Curriculum Vitae – Charlotte de Vries

Contact Information

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Education

2019 **PhD (cum laude) – Theoretical Ecology. University of Amsterdam**. Graduation date: 6th June 2019. Supervisor: Hal Caswell. Title of dissertation: *Selection in two-sex stage-structured populations.*

2015 **Master's – Limnology and Oceanography. University of Amsterdam**. Awards: Volkert van der Willigen award (€3000).
Graduated *cum laude*.

2010 **Master's – Physics. University of Waterloo and Perimeter Institute**. Scholarship: Perimeter Scholars International Program ($ 28,000 for 1 year).

2009 **Master's – Physics. Oxford University**. Awards: Bielby Exhibition (2008)
Graduated with *first-class honours*.

Grants/Approved research projects

2024 Primary Investigator. NWO VENI grant. (280.000 EUR)

2023 Primary Investigator. Swiss Postdoc Mobility Fellowship. (102.720 CHF)

Employment History

2023 **NWO VENI funded researcher** – Department of Theoretical Biology and Bioinformatics, Utrecht University.

2023 **SNSF Postdoctoral Fellow** – Department of Theoretical and Computational Ecology, University of Amsterdam.

2022 **Postdoc** – Department of Biological and Environmental Science, University of Jyväskylä. Group leader: Jussi Lehtonen.

2019-2022 **Postdoc** – Department of Evolutionary Biology and Environmental Studies, University of Zurich. Group leader: Hanna Kokko.

2012-2014 **Researcher and Data Manager.** The Netherlands Perinatal Registry. Conducted research and produced yearly national reports on the quality of perinatal health care in the Netherlands using a large data base of nearly all births in the Netherlands. Supervisor: Chantal Hukkelhoven.

Periods of leave

- Maternity leave from July 2023-December 2023.

Supervision

2019 **Supervision** of masters thesis of Franziska Brenninger in collaboration with Hanna Kokko and Simon Martin. Thesis title *"How to profit from dead males: Evaluating how different life history traits can affect the spread of a male-killer in African Monarch butterflies."* Franziska Brenninger's presentation of her thesis won the 2019 EES Young Researcher Best Talk Prize at Ludwig Maximilians-University.

2020 **Co-supervision** of PhD student Runa Ekrem with Hanna Kokko and Tobias Kaiser. Weekly supervision meetings, resulted in a thesis chapter which has been submitted to American Naturalist.

2024 **Co-supervision** of PhD student Ella Rees-Baylis with Xiang-Yi Li. Ella and I have been in weekly contact as we are constructing a model together currently for one of her PhD chapters.

Teaching

2019-2021 **Guest Lectures at University of Zurich (two half-days each year).** Lecture about land sparing vs land sharing in the bachelor course "Exploitation of Renewable resources".

2018 **Teaching Assistant Theoretical Biology.** Assisted during tutorial/problem solving sessions for the bachelor course "Theoretical Ecology" focused on teaching population modeling and analyzing systems of multiple ODEs to biology bachelor students.

2017 **Teaching Assistant From Analysis to Evidence.** Assisted during tutorial/problem solving sessions for the bachelor course "From Analysis to Evidence" focused on introductory statistics for Bachelor Future Planet Studies.

2017 **Created a module for masters course Modelling Geoecological Systems.** Created a module about Inverse Modeling of Dynamic Energy Budget Models for a masters course "Modelling Geoecological Systems" for Earths Sciences students.

2015-2017 **Head Teaching Assistant Population Biology.** Responsible for tutorial sessions for a second year Population Biology course for biology students.

2011 and 2014 **Teaching Assistant Population Biology.** Assisted during tutorial/problem solving sessions for a second year Population Biology course for biology students.

Institutional responsibilities

2021 **Postdoc representative** at Department of Evolutionary Biology and Environmental Studies, University of Zurich.

2019 **Search Committee member** Theoretical Ecology group (for appointing an associate/assistant professor, University of Amsterdam)

2016 Member of the IBED (Institute for Biodiversity and Ecosystems Dynamics) Seminar Committee, University of Amsterdam

Professional Service

Reviewer for The American Naturalist, Oikos, Proceedings B, Methods in Ecology and Evolution, Ecology Letters, Journal of Animal Ecology, Journal of Ecology, Journal of Theoretical Biology, Journal of Theoretical Ecology, Cells, Nature Ecology and Evolution.

2016-2018 **Treasurer** of the Dutch Society for Theoretical Biology (NVTB), organised annual meeting

2006-2007 **Organizing Committee Oxford Undergraduate Physics Conference**.

Awards

2020 **Oscar Contreras Ortiz Award, International Urogynecological Association**. Award for research article *The effectiveness of mediolateral episiotomy in preventing obstetric anal sphincter injuries during operative vaginal delivery: a ten-year analysis of a national registry.*

2019 **Walking Ibex, Global Science Film Festival Zurich**. Category Scientists-as-Filmmakers, award for outreach video "Extinction of the sexiest".

2018 **Madeleine Julie Vervoort Fund, Amsterdams Universiteitsfonds.** Travel grant to present at the Annual Meeting of the Ecological Society of America. Value: € 700.

2011 **Volkert van der Willegen fund.** Research grant for Masters research in Ecology. Value: € 3000.

2009 **Perimeter Scholars International Scholarship.** Awarded by the Perimeter Institute for Theoretical Physics. Value: $28,000/year for 1 year.

2008 **Bielby Scholarship - Undergraduate.** Scholarship from St. Hilda's College, Oxford. (£200/year for 2 years).

Publications

(14) C. Bernard, **C. de Vries**, O. R. Jones, R. Salguero-Gómez. (2024). *Response to Discretising and validating Keyfitz' entropy for any demographic classification.* Methods in Ecology and Evolution (Accepted, in production). DOI: 10.1111/2041-210X.14335.

(13) **C. de Vries**, J. Lehtonen (2023). *Sex-specific assumptions and their importance in models of sexual selection.* Trends in Ecology and Evolution:S0169-5347(23)00110-6. DOI: 10.1016/j.tree.2023.04.013

(12) **C. de Vries**, M. Galipaud, H. Kokko. (2023). *Extrinsic mortality and senescence: a guide for the perplexed.* Peer Community Journal, Volume 3, article no. e29. DOI: 10.24072/pcjournal.253

(11) **C. de Vries**, C. Bernard, R. Salguero-Gómez. (2023). *Discretising Keyfitz'entropy for studies of actuarial senescence and comparative demography.* Methods in Ecology and Evolution 14.5: 1312-1319. DOI 10.1111/2041-210X.14083. **This paper was shortlisted for the 2023 Robert May Prize**.

(10) **C. de Vries***, Y. Erten*, H. Kokko. (2023). *Does symmetry preclude the evolution of senescence? A comment on Pen & Flatt 2021.* Proceedings of the Royal Society B 290.1991: 20221101. *Shared first authors. DOI 10.1098/rspb.2022.1101

(9) P. Karisto, A. Duplouy, **C. de Vries**, H. Kokko. (2022). *A pleiotropic perspective on Wolbachia fitness effects helps explain a broad range of its frequency in natural populations.* PCIEcology 2: e76. DOI: 10.24072/pcjournal.202

(8) C. Olito, **C. de Vries.** (2022). *The demographic costs of sexually antagonistic selection in partially selfing populations.* American Naturalist 200(3):401-418. DOI: 10.1086/720419

(7) **C. de Vries**, R.A. Desharnais, H. Caswell. (2020). *A matrix model for density-dependent selection in stage-classified populations, with application to pesticide resistance in Tribolium.* Ecological Modeling 416: 108875. DOI:10.1016/j.ecolmodel.2019.108875

(6) **C. de Vries**, H. Caswell. (2019). *Selection in two-sex stage-structured populations: Genetics, demography, and polymorphism.* Theoretical Population Biology 130: 160-169. DOI: 10.1016/j.tpb.2019.07.012

(5) **C. de Vries**, H. Caswell. (2019). *Stage-structured evolutionary demography: linking life histories, population genetics, and ecological dynamics.* American Naturalist 193(4): 545 - 559. DOI: 10.1086/701857

(4) H. Caswell, **C. de Vries**, N. Hartemink, G. Roth, S. van Daalen. (2018). *Age ×stage-classified demographic analysis: a comprehensive approach.* Ecological Monographs, 88(4): 560-584. DOI: 10.1002/ecm.1306

(3) **C. de Vries**, H. Caswell. (2017) *Demography when history matters: construction and analysis of second-order matrix population models.* Theoretical Ecology , 11(2): 129-140. DOI: 10.1007/s12080-017-0353-0

(2) J. van Bavel, C.W. P. M. Hukkelhoven, **C. de Vries**, D.N. M. Papatsonis, J. de Vogel, J. W. R. Roovers, B.W. Mol, J.W. de Leeuw. *The effectiveness of mediolateral episiotomy in preventing obstetric anal sphincter injuries during operative vaginal delivery: a ten-year analysis of a national registry* International Urogynecology Journal (2018). DOI: 10.1007/s00192-017-3422-4 **Paper received the Oscar Contreras Ortiz Award**

(1) S. M.T.A. Goossens, C.W.P.M. Hukkelhoven, **L. de Vries**, B.W. Mol, J.G. Nijhuis, F.J.M.E. Roumen. *Clinical indicators associated with the mode of twin delivery: an analysis of 22,712 twin pairs.* European Journal of Obstetrics and Gynecology and Reproductive Biology 195 (2015):133 - 140. DOI: 10.1016/j.ejogrb.2015.09.034

Submitted Manuscripts

(1) R. Ekrem, **C. de Vries**, T. Kaiser, H. Kokko. *Temporal niches, Allee effects, and coexistence: lessons from a marine midge.* Submitted to Journal of Animal Ecology.

Outreach

2019 Together with Tamaki reated an outreach video about sexual selection, which won a Walking Ibex at the Global Science Film Festival Zurich. "Extinction of the sexiest".

2011 **Mentor**. Mentored a group of high school students during Perimeter Institute's *International Summer School for Young Physicists* by guiding them through a short research project.

Invited lectures/talks

(12) *The consequences of population regulation for William's hypothesis, and fitness.* **Invited talk** for the Frankenhuis research group, Department of Developmental Psychology, Utrecht University, June 9, 2023.

(11) Colin Olito, **C. de Vries**. *Linking fitness, population dynamics, and evolutionary change in partially selfing plants.*. **Invited Workshop talk:** Special Topic Network on Local adaptation and sex differences (funded by the European Society for Evolutionary Biology), Ingelheim, Germany. March 23, 2023.

(10) *Defining fitness in demography when intralocus conflicts are important.* Max Planck Institute for Evolutionary Biology in Plön, **Departmental Seminar**, Aug 30th, 2022.

(10) *The demographic costs of sexually antagonistic selection in partially selfing populations.* Institute for Evolution and Biodiversity (IEB) at the University of Münster, **Departmental Seminar**, June 14th, 2022.

(9) *Senescence, sex, and sociality.* **Invited talk** for the Küpper Research Group at the Max Planck Institute for Ornithology, March 1, 2022

(8) *Life-history evolution in the presence of conflict, and cooperation.* University of St Andrews, Centre for Biological Diversity, **Departmental Seminar**, Sept 21, 2021.

(7) *Life-history evolution under conflict (and cooperation).* **Mathematical Biology Seminar:** University of Utah, invited by Fred Adler and Jody Reimer, Nov 18, 2020.

(6) *Why demographers should worry more about conflict, or Why evolutionary biologists should worry more about demography.* **Departmental Seminar:** Lund University, Oct 22, 2020.

(5) *Why demographers should worry more about conflict.* **Lecture:** University of Oxford, invited by Rob Salguero-Gómez, Sept 25, 2019.

(4) *Selection in Two-Sex Structured Populations.* **Workshop:** Special Topic Network on Local adaptation and sex differences (funded by the European Society for Evolutionary Biology), Montpellier, France. Aug 28, 2019.

(3) *Linking life history theory, population genetics and population ecology using evolutionary demography: a matrix population approach.* **Keynote talk:** 2019 Meeting of the Evolutionary Demography Society, Miami, The United States. Jan 10, 2019.

(2) *Markov chains, Matrix population models, and some fun applications.* **Lecture:** Introductory Demography Course at the University of Chicago, USA. May 15, 2018.

(1) *Age×stage Markov Chain Models with Rewards.* **Lecture:** Course "Matrix Approaches to Health Demography" at the Max Planck Institute for Demographic Research, Rostock, Germany. Jan 20, 2016.

Talks

(10) **C. de Vries**, R. Noble, H. Kokko. *Demography and sociality: modeling the evolution of senescence in eusocial species.* Meeting of the Evolutionary Demography Society, Paris, March 30, 2023.

(9) **C. de Vries**, R. Noble, H. Kokko. *Why do naked mole rats live so long? Modeling the evolution of senescence in eusocial species.* Gutenberg Workshops on Aging in Social Insects, Sep 30, 2021.

(8) **C. de Vries**, R. Noble, H. Kokko. *Long live the queen! The evolution of senescence in eusocial species.* Virtual Evolution 2021, Jun 23, 2021.

(7) **C. de Vries**, H. Caswell. *Linking life history theory, population genetics and population ecology using evolutionary demography: a matrix population model approach.* **Conference talk:** Second Joint Conference on Evolutionary Biology, Montpellier, France. Aug 21, 2018.

(6) **C. de Vries**, H. Caswell. *Linking life history theory, population genetics and population ecology using evolutionary demography: a matrix population model approach.* **Conference talk:** Annual Meeting of the Ecological Society of America, New Orleans, USA. Aug 8, 2018.

(5) **C. de Vries**, H. Caswell.*Linking life history theory, population genetics and population ecology using evolutionary demography: a matrix population model approach.* **Conference talk:** Dutch Society for Theoretical Biology (NVTB), Schoorl, The Netherlands. Apr 6, 2018.

(4) **C. de Vries**, H. Caswell. *Combining stage-classified demography and population genetics to study eco-evolutionary dynamics.* **Conference talk:** Modeling Biological Evolution 2017, Leicester, United Kingdom. Apr 5, 2017.

(3) **C. de Vries**, H. Caswell. *A genetic matrix population model for eco-evolutionary dynamics.* **Conference talk:** Netherlands Annual Ecology Meeting 2017, Lunteren, The Netherlands. Feb 15, 2017.

(2) **C. de Vries**, H. Caswell. *Demography when history matters: Second order matrix population models.* **Conference talk:** British Ecological Society Annual Meeting 2016, Liverpool, United Kingdom. Dec 12, 2016.

(1) **C. de Vries**, H. Caswell. *Demography when history matters: A framework for investigating second order matrix population models.* **Conference talk and poster:** 2015 Meeting of the Evolutionary Demography Society, The Netherlands. Oct 5, 2015.