Seltmann KC et al. (25 co-authors, including **Franz NM** & Gilbert EE[G]). "Big-Bee: an initiative to promote understanding of bees through image and trait digitization". Annual Meeting of the Entomological Society of America, Vancouver, Canada. November 2022.

149. **Franz NM,** Post G, Gilbert EE[G]. 2022. "Solution for long-term image storage and accessibility". BioDigiCon 2022, Biodiversity Digitization Conference, Virtual Conference. September 2022.

148. Pearson K, Gilbert E[G], **Franz N,** Yost J, Orellana[G], Post G, Rocha Prado L, Walker L. 2022. "Symbiota: managing and mobilizing biodiversity data and supporting data providers". BioDigiCon 2022, Biodiversity Digitization Conference, Virtual Conference. September 2022.

147. Yule KM, **Franz NM.** 2022. "Envisioning biocollections for long-term ecological networks". 2022 LTER All Scientists' Meeting, Asilomar, Monterey, CA. September 2022.

146. Yule KM, **Franz NM.** 2022. "Linking traits, genomes, specimens, and images to LTER data – biological specimens and physical collections". 2022 LTER All Scientists' Meeting, Asilomar, Monterey, CA. September 2022.

145. Gilbert EE[G], **Franz N.** 2022. "Using Symbiota to establish a global, decentralized model for high-quality data aggregation: novel concepts and designs to improve the interoperability of occurrence-based biodiversity data". SPNHC 2022, Annual Meeting of Society for the Preservation of Natural History Collections, Edinburgh, UK. June 2022.

144. Pearson K, **Franz N,** Gilbert E[G], Orellana S[G], Post G, Rocha Prado L, Yost J. 2022. "New Symbiota features to support digital and extended specimen data". SPNHC 2022, Annual Meeting of Society for the Preservation of Natural History Collections, Edinburgh, UK. June 2022.

143. Steger L, Husain A, Liao R, Yule K, **Franz NM.** 2022. "Exploring the National Ecological Observatory Network (NEON) small mammal collections, samples and data". Annual Meeting of American Society of Mammalogy, Tucson, AZ. June 2022.

142. Upham NS[P], Reeder D, Simmons N, Cook J, Burgin C, Gupta P[P], Powell C[G], Robles Fernández AL[G], Rocha Prado L, Sterner B, **Franz NM.** 2022. "Mammal Species of the World Next: platform for curating taxonomic intelligence to extend biodiversity data". Annual Meeting of American Society of Mammalogy, Tucson, AZ. June 2022.

141. **Franz NM,** Barker KB. 2022. "Potential sites for a biorepository: one or multiple?" Antarctic Biorepository NSF Workshop, Virtual Conference, University of Alaska Fairbanks, AK. February 2022.

140. Hugo Gonzalez V, Seltmann K, Brown B, Allen J, Carper A, Engel M, **Franz N,** Gilbert E[G], Horsley P, Lee S, Maier C. "Big-Bee: Una iniciativa para promover el conocimiento de las abejas a través de la digitalización de imágenes y datos de rasgos". UCSB Cheadle Center for Biodiversity and Ecological Restoration. https://escholarship.org/uc/item/0856h3d2. November 2021.

139. Gilbert EE[G], **Franz NM,** Yost J, Pearson KD, Rocha Prado L, Orellana KS[G]. "Symbiota: Managing and mobilizing biodiversity data and supporting data providers". Biodiversity Digitization 2021 – Celebrating a Decade of Progress, Virtual Conference. September 2021.

138. Budke JM et al. (56 co-authors, including **Franz NM**). "Building a Global Consortium of Bryophytes and Lichens: Keystones of Cryptobiotic Communities (GLOBAL)". Annual Conferences of Bryophytes and Lichens (BL2021), Virtual Conference. July 2021.

137. Pearson KD, Gilbert EE[G], Tyrrell CD, **Franz NM,** Yost JM. "New tools to score, view, and download trait data in a Symbiota portal". 5th Annual Digital Data Conference: Expanding Discovery Across Multiple Domains. Virtual Conference. June 2021.

MENTORING

I. POSTDOCTORAL RESEARCHERS (8 TOTAL, 2 CURRENT)

2022-present **Matthew F. Jones, Ph.D.** – ASU SOLS Presidential Postdoctoral Fellow.
* Projected to transition to Assistant Professor at Arizona State University in 2024.

2021-present **Salvatore S. Anzaldo, Ph.D.** USDA APHIS – Systematics of weevils attacking avocado.

2021-2022 **Prashant Gupta, Ph.D.** BioKIC – Biodiversity Data Science Initiative.
* Obtained a Data Engineer position at Amazon.

2020-2022 **Nathan S. Upham, Ph.D.** BioKIC – Biodiversity Data Science Initiative.
* Obtained an Assistant Professor position at Arizona State University.

2019-2021 **Atriya Sen, Ph.D.** BioKIC – Biodiversity Data Science Initiative.
* Obtained an Assistant Professor position at the University of New Orleans.

2015 **Matthew L. Gimmel, Ph.D.** BioKIC – Coleoptera Anatomy Ontology.
* Obtained an Endowned Curator position at the Santa Barbara Natural History Museum.

2013-2017 **Guanyang Zhang, Ph.D.** NSF CAREER – Systematics of eustyline and geonemine weevils. * Obtained a Postdoctoral Researcher position at the University of Florida.

2012-1014 **Aaron D. Smith, Ph.D.** NSF ARTS – Systematics of the darkling beetle genus *Eleodes*.
* Obtained an Assistant Professor position at Northern Arizona University.

II. PH.D. STUDENTS (CHAIR; 12 TOTAL, 5 CURRENT + 2 CO-CHAIRED)

2021-present **Ángel L. Robles Fernández.** Co-Chair. Modeling zoonotic diseases.

2020-present **Kevin A. Cortés Hernández.** Systematics of Tanymecini (Coleoptera: Curculionidae).

2020-present **Caleb A. Powell.** Advancing systematic AI applications with synthetic specimen images.

2019-present **K. Samanta Orellana.** Systematics of Anthribidae (Coleoptera).

2019-present **Evan S. Waite.** Systematics of North American Carabidae (Coleoptera).

2019-present **Charles Wallace.** Co-Chair. Decision-making in biological classifications.

2015-present **Edward E. Gilbert.** Decentralized biodiversity data integration through Symbiota.

2015-2022 **Brian H. Reily.** Systematics of *Pachnaeus* (Coleoptera: Curculionidae).
URL: https://keep.lib.asu.edu/items/171426

2014-2019 **M. Andrew Jansen.** Evolution of the *Curculio* rostrum (Coleoptera: Curculionidae).
URL: https://keep.lib.asu.edu/items/157410

2013-2019 **Salvatore S. Anzaldo.** Systematics of Conoderinae (Coleoptera: Curculionidae). URL: https://keep.lib.asu.edu/items/157762

2013-2018 **M. Andrew Johnston.** Systematics of Amphidorini (Coleoptera: Tenebrionidae). URL: https://keep.lib.asu.edu/items/156871

III. External Ph.D. Students (Committee Member; 4 total, 0 current)

2019-2022 **Yi-Yun Cheng.** Ph.D. Committee, University of Illinois at Urbana-Champaign. Agreeing to disagree: Applying a logic-based approach to reconciling and merging multiple taxonomies.

2012-2017 **Shizhuo Yu.** Ph.D. Committee, University of California at Davis. Enhancing taxonomy alignment with region connection calculus reasoning. ISBN 978-0-355-45198-6.

2012-2014 **Mingmin Chen.** Ph.D. Committee, University of California at Davis. Reasoning about queries and constraints. ProQuest # 1665572038.

2011-2015 **Julio C. Lazcano Cara.** Ph.D. Committee, University of Puerto Rico Río Piedras. The reproductive biology of *Zamia* (Cycadales: Zamiaceae) in Puerto Rico: Implications for patterns of genetic structure and species conservation".

IV. M.Sc. Students (Chair; 10 total, 2 current)

2022-present **Daniel Moses.** Fossilized Miocene midge galls from Washington and Idaho.

2018-present **Brennan T. Hays.** Southwest U.S. insect population trends based on NEON data.

2018-2023 **Katherine M. Arguez.** Systematics of *Rhyssomatus* (Coleoptera: Curculionidae).

2012-2014 **M. Andrew Jansen.** Phylogenetic revision of *Minyomerus* (Coleoptera: Curculionidae). URL: https://keep.lib.asu.edu/items/152772

2010-2012 **Andrés H. Vélez-Bravo.** UPRM. Systematics of Nyctiborinae (Blattaria: Ectobiidae). URL: https://hdl.handle.net/20.500.11801/472

2010-2012 **Augusto L. Montoya Giraldo.** UPRM. Revision of *Argentinomyia* (Diptera: Syrphidae). URL: https://hdl.handle.net/20.500.11801/209

2009-2012 **Laura M. Vásquez-Vélez.** UPRM. Phylogeny and revision of *Pselaphomorphus* (Coleoptera: Staphylinidae: Pselaphinae). URL: https://hdl.handle.net/20.500.11801/133

2008-2011 **Anyimilehidi Mazo-Vargas.** UPRM. Phylogeny and phylogeography of *Exophthalmus* (Coleoptera: Curculionidae). URL: https://hdl.handle.net/20.500.11801/273

2008-2011 **Juliana Cardona-Duque.** UPRM. Revision of *Azotoctla* (Coleoptera: Curculionidae). URL: https://hdl.handle.net/20.500.11801/474

2007-2010 **Jennifer C. Girón Duque.** UPRM. Revision and phylogeny of *Apodrosus* (Coleoptera: Curculionidae). URL: https://hdl.handle.net/20.500.11801/481

V. Undergraduate Honors Students (3 total, 0 current)

2019 **Chad S. Hauck.** Co-Chair. The diversity and history of the plants in the alleyways of Tempe. URL: https://hdl.handle.net/2286/R.I.52893

2014 **Samantha L. Hauserman.** Cocladogenesis – a thesis in three parts. URL: https://hdl.handle.net/2286/R.I.22788

2012 **Dustin H. Daniel.** An interactive key to the genera of entimine weevils of Arizona.

URL: http://mx.speciesfile.org/projects/85/public/site/asu/home

VI. UNDERGRADUATE RESEARCH STUDENTS (ASU; 177 CUMULATIVE)

2023 (11) Zachary Boyd, Arely Castillo, Mine Gulman, Zainab Kadhim, Jacob Kerwin, Christina Palmrose-Krieger, Carina Rodriguez, Sarah Snider, Minjee Sohn, Ethan Wright, Jordyn Yochheim.

2022 (18) Emily Allan, Laura Boyer, Zachary Byrd, Vivian Bui, Tibet Ergul, Ashlee Greenier, Aryan Gupta, Jacob Kerwin, Kelsey Krall, Gilma De Leon, Linh Nghiem, Jordan Patterson, Carina Rodriguez, Giavonna Sabatini, Sarah Snider, Ethan Wright, Jordyn Yochheim, Austin Zumbuhl.

2021 (15) Zachary Byrd, Tibet Ergul, Ashlee Greenier, Marry Haddad, Savage Hess, Jacob Kerwin, Elena Palka-Flores, Sophia Ream, Marcus Reid, Carina Rodriguez, Michele Tan, Ethan Wright, Jordyn Yochheim, Luisa Zamora Chavez, Austin Zumbuhl.

2020 (19) Melanie Abramson, Maxime Bault, Savanna Benson, Ana Castro, Paris Christensen, Joshua Deib, Shreya Dubey, Emmy Gariepy, Luis Hernandez, Sophie Huard, Emma Knapp, Paulina Labesa, Elena Palka-Flores, Maya Peremislov, Stephane Presume, Eda Sezen, Jeffrey Sneed, Nathan Soliday, Vanessa Soto.

2019 (21) Katherine Barnes, Savanna Benson, Jamal Broussard, Klara Boules, Edgar Camberos, Courtney Curtis, Emmy Gariepy, Brennan Hays, Travis Hitchner, Trinity Johnson, Khalil Khalil, Rachel Kulich, Paulina Labesa, Avneet Nagra, Maya Peremislov, Luis Romero, Eda Sezen, Suraya Sidique, Cody Smith, Jeffrey Sneed, Benjamin Shockley.

2018 (14) Edgar Camberos, Brennan Hays, Travis Hitchner, Trinity Johnson, Rachel Kulich, Charles Malm, Avneet Nagra, Maya Peremislov, Noah Redwood, Luis Romero, Benjamin Shockley, Sofia Soto, Ethan Stahura, Kelsie Wilder.

2017 (17) Yasmin Aghili, Dylan Cooper, Boris Dimov, Chad Hauck, Brennan Hays, Travis Hitchner, José Martínez, Luc McConnell, Justin Nguyen, Luis Romero, Sarah Rydberg, Spencer Scott, Ethan Stahura, Zachary Stevens, Brian Takimoto, Don Tram, Sydney Wuerker.

2016 (11) Dylan Cooper, Joseph Hunter, Zachariah Lott, Collin McMartin, John Nguyen, Shinji Otsuru, Sara Tanveer, Richard Thomas, Lester Villalobos Mendoza, Don Tram, Mary Walsh.

2015 (12) Abigail Howell, Joseph Hunter, John Nguyen, S.M. Bukola Obayomi, Lin Pan, Pavithra Paravastu, Natalia Rahman, Ashley Sanders, Mohamad-Sari Sbai, Sara Tanveer, Richard Thomas, Lester Villalobos Mendoza.

2014 (12) Usmaan Basharat, Kellie Elliott, Zhen Geng, Christopher Henny, Kody Holmes, Joseph Hunter, Lin Pan, Juyan Pourturk, Ashlee Prettyman, Chelsey Tellez, Andrea Walton, Kevin Wang.

2013 (17) Usmaan Basharat, Omron Blauo, Kevin Demater, Hayley Dull, Soon Flynn, Jennifer Guzzardi, Evan Hook, Madalyn Karamooz, Catherine Mercado, Naomi Pier, Karin Ramirez, Michael Shillingburg, Sarah Shirota, William Sides, Chelsey Tellez, Daniel Vargas, Andrea Walton.

2012 (8) Stephanie Delgado, David Fleming, Soon Flynn, Catherine Mercado, Joshua Persson, Naomi Pier, Michael Shillingburg, Sarah Shirota.

2011 (7) Martha Camacho, Adam Cegla, Dustin Daniel, Harry Grissom, Gregory Lloyd, Don Quach, Stephanie Varelas.

VII. Mentored Trainee Awards and Honors

2022	Entomological Society of America, Student Competition for the President's Prize for a 10-minute oral presentation, SusEB: Biodiversity (1st place). Awarded to Evan Waite[G].
2022	Leo S. Rowe Pan American Fund. Awarded to Ángel Robles Fernández[G].
2017-2019	Entomological Society of America's President's Prize for a 10-minute oral presentation (1st place). Awarded to Salvatore AnzaldoG, Brian Reily[G], Evan Waite[G].,
2018-2019	ASU SoLS Thesis Completion Fellowship. Awarded to Salvatore Anzaldo[G], Andrew Jansen[G], Andrew Johnston[G].
2018	ASU The College Graduate Excellence Award. Awarded to Salvatore Anzaldo[G].
2018	ASU Graduate College Travel Grant. Awarded to Salvatore Anzaldo[G], Andrew Jansen[G], Brian Reily[G].
2018	ASU SoLS Travel Award. Awarded to Salvatore Anzaldo[G] (twice), Andrew Jansen[G], Brian Reily[G].
2018	Society for Systematic Biologists Mini-ARTS Award. Awarded to Salvatore Anzaldo[G].
2017	Harvard University MCZ Ernst Mayr Travel Award. Awarded to Salvatore Anzaldo[G].
2017	Canadian Museum of Nature Visiting Scientist Award. Awarded to Andrew Johnston[G].
2016	ASU EVO Ph.D. Program Summer Research Fellowship. Awarded to Andrew Johnston[G].
2016	USAID Research and Innovation Fellowship. Awarded to Edward Gilbert[G].
2015	ASU SoLS Undergraduate Research Grant. Awarded to Usmaan Basharat[U].
2015	ASU The College Undergraduate Summer Enrichment. Awarded to Joseph Hunter[U].
2015	ASU SoLS Undergraduate Research Program (SOLUR). Awarded to Zhen Geng[U].
2014	ASU SoLS Undergraduate Research Program (SOLUR). Awarded to Usmaan Basharat[U].
2014	Society for the Study of Evolution Undergraduate Diversity at Evolution Program. Awarded to Usmaan Basharat[U].
2007-2008	NSF Alianza para el Aprendizaje de Ciencias y Matemáticas Summer Research Program (AlACiMa). Awarded to Jennifer López[U], Diana Ruíz[U].
2006-2010	NSF Puerto Rico Louis Stokes Alliance for Minority Participation Program (PR-LSAMP). Awarded to Jean Carlos Cruz[U], Freddie Irizarry[U], Christopher Molini[U] (twice).

Instruction

I. Arizona State University

BIO 189 Life Sciences Career Paths: Discover Insect Species. Introductory, first-year undergraduate student seminar focused on contextualizing the dimensions of biodiversity and empirical pathways to discovering and managing biodiversity knowledge and translating this knowledge into societal response actions, with an emphasis on insects. 1 credit; offered in the Fall of 2014, 2016, 2017.

BIO 345 Evolution. Introduction to concepts of evolutionary theory including phylogenetic analysis, adaptive and non-adaptive evolution, population genetics, and modern human evolution. The course entails lectures and activity-focused recitations. 3 credits; offered in the Summer of 2018, Online.

BIO 386 General Entomology. Up-to-date introduction to the morphology, evolution, classification, physiology, and ecological and behavioral interactions of insects with their environment. Lectures are

complemented by weekly lab sections and optional field trips, based on which each student creates their own scientifically curated collection of at least 100 insect species (including a virtual collection option), identified to the level of family. 3 credits; offered in the Fall of 2012-2024 (except 2018).

BIO 498 Fundamentals of Tropical Biology and Tropical Research. Field-based course offered at Gamboa, Panama, in coordination with the Smithsonian Tropical Research Institute. Students are exposed to topics and student-led research projects that broadly integrate tropical ecology, biodiversity, evolution, behavior, and physiology. 6 credits; offered in the Summer of 2014.

BIO 498 Discovering Biodiversity: Field to Database. Practical course focused on current methods in biodiversity documentation in the field and research collection; including concepts and practices needed to collect, process, digitize, publish, and analyze high-quality biodiversity data through open, standard-compliant information environments. 3 credits; offered in the Spring of 2016.

EVO 598 Seminar: Current Topics in Systematics. Graduate-level seminar focused on learning broadly and deeply about recurring issues and new trends of relevance to the field of biological systematics. Offered in the Spring of 2015, 2016, 2017, 2020, 2021, 2022; and in the Fall of 2014, 2015.

II. University of Puerto Rico at Mayagüez

BIOL 4901/2	**Special Problems in Zoology**	2006-2011 – every semester
BIOL 4446	**Introduction to Entomology**	Spring 2007, 2008, 2010
BIOL 4925	**Undergraduate Seminar**	Spring 2006
BIOL 6015	**Insect Morphology**	Fall 2010
BIOL 6990	**Graduate Seminar**	Fall 2007
BIOL 6992	**Phylogenetic Systematics Lab**	Fall 2008
BIOL 6993	**Biological Nomenclature**	Spring 2007
BIOL 6994	**Biological Systematics**	Fall 2007, Spring 2010
CIBI 3032	**Biological Science for Non-Majors**	Spring 2006 (2 sections)
ZOOL 6058	**Insect Taxonomy**	Fall 2006, Spring 2009

III. Additional Instruction

2021-present	**ASU Biocollections Diversity, Equity and Inclusion Summer Scholars Program.** Role: Co-lead, instructor. 3 Summers, 16 participants.
2014	**The Weevil Course II.** Southwest Research Station, Portal, AZ. Role: Lead organizer and instructor.16 participants.
2012	**The Weevil Course.** Southwest Research Station, Portal, AZ. Role: Lead organizer and instructor. 22 participants.
2012	**Taller de Cladística.** Museo de Historia Natural Tomás Romay, Santiago de Cuba, Cuba. Role: Lead instructor. 24 participants.
2010	**USDA Southern Plant Diagnostic Network Weevil Workshop.** University of Georgia, Athens, GA. Role: Instructor. 28 participants.
2006	**SEEK Postdoctoral Workshop in Biodiversity Informatics.** University of New Mexico, NM. Role: Instructor. 14 participants.
2001	**Coleoptera Parataxonomists Course.** Instituto Nacional de Biodiversity (INBio), Costa Rica. Role: Instructor. 35 participants.

SERVICE

I. INSTITUTIONAL SERVICE

2021	Co-Chair, Evolution Instructor Search Committee, SoLS, ASU.
2019-present	Co-Lead, Biosystems Focal Areas, Global Futures Laboratory, ASU.
2017-2018	Member, SoLS Director Search Committee, SoLS, ASU.
2016-2017	Member, Septennial Academic Program Review Committee, SoLS, ASU.
2013-present	Member, EVO Ph.D. Program, SoLS, ASU.
2013-2018	Lead Coordinator, Natural History Collections, SoLS, ASU.
2011-2014	Associate Director, Revisions and Monography, International Institute for Species Exploration (IISE), ASU.
2011-2013	Member, Natural History Collections, SoLS, ASU.
2012-2013	Member, Ecosystem Conservation and Resilience Initiative Advisory Board, SoLS, ASU.
2011-present	Member, Faculty of Genomics, Evolution and Bioinformatics Faculty Group, SoLS, ASU.
2009-2011	Leader, Informatics Committee, Department of Biology, UPRM.
2006-2009	Member, Computer and Field Station Committees, Department of Biology, UPRM.
2001	Coordinator, Jugatae Seminar Series, Department of Entomology, Cornell University.

II. EXTERNAL SERVICE (ORGANIZATIONS, PROJECTS)

2023	Workshop Participant and Member, Samples and Processing Working Group. The Earth BioGenome Project: Meeting the Challenges to Complete Phase II Workshop. Lausanne, Switzerland.
2022-present	Collaborator, Earth BioGenome Project, U.S. Node Planning Group.
2021-present	Member, Biodiversity Collections Network (BCoN) Steering Committee.
2021-present	Member, Integrated Digitized Biocollections (iDigBio) Executive Committee.
2021-present	Extraordinary Member, National Ecological Observatory Network (NEON) Science, Technology & Education Advisory Committee (STEAC).
2021-present	Elected Fellow, Willi Hennig Society.
2020-present	Member, Ecological Forecasting Initiative Research Coordination Network.
2013-2019	Research Associate, Smithsonian Tropical Research Institute, Balboa, Ancón, Panama.
2012-2018	Lead Domain Scientist, Euler/X Multi-Taxonomy Alignment and Explorer of Taxon Concepts Projects, University of California at Davis and University of Arizona.
2011-2015	Core Participant, Phenotype Ontology Research Coordination Network and Meetings, National Evolutionary Synthesis Center, Durham, NC, and Biosphere2, Oracle, AZ.
2009-2010	Councilor, The Coleopterists Society.
2008-2011	Core Participant, Research Coordination Network – CollectionsWeb.
2008	Invited Participant, Research Coordination Network – CollectionsWeb Workshop I, Michigan State University, East Lansing, MI.
2006-present	Student Competition Judge and Session Moderator, Systematics, Evolution, and Behavior Section, Annual Meetings of the Entomological Society of America.
1999-present	Member, The Coleopterists Society, Entomological Society of America, Society of Systematic Biologists, Willi Hennig Society.

III. EVENT COORDINATION SERVICE

2022-2023	Lead Host and Opening Speaker, 2023 iDigBio 7th Annual Digital Data Conference, hosted by the Rob and Melani Walton Center for Planetary Health (Global Futures Laboratory) and the ASU Biocollections (BioKIC), Arizona State University, Tempe, AZ.
2021-present	Monthly iDigBio Symbiota Support Group Virtual Session.

2020	Co-Organizer, Avenues into Integration: Communicating Taxonomic Intelligence from Sender to Recipient Session, Annual Meeting of the Biodiversity Information Standards Association (TDWG 2020), Virtual Conference.
2020	Co-Organizer, Taxonomically Intelligent Biodiversity Data: Taking Stock of Our Progress and Next Steps to Scale Up Implementation Session, iDigBio 4th Annual Digital Data Conference, Indiana University, Virtual Conference.
2019	Co-Organizer, Closing the Feedback Loop between Biodiversity Data and Decision Making Workshop, Global Futures Laboratory, ASU SkySong, Scottsdale, AZ.
2019	Co-Organizer, Using NEON Samples and Data in Biodiversity Research Workshop, Biodiversity Next 2019, Leiden, The Netherlands.
2018	Co-Organizer, Taxonomic Intelligence for Next-Generation Biological Data Discovery and Integration Workshop, Marine Biological Laboratory, Woods Hole, MA.
2017	Co-Organizer, The Future of Systematics in Data-Centric Biology Workshop, Marine Biological Laboratory, Woods Hole, MA.
2017	Leader, Workshop on Phylo-References, Sponsored by NSF FuturePhy and OpenTree projects, Duke University, Durham, NC.
2016	Organizer, Building the Biodiversity Knowledge Graph for Insects Symposium, XXV International Congress of Entomology (ICE 2016), Orlando, FL.
2016	Leader, Workshop on Tree-Data Integration for Phytophagan Beetles, Sponsored by NSF FuturePhy, OpenTree, and Arbor projects, University of Florida, Gainesville, FL.
2016	Co-Organizer, Introduction to Galaxy Workshop, SoLS, ASU.
2015	Co-Organizer, iDigBio Workshop, Managing Natural History Collections Data for Global Discoverability, Natural History Collections, ASU.
2013	Co-Organizer, Third International Tenebrionoidea Symposium, SoLS, ASU.
2012	Co-Organizer, All-Hands Meeting of the Southwest Collections of Arthropods Network (SCAN), SoLS, ASU.
2009-2010	Member, Organizing Committee of the 2011 Entomological Society of America – Southeastern Branch Meeting (ESA-SEB), Río Piedras, PR.
2007	Organizer, New Minds for Weevil Systematics Symposium, Annual Meeting of the Entomological Society of America, San Diego, CA.
2004	Assistant Coordinator, Phytophaga Symposium, XXII International Congress of Entomology, Brisbane, Australia.

IV. Review Service (Manuscripts, Proposals)

2020	*Ad hoc* Reviewer, Montoya, Power of Position: Classification and the Biodiversity Sciences, MIT Press.
2019	*Ad hoc* Reviewer, Schuh & Brower, Biological Systematic – Principles and Applications, Third Edition, Cornell University Press.
2018-present	Academic Editor, PLoS ONE – Insect Systematics, Biodiversity Informatics.
2017-present	Subject Editor, Biodiversity Informatics, Insect Systematics and Diversity, Entomological Society of America, Oxford Academic.
2016	Guest Editor, Special Issue on Semantics for Biodiversity, Semantic Web – Interoperability, Usability, Applicability, an IOS Press Journal.
2015-2017	Editor, Knowledge Representation in Systematic Biology, Taylor & Francis Group.
2012-2013	Subject Editor. Coleoptera, Annals of the Entomological Society of America.
2009-2017	Editorial Committee Member, Solenodon – Antillean Journal of Zoological Taxonomy.
2009-2012	Editor, Subject Area Coleoptera: Curculionoidea, Zootaxa.
2009-present	Member on 9 NSF proposal review panels; Biological Research Collections (BRC), Cyber-Innovation for Sustainability Science (CyberSEES), Doctoral Dissertation Improvement Grants (DDIG, twice), Genealogy of Life (GoLife), Partnership to Advance Conservation

	Science and Practice (PACSP), Pathways to Enable Open-Source Ecosystems (POSE) Phase I, and Systematics and Biodiversity Science (SBS, twice).
2006-present	Approximately 30 *ad hoc* reviews of NSF proposals in the areas of systematics, ecology, evolution, open biodiversity data science, and AI/ML applications for biodiversity.
2001-2009	Editor, CURCULIO – International Newsletter for Curculionoidea Research. URL: https://www.coleopsoc.org/resources/beetle-newsletters-open-access-journals/curculio/
2001-present	*Ad hoc* manuscript reviewer (40 peer-reviewed journals).

Acta Biotheoretica, Biodiversity Data Journal, Biological Journal of the Linnean Society, Biology & Philosophy, BioScience, Boletín del Museo de Entomología de la Universidad del Valle, Canadian Entomologist, Caribbean Journal of Science, Cladistics, Coleopterists Bulletin, Diversity, Entomapeiron - Paleoentomology, Florida Entomologist, Insecta Mundi, Insects (MDPI), Invertebrate Systematics, Israel Journal of Entomology, Journal of Agriculture of the University of Puerto Rico, Journal of Science and Technology Education Research, Journal of Tropical Ecology, Methods in Ecology and Evolution, Molecular Biology and Evolution, Molecular Phylogenetics & Evolution, Paleontologia Electronica, PeerJ, PLoS Biology, PLoS ONE, Proceedings of the Entomological Society of Washington, Revista Brasileira de Entomologia, Revista de Biología Tropical, Revista de la Sociedad Entomológica Argentina, Semantic Web Journal, Smithsonian Contributions Open Monographs, Solenodon, Systematic Biology, Systematic Entomology, Taxon, ZooKeys, Zoologia Neocaledonica, Zoological Journal of the Linnean Society, Zootaxa.

OUTREACH AND ENGAGEMENT

ASU Biocollections (2011-present). Outreach and engagement are essential, integral parts of translating my commitment to the ASU Biocollections into long-term strategic and everyday activities. In my formal functions as Curator of Insects, Director of the Biocollections, and Director of the Biodiversity Knowledge Integration Center, I play a central role in structuring the purpose of the collections and associated personnel around providing diversified, inclusive, equitable, broadly impacting access to students, researchers, volunteers, and the general public (K to life-long learners). This scope of activities includes both in-person and virtually facilitated access. Starting in 2014 with our relocation to the Alameda Building, the ASU Biocollections have offered 20-40 themed or focused outreach events on an annual basis, reaching 1,000-3,000 in-person visitors. Our 3D-AR collection specimen apps and 56 Symbiota portals reach a still larger virtual audience, with jointly more than 5,000 daily users.

The Love Bugs. In 2017-2019 our group contributed extensively to the content and production of the documentary *The Love Bugs* – https://www.thelovebugsfilm.com/ – which won 14 film festival awards and was entered into the competition for the 2021 Academy Awards – Best Documentary Short. The documentary features the history and significance of the Charles W. and Lois B. O'Brien Collections, and ASU's role in acquiring and reactivating this invaluable resource for research and education. More than 5 million global viewers have seen the 34-minute-long documentary which is now publicly viewable at https://www.pbs.org/pov/watch/thelovebugs/video-the-love-bugs/.

ASU Biocollections Diversity, Equity and Inclusion Summer Scholars Program. We launched this program in the Summer of 2021 (with continuing offerings in 2022 and 2023) to foster human-nature connections and provide hands-on biocollections experiences for undergraduates from groups historically excluded from STEM fields. For six weeks during the Summer, 4-6 funded scholars spend 20 hours each week working collaboratively in the ASU Biocollections and in the field with members of BioKIC. The program was twice formally assessed and deemed highly successful, resulting (e.g.) in the retention of 10/16 scholars as ASU Biocollections researchers and outreach program developers.

EXAMPLES OF MEDIA COVERAGE

2023	ASU News. NSF, ASU continue partnership to house national biorepository.
2021	ASU News. ASU Biocollections grant fuels digitization of millions of specimen records.
2021	The State Press. Popularizing biophilia.
2019	ASU News. Volunteers explore passions at rapidly growing ASU Natural History Collections facility.
2018	ASU News. ASU receives multimillion grant from NSF to create a national biorepository.
2017	The Arizona Republic. Bitten by the collecting bug: Arizona couple's insect collection valued at $10 million will go to ASU.
2017	ASU News. Entomologist couple donates world-class insect collection to ASU.
2014	ASU News. ASU's Natural History Collections celebrate new home with grand opening.
2012	ASU News. ASU to digitize vast Southwestern arthropod collection.