Camiel Doorenweerd
College of Tropical Agriculture and Human Resources
Department of Plant and Environmental Protection Sciences
FTE Distribution: 0% I; 100% R; 0% E

Education

Degree	University	Major
Bachelors	Radboud University Nijmegen, The Netherlands	Biology
Masters	Radboud University Nijmegen, The Netherlands	Biology; Ecology & Evolution
PhD	University of Amsterdam, The Netherlands	Biology; Plant-insect interactions

Professional Appointments

Title	Employer	Dates Employed
Junior Researcher	University of Hawai'i at Mānoa	2017 – present
PhD candidate	Naturalis Biodiversity Center	2012–2016
Project manager	Naturalis Biodiversity Center	2010–2012
Senior Technical assistant	Naturalis Biodiversity Center	2009–2010

Courses Taught [only courses at UH listed]
Course Number and Title (credits)
2023 PEPS 662 Systematics and Phylogenetics (3)
2021 PEPS 662 Systematics and Phylogenetics (3)
2019 PEPS 662 Systematics and Phylogenetics (3)
2018 PEPS 690 Seminar on Insect Evolution (1)
2018 1-day Seminar Python for data analyses (0)

Publications (reverse chronological order)
Books
None

Book Chapters
None

Conference Proceedings
None

Refereed Journal Publications [Since 2018]

2024

Doorenweerd C, San Jose M, Leblanc L, Barr N, Geib SM, Chung AYC, Dupuis JR, Ekayanti A, Fiegalan E, Hemachandra KS, Hossain MA, Huang C, Hsu Y, Morris KY, Maryani A. Mustapeng A, Niogret J, Pham TH, Thi Nguyen N, Sirisena UGAI, Todd T, Rubinoff D (2024) Towards a better future for DNA barcoding: Evaluating monophyly- and distance-based species identification using COI gene fragments of Dacini fruit flies. Molecular Ecology Resources: e13987. https://doi.org/10.1111/1755-0998.13987

Doorenweerd C, Leblanc L, Anderson C, San Jose M, Rubinoff D, Geib S, Todd T, Barr N (2024) Adult Bactrocera fruit fly ID (Diptera: Tephritidae: Dacinae: Dacini). Available from: https://idtools.org/bactrocera (January 25, 2024).

2023

51. **Doorenweerd, C.**, San Jose, M., Geib, S., Barr, N., Rubinoff, D. 2023. Genomic data reveal new species and the limits of mtDNA barcode diagnostics to contain a global pest species complex (Diptera: Tephritidae: Dacinae). Systematic Entomology early online. https://doi.org/10.1111/syen.12616

50. San Jose, M., **Doorenweerd, C.**, Geib, S., Barr, N., Dupuis, J., Leblanc, L., Kauwe, A., Morris, K., Rubinoff, D. 2023. Interspecific gene flow obscures phylogenetic relationships in an important insect pest species complex. Molecular Phylogenetics and Evolution 188: 107892. https://doi.org/10.1016/j.ympev.2023.107892

49. San Jose, M., **Doorenweerd, C.**, Rubinoff, D. 2023. Genomics reveals widespread hybridization across insects with ramifications for species boundaries and invasive species. Current Opinion in Insect Science 58: 101052. https://doi.org/10.1016/j.cois.2023.101052

48. **Doorenweerd, C.**, Austin, K., Rubinoff, D. 2023. Five new species of Hawaiian endemic fancy case caterpillars from a recently established forest reserve on Maui (Cosmopterigidae: *Hyposmocoma*). Proceedings of the Hawaiian Entomological Society 55: 29–44. https://hdl.handle.net/10125/104862

2022

47. **Doorenweerd, C.**, San Jose, M., Leblanc, L., Rubinoff, D. 2022. Inadequate molecular identification protocols for invasive pests threaten biosecurity. Systematic Entomology 48: 355–360. https://doi.org/10.1111/syen.12581

46. **Doorenweerd, C.**, Lee, K.M., van Nieukerken E.J., Mutanen, M. 2022. Phylogenomic inference of two widespread European leaf miner species complexes suggests mechanisms for sympatric speciation (Lepidoptera: Nepticulidae: *Ectoedemia*). Systematic Entomology 48: 341–353. https://doi.org/10.1111/syen.12579

45. **Doorenweerd, C.**, San Jose, M., Dupuis, J., Leblanc, L., Barr, N., Fiegalan, E., Morris, K.Y., Rubinoff, D. 2022. A phylogenomic approach to species delimitation in the mango fruit fly (*Bactrocera frauenfeldi*) complex: A new synonym of an important pest species with variable morphotypes (Diptera: Tephritidae). Systematic Entomology 48: 10–22. https://doi.org/10.1111/syen.12559

44. Cupedo, F., **Doorenweerd, C.** 2022. Mitochondrial DNA-based phylogeography of the large ringlet *Erebia euryale* (Esper, 1805) suggests recurrent Alpine-Carpathian disjunctions during Pleistocene (Nymphalidae, Satyrinae). Nota Lepidopterologica 45: 65–86. https://doi.org/10.3897/nl.45.68138

2021

43. Li, X., Saint-Laurent, R., Earl, C., **Doorenweerd, C.**, van Nieukerken, E.J., Davis, D.R., Johns, C.A., Kawakita, A., Kobayashi, S., Zwick, A., Lopez-Vaamonde, C., Ohshima, I., Kawahara, A.Y. 2021. Phylogeny of gracillariid leaf-mining moths: evolution of larval behaviour inferred from phylogenomic and Sanger data. Cladistics: 1–24. https://doi.org/10.1111/cla.12490

42. Leblanc, L., Tsatsia, F., **Doorenweerd, C.** 2021. Novel lures and COI sequences reveal cryptic new species of *Bactrocera* fruit flies in the Solomon Islands (Diptera, Tephritidae, Dacini). ZooKeys 1057: 49–103. https://doi.org/10.3897/zookeys.1057.68375

41. Rubinoff, D., **Doorenweerd, C.**, McElfresh, J.S., Millar, J.G. 2021. Phylogeography of an endemic California silkmoth genus suggests the importance of an unheralded central California province in generating regional endemic biodiversity. Molecular Phylogenetics and Evolution 164: 107256. https://doi.org/10.1016/j.ympev.2021.107256

40. **Doorenweerd, C.**, Austin, K.A., Rubinoff, D. 2021. First Confirmed Record of Leaf Mining in the Fruitworm Moths (Carposinidae): A New Species Feeding on an Endemic Hawaiian *Clermontia* (Campanulaceae). Proceedings of the Hawaiian Entomological Society 53: 11–19.

39. Lopez-Vaamonde, C., Kirichenko, N., Cama, A., **Doorenweerd, C.**, Godfray, H.C.J., Guiguet, A., Gomboc, S., Huemer, P., Landry, J.F., Laštůvka, A., Laštůvka, Z., Lee, K.M., Lees, D.C., Mutanen, M., van Nieukerken, E.J., Segerer, A.H., Triberti, P., Wieser, C., Rougerie, R. 2021. Evaluating DNA Barcoding for Species Identification and Discovery in European Gracillariid Moths. Frontiers in Ecology and Evolution 9: 1–16. https://doi.org/10.3389/fevo.2021.626752

2020

38. **Doorenweerd, C.**, San Jose, M., Leblanc, L., Barr, N., Geib, S., Chung, A.Y.C., Dupuis, J., Ekayanti, A., Fiegalan E.R., Hemachandra, K.S., Hossain, M.A., Huang, C.-L., Hsu, Y.-F., Morris, K.Y., Mustapeng, A.M., Niogret, J., Pham, T.H., Sirisena, U.G.A.I., Rubinoff, D. 2020. DNA barcodes and reliable molecular identifications in a diverse group of invasive pests: lessons from *Bactrocera* fruit flies on variation across the COI gene, introgression, and standardization. Evolutionary Biology. *BioRxiv*: https://doi.org/10.1101/2020.11.23.394510

37. **Doorenweerd, C.**, Ekayanti, A., Rubinoff, D. 2020. The Dacini fruit fly fauna of Sulawesi fits Lydekker's line but also supports Wallacea as a biogeographic region (Diptera, Tephritidae). *ZooKeys* 973: 103–122. DOI: https://doi.org/10.3897/zookeys.973.55327

36. **Doorenweerd, C.**, Sievert, S., Rossi, W., Rubinoff, D. 2020. The paradoxical rarity of a fruit fly fungus attacking a broad range of hosts. *Ecology and Evolution* 1–9. DOI: https://doi.org/10.1002/ece3.6585

35. **Doorenweerd, C.**, San Jose, M., Barr, N., Leblanc, L., Rubinoff, D. 2020. Highly variable COI haplotype diversity between three species of invasive pest fruit fly reflects remarkably incongruent demographic histories. *Scientific Reports* 10 6887 DOI: https://doi.org/10.1038/s41598-020-63973-x. [Preprint Aug 2019: *BioRxiv*: 742007. DOI: https://doi.org/10.1101/742007]

34. Cupedo, F., **Doorenweerd, C.** 2020. The intraspecific structure of the Yellow-spotted ringlet *Erebia manto* (Denis & Schiffermüller, [1775]), with special reference to the bubastis group: an integration of morphology, allozyme and mtDNA data (Lepidoptera, Nymphalidae, Satyrinae). Nota Lepidopterologica 43: 43–60. DOI: https://doi.org/10.3897/nl.43.47409

33. Rubinoff, D., **Doorenweerd, C.** 2020. Systematics and biogeography reciprocally illuminate taxonomic revisions in the silkmoth genus *Saturnia* (Lepidoptera: Saturniidae). *Journal of the Lepidopterists' Society* 74(1): 1–6. DOI: https://doi.org/10.18473/lepi.74i1.a1

32. Rubinoff, D., **Doorenweerd, C.** 2020. In and out of America: Ecological and species diversity in Holarctic giant silkmoths suggests unusual dispersal, defying the dogma of an Asian origin. *Journal of Biogeography* 47(4): 903–914. DOI: https://doi.org/10.1111/jbi.13756

2019

31. Leblanc, L., Hossain, M. A., **Doorenweerd, C.**, Khan, S. A., Momen, M., San Jose, M., Rubinoff, D. 2019. Six years of fruit fly surveys in Bangladesh: a new species, 33 new country records and recent discovery of the highly invasive *Bactrocera carambolae* (Diptera: Tephritidae). *ZooKeys* 109: 87–109 Aug 15 2019. DOI: https://doi.org/10.3897/zookeys.876.38096

30. Sohn, J.-C., **Doorenweerd, C.**, Nam, K. S., Choi, S.-W. 2019. New leaf-mine fossil from the Geumgwangdong Formation, Pohang Basin, South Korea, associates pygmy moths (Lepidoptera, Nepticulidae) with beech trees (Fagaceae, Fagus) in the Miocene. *Journal of Paleontology* 93(2): 337–342. DOI: https://doi.org/10.1017/jpa.2018.83

29. Breeschoten, T., **Doorenweerd, C.**, Tarasov, S., Vogler, A.P. 2019. Incorporating older literature into genomic studies: A response to Zunino & Halffter. *Molecular Phylogenetics and Evolution* 133: 164. DOI: https://doi.org/10.1016/j.ympev.201901010

28. **Doorenweerd, C.**, Leblanc, L., Hsu, Y-F, Huang, C-L, Lin, Y-C, San Jose, M., Rubinoff, D. 2019. Taiwan's Dacini fruit flies: rare endemics and abundant pests, along altitudinal gradients. *Pacific Science* 74(1): 35–59. DOI: https://doi.org/10.2984/73.1.3

2018

27. Leblanc, L., **Doorenweerd, C.**, San Jose, M., Pham, H.T., Rubinoff, D. 2018. Descriptions of four new species of *Bactrocera* and new country records highlight the high biodiversity of fruit flies in Vietnam (Diptera, Tephritidae, Dacinae). ZooKeys 797: 87–115. DOI: https://doi.org/10.3897/zookeys.797.29318

26. Reil, J. B., **Doorenweerd, C.**, San Jose, M., Sim, S., Geib, S., Rubinoff, D. 2018. Transpacific coalescent pathways of coconut rhinoceros beetle biotypes: resistance to biological control catalyzes resurgence of an old pest. *Molecular Ecology* early online. DOI: https://doi.org/10.1111/mec.14879

25. San Jose, M., **Doorenweerd, C.**, Leblanc, L., Barr, N., Geib, S., Rubinoff, D. 2018. Tracking the origins of fly invasions: using mitochondrial haplotype diversity to identify potential source populations in two genetically intertwined fruit fly species (*Bactrocera carambolae* and *Bactrocera dorsalis*). *Journal of Economic Entomology* 111(6): 2914–2926 DOI: https://doi.org/10.1093/jee/toy272

24. **Doorenweerd, C.**, Leblanc, L. 2018. Unusual dark forms of the *Solanum* fruit fly *Bactrocera latifrons* (Hendel) in Hawaii (Tephritidae: Dacini). *Proceedings of the Hawaiiand Entomological Society* 50: 17–23.

23. Kirichenko, N., Triberti, P., Kobayashi, S., **Doorenweerd, C.**, Ohshima, I., Huang, G.H., Wang, M., Magnoux, E., Lopez-Vaamonde, C. 2018. Systematics of *Phyllocnistis* leaf-mining moths (Lepidoptera, Gracillaridae) feeding on dogwood (*Cornus* spp.) in Northeast Asia, with the description of three new species. *Zookeys* 736: 79–118. DOI: https://doi.org/10.3897/zookeys.736.20739

22. Kobayashi, S., John, C.A., Lopez-Vaamonde, C., **Doorenweerd, C.**, Kawakita, A., Ohshima, I., Lees, D.C., Hanabergh, S., Kawahara, A.Y. 2018. Hawaiian *Philodoria* (Lepidoptera, Gracillariidae, Ornixolinae) leaf mining moths on *Myrsine* (Primulaceae): two new species and biological data. *Zookeys* 773: 109–141. DOI: https://doi.org/10.3897/zookeys.773.21690

21. van Nieukerken, E.J., Lees, D.C., **Doorenweerd, C.**, Koster, J.C., Bryner, R., Scheurs, A., Timmermans, M.J.T.N., Sattler, K. 2018. Two European *Cornus* L. feeding leafmining moths, *Antispila petryi* Martini, 1899, sp. rev. and *A. treitschkiella* (Fischer von Röslerstamm, 1843) (Lepidoptera, Heliozelidae): an unjustified synonymy and overlooked range expansion. *Nota Lepidopterologica* 41(1): 39–86. DOI: https://doi.org/10.3897/nl.41.22264

20. Milla, L., van Nieukerken, E.J., Vijverberg, R., **Doorenweerd, C.**, Wilcox, S.A., Halsey, M., Young, D.A., Jones, T.M., Kallies, A., Hilton, D.J. 2018 A preliminary molecular phylogeny of shield-bearer moths (Lepidoptera: Heliozelidae) highlights rich undescribed diversity. *Molecular Phylogenetics and Evolution*, 120: 129–143. DOI: https://doi.org/10.1016/j.ympev.2017.12.004

19. **Doorenweerd, C.**, Leblanc, L., Norrbom, A.L., San Jose, M., Rubinoff, D. 2018. A global checklist of the 932 fruit fly species in the tribe Dacini (Diptera, Tephritidae). *Zookeys*, 730, 19–56. DOI: https://doi.org/10.3897/zookeys.730.21786

18. San Jose, M., **Doorenweerd, C.**, Leblanc, L., Barr, N., Geib, S., Rubinoff, D. 2018. Incongruence between molecules and morphology: A seven-gene phylogeny of Dacini fruit flies paves the way for reclassification (Diptera: Tephritidae). *Molecular Phylogenetics and Evolution* 121: 139–149. DOI: https://doi.org/10.1016/j.ympev.2017.12.001

Extension Publications
2020 USDA CAPS screening aid for peach fruit fly *Bactrocera zonata*
2023 IDtools.com identification key for fruit flies: https://idtools.net/bactrocera

Creative Works (i.e., Extension Videos, Websites, Blogs, Creative Designs and Exhibitions, etc.)
University of Hawaii Insect Museum website: https://www.ctahr.hawaii.edu/insectmuseum/
Fruit Fly photo website: https://fruitflyphotos.manoa.hawaii.edu/photo

Leadership Roles (Committees, Boards, Advisory, etc.)
None

Graduate Students

Category	Current Number of Students	Number Graduated (Career)
Chair of Master's Committees	0	0
Chair of PhD Committees	0	0

Member of Master's Committees	0	0
Member of PhD Committees	0	0

Grant Support

Title of Grant: Farm Bill FY16 3.0392.03 Confirming molecular methods for fruit fly identification
Source of Grant: United States Department of Agriculture
Total Dollar Value (Your share of the grant value): $ 298,199
Dates of Grant: Sept. 30 2016– Sept. 30 2017
Role (PI, CoPI): employee

Title of Grant: Farm Bill FY17 3.0497.01 Resolving *Bactrocera* species complexes
Source of Grant: United States Department of Agriculture
Total Dollar Value (Your share of the grant value): $ 260,000
Dates of Grant: Sept. 30 2017– Sept. 30 2018
Role (PI, CoPI): employee

Title of Grant: Farm Bill/Plant Protection Act FY18 FB3.0406.01 Resolving *Bactrocera* species complexes
Source of Grant: United States Department of Agriculture
Total Dollar Value (Your share of the grant value): $ 205,765
Dates of Grant: Sept. 30 2018– Sept. 30 2019
Role (PI, CoPI): employee

Title of Grant: Plant Protection Act FY19: 3.0292.02 Resolving species complexes of *Bactrocera* fruit flies
Source of Grant: United States Department of Agriculture
Total Dollar Value (Your share of the grant value): $ 276,761
Dates of Grant: Sept. 30 2019– Sept. 30 2020
Role (PI, CoPI): employee

Title of Grant: Plant Protection Act FY20: 3.0351.04 Resolving species complexes of *Bactrocera* fruit flies
Source of Grant: United States Department of Agriculture
Total Dollar Value (Your share of the grant value): $ 255,334
Dates of Grant: Sept. 30 2020– Sept. 30 2021
Role (PI, CoPI): employee

Title of Grant: Plant Protection Act FY21: 3.1105.01 Expanding coverage of species complexes of *Bactrocera* fruit flies (year 1)
Source of Grant: United States Department of Agriculture
Total Dollar Value (Your share of the grant value): $ 176,962
Dates of Grant: Sept. 30 2021– Sept. 30 2022
Role (PI, CoPI): employee

Title of Grant: Plant Protection Act FY22: Integrative identification methods for *Bactrocera* fruit flies (year 2)
Source of Grant: United States Department of Agriculture
Total Dollar Value (Your share of the grant value): $ 210,046
Dates of Grant: Sept. 31 2021– Sept. 30 2022
Role (PI, CoPI): employee

Title of Grant: Plant Protection Act FY23: Integrative identification methods for *Bactrocera* fruit flies (year 3)
Source of Grant: United States Department of Agriculture
Total Dollar Value (Your share of the grant value): $ 211,333
Dates of Grant: Sept. 31 2022– Sept. 30 2023
Role (PI, CoPI): employee

(repeat as needed)

Presentations at Conferences

Title: **Orchid-pollinating fruit flies: agricultural pests but also vital for a healthy forest ecology**
Authors (put an asterisk on the presenter): C. Doorenweerd* & D. Rubinoff
Name of Conference: special symposium for Papua Insect Foundation and Cenderawasih UNCEN University,
Location: Jayapura, West-Papua, Indonesia, 60 participants
Date of Presentation: Sept 2023

Title: **Orchid pollinating fruit flies: both a conservation and a pest concern in the forests of Sabah (Diptera: Tephritidae: Dacini)**
Authors (put an asterisk on the presenter): C. Doorenweerd*, M. San Jose & D. Rubinoff
Name of Conference: 5th webinar of the Sabah Forestry Department, Malaysia
Location: Zoom webinar, 101 participants
Date of Presentation: Nov 2020

Title: **Unprecedented convergence in the world's largest mimicry complex yet.**
Authors (put an asterisk on the presenter): C. Doorenweerd*, M. San Jose & D. Rubinoff
Name of Conference: Evolution 2019
Location: Providence, Rhode Island, USA
Date of Presentation: 2019

Title: **Synomone driven evolutionary diversification of Dacini fruit flies?**
Authors (put an asterisk on the presenter): C. Doorenweerd*, M. San Jose, L. Leblanc, N. Barr, S. Geib, J. Dupuis, D. Rubinoff
Name of Conference: American Genetics Association 2018
Location: Waimea, Big Island, Hawaii, USA
Date of Presentation: 2018

Title: **Fossil calibrated phylogenies reveal patterns of diversification in leaf-mining micromoths.**
Authors (put an asterisk on the presenter): C. Doorenweerd, C. Lopez-Vaamonde*, F. Condamine, S.B.J. Menken, E.J. van Nieukerken.
Name of Conference: Evolution 2018
Location: Montpellier, France
Date of Presentation: 2018

Title: **Host plant use and diversification in leaf-mining moths**
Authors (put an asterisk on the presenter): C. Doorenweerd, C. Lopez-Vaamonde*, F. Condamine, S.B.J. Menken, E.J. van Nieukerken.
Name of Conference: Symposium on Insect-Plant Interactions
Location: Tours, France
Date of Presentation: 2017

Title: **Is there a future for DNA Barcoding?**
Authors (put an asterisk on the presenter): C. Doorenweerd*
Name of Conference: Retirement symposium for Erik van Nieukerken
Location: Leiden, The Netherlands
Date of Presentation: 2017

Title: **A genetic approach for the systematics of Dacini fruit flies (Diptera: Tephritidae: Dacinae)**
Authors (put an asterisk on the presenter): C. Doorenweerd*, M. San Jose, L. Leblanc, D. Rubinoff
Name of Conference: Entomological Society of America 2017
Location: Denver, Colorado, USA
Date of Presentation: 2017

Title: **Diversification and host relations in Lithocolletinae and Nepticulidae**

Authors (put an asterisk on the presenter): C. Doorenweerd*, E. J. van Nieukerken, C. Lopez-Vaamonde, S. B. J. Menken
Name of Conference: Gracillariidae working group
Location: Big Island, Hawaii, USA
Date of Presentation: 2016

Title: **Adaptive radiations and speciation rates in Holarctic lineages of leafmining Lepidoptera**
Authors (put an asterisk on the presenter): C. Doorenweerd*, E. J. van Nieukerken, C. Lopez-Vaamonde
Name of Conference: Societas Europaeas Lepidopterologica
Location: Dresden, Germany
Date of Presentation: 2015

Title: **Macro-evolutionary speciation patterns of leafmining moths**
Authors (put an asterisk on the presenter): C. Doorenweerd*
Name of Conference: Retirement symposium for Sandrine Ulenberg
Location: Leiden, The Netherlands
Date of Presentation: 2015

Title: **Phylogenies, ecological and allopatric speciation, and leaf-mining moths**
Authors (put an asterisk on the presenter): C. Doorenweerd*, E. J. van Nieukerken
Name of Conference: Gracillariidae working group
Location: Kozagawa, Japan
Date of Presentation: 2014

Title: **Diet conservatism and distant host shifts allowed for global radiation in *Ectoedemia* sensu stricto (Nepticulidae)**
Authors (put an asterisk on the presenter): C. Doorenweerd*, E. J. van Nieukerken
Name of Conference: Societas Europaeas Lepidopterologica
Location: Bulgaria
Date of Presentation: 2013

Title: **Barcoding complete Lepidopteran fauna's: challenges and opportunities**
Authors (put an asterisk on the presenter): C. Doorenweerd*, E. J. van Nieukerken
Name of Conference: Societas Europaeas Lepidopterologica
Location: Luxembourg, Luxembourg
Date of Presentation: 2011

Title: **DNA Barcoding at the NCB Naturalis**
Authors (put an asterisk on the presenter): B. van der Hoorn, C. Doorenweerd*, F. R. Stokvis, O. F. J. Vorst, E. J. van Nieukerken, J. van Tol
Name of Conference: DNA Barcoding conference
Location: Adelaide, Australia
Date of Presentation: 2011

(repeat as needed)