

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

| <u>Degree</u> | <u>University</u> | <u>Major</u> |
|---------------|--|------------------------------------|
| 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

| <u>Title</u> | <u>Employer</u> | <u>Dates Employed</u> |
|----------------------------|--------------------------------|-----------------------|
| 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]

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: *Hypsmocoma*). 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. **Dooreenweerd, 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. **Dooreenweerd, 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., **Dooreenweerd, 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., **Dooreenweerd, 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., **Dooreenweerd, 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., **Dooreenweerd, 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., **Dooreenweerd, 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., **Dooreenweerd, 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. **Dooreenweerd, 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., **Dooreenweerd, 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., **Dooreenweerd, 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., **Dooreenweerd, 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. **Dooreenweerd, C.**, Leblanc, L. 2018. Unusual dark forms of the *Solanum* fruit fly *Bactrocera latifrons* (Hendel) in Hawaii (Tephritidae: Dacini). *Proceedings of the Hawaiian 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, Gracillariidae) 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 Nieuwerkerken, 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 Nieuwerkerken, 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.org/tools/2103/index.cfm?pageID=3374>

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

| <u>Category</u> | <u>Current Number of Students</u> | <u>Number Graduated (Career)</u> |
|-------------------------------|-----------------------------------|----------------------------------|
| 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. Dooreneerd* & 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 Nieuwerkerken

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 Nieuwerkerken

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 Nieuwerkerken

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 Nieuwerkerken, J. van Tol

Name of Conference: DNA Barcoding conference

Location: Adelaide, Australia

Date of Presentation: 2011

(repeat as needed)