

Paris Veltsos

Postdoc
Ecology, Evolution and Genetics Research Group
Biology Department
Vrije Universiteit Brussel

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Academic Employment

01.2023 - now **Postdoc - Vrije Universiteit Brussel**

Topic **The interplay of environmental adaptation, sexually antagonistic selection and sex chromosome evolution**

Supervisor Wen-Juan Ma

Questions How does environmentally dependent sexually antagonistic selection affect sex chromosome evolution? Does outcrossing always allow adaptation to a new niche? Establishment of an experimental system allowing introgression of beneficial alleles from one population into another.

Experience Nematode maintenance, experimental evolution, experimental design

08.2020 - 12.2022 **Associate Researcher - University of Kansas**

Topic **The effects of chromosomal inversions in monkeyflowers**

Supervisor John Kelly

Questions What are the effects of chromosomal inversions to gene expression? What is the contribution of inversion variation to gene expression relative to DNA sequence variation?

Experience High molecular weight DNA extraction, pacbio sequencing and assembly, RNA extraction >5,000 samples, RNA/DNA library prep, RNAseq analysis, genomic analysis of inversions

03.2018 - 07.2020 **Postdoctoral Fellow - Indiana University**

Topic **QTL for sexual dimorphism, local adaptation, sex-specific selection and sex-chromosome evolution in the plant *Silene latifolia***

Supervisor Lynda Delph

Questions Are QTL associated with sexual dimorphism and environmental adaptation concentrated on the sex chromosome? Are the genes responding to selection for large and small flowers the same? Are the same-sex biased genes responding to selection for large and small flower size? Does the emergence of dioecy increase male- and female- biased genes equally on the sex chromosome?

Experience Genetic mapping, segregation distortion analysis, QTL analysis, RNAseq extraction and analysis, plant maintenance

09.2014 - 02.2018 **SNSF Premier Assistant - University of Lausanne**

Topic **The evolution of homomorphic sex chromosomes in the common frog *Rana temporaria* and the annual plant *Mercurialis annua***

Supervisors John Pannell, Nicolas Perrin

Questions Why do some chromosomes remain homomorphic? *Mercurialis*: Is there a common Y in all species? How degenerated is the Y in terms of gene density, gene function and gene expression compared to the rest of the genome? Are YY plants viable and fertile? *Rana*: Are frogs with Y chromosomes of different degeneration statuses different in fitness in the field? How does their gene expression differ, including during development? Can sexually antagonistic genes drive a transition from random to genetic sex determination and how does it interact with sex-limited recombination (simulations)?

Experience DNA/RNA extractions from plants and frogs, RNAseq analysis, PCR, field collections of plants and frogs, plant hairy root transformation and cytogenetics visiting Institute of Biophysics (Brno, Czech republic), BAC screening, sequencing and analysis, genetic mapping, computer simulations.

07.2011 - 06.2014 NERC Postdoctoral Research Fellow - University of St Andrews

Topic	Genomic response to experimental sexual selection in <i>Drosophila pseudoobscura</i>
Supervisors	Michael Ritchie, Rhonda Snook (Sheffield)
Questions	What are the effects of evolution under monogamy and polyandry in gene expression? Is the direction of feminisation of gene expression always towards monogamy in different tissues, sexes and courtship statuses? How does sexual selection history affect the response to mating with males of the same and different sexual selection histories?
Experience	Large-scale tissue collection including dissected reproductive tissue from recently mated pairs, RNA extraction, experimental design, gene expression analysis including interaction effects, GO analysis

03.2008 - 05.2011 NERC Postdoctoral Research Fellow - University of St Andrews

Topic	QTL for pre-mating isolation in <i>Drosophila montana</i>
Supervisors	Michael Ritchie, Roger Butlin & Jon Slate (Sheffield), Anneli Hoikkala (Jyväskylä)
Questions	Are within- and between- population QTL associated with reproductive isolation the same?
Experience	International field sampling, RNA/DNA extractions, SNPchip design from 454 data, selection analysis, genetic mapping, QTL analysis, fly courtship song recording and analysis, chc analysis, pedigree maintenance.

Education**10.2003 - 03.2008 PhD - Queen Mary University of London**

Thesis title	The involvement of a sex chromosome fusion and rDNA diversity in the grasshopper <i>Podisma pedestris</i> hybrid zone
Supervisor	Richard Nichols
Questions	Is rDNA locus variation contributing to hybrid inviability? Are sex chromosome combinations in hybrids deleterious? Does sexually antagonistic selection on the Y lead to the spread of a neo-XY system throughout the species range?
Experience	FISH & GISH cytogenetics, field collections, grasshopper rearing, hybrid zone simulations in Java. Sex ratio distortion scoring in field.

09.2000 - 06.2003 BSc (Hons) Genetics - The University of Liverpool

Lab project	Isolation and characterisation of microsatellite loci from the Indonesian damselfish <i>Neoglyphidodon nigroris</i>
Grade	1st class (also first in the class).

Honors, Awards, Fellowships and Grants Experience

2024	'Co-PI'* FWO junior research project (with Prof. Ma, pending result) €556,984
2023	'Co-PI' FWO research project (with Prof. Ma, overall score 5.9/7) €541,476
2022	KU postdoc grant (not funded) \$20,000
2021	KU postdoc grant (not funded) \$20,000
2011	Finish Academy of Sciences Fellowship (not funded) €200,000
2009	Genetics Society Fieldwork grant £300

I have significantly contributed to the proposal development and writing, in the end the co-PI status was not written on the submission given my status will bring the PI's junior research project to senior level given the criteria. Due to strategic reason, at the last moment we removed my co-PI status from the formal application but will be reestablished once it gets funded.

Publications

* = co first author, + = student author

All pdfs and associated data/scripts are at <https://www.parisveltsos.com/research/cv/>

ORCID: <https://orcid.org/0000-0002-8872-6281>Google Scholar: <https://scholar.google.com/citations?user=FiQLAD8AAAAJ>*Pre-print/In review*

32. Moraga C, Branco C, Rougemont Q, **Veltsos P**, Jedlička P, Muyle A, Hanique M, Tannier E, Liu X, Mendoza-Galindo E, Lemaitre C, Fields PD, Cruaud C, Labadie K, Belser C, Briolay J, Santoni S, Cegan R, Linheiro R, Rodríguez de la Vega RC, Adam G, El Filali A, Mossion V, Boualem A, Tavares R, Chebbi C, Cordaux R, Fruchard C, Prentout D, Velt A, Spataro B, Delmotte S, Weingartner L, Toegelová H, Tulpová Z, Cápal P, Šimková H, Štorchová H, Krüger M, Abeyawardana OAJ, Taylor DR, Olson MS, Sloan DB, Karrenberg S, Delph LF, Charlesworth D, Giraud T, Bendahmane A, Di Genova A, Madoui A, Hobza R, Marais GAB The *Silene latifolia* genome and its giant Y chromosome (**3rd round review - Science**) <https://www.biorxiv.org/content/10.1101/2023.09.21.558754v1>

Selected

31. **Veltsos P***, **Ridout KE***, Touns MA, González-Martínez S, Muyle A, Emery O⁺, Rastas P, Hudzieczek V⁺, Hobza R, Vyskot B, Marais GAB, Filatov DA, Pannell JR (2019) Early sex-chromosome evolution in the diploid dioecious plant *Mercurialis annua*. **Genetics** 212(3): 815-835
30. **Veltsos P**, Fang Y, Cossins AR, Snook RR, Ritchie MG (2017) Mating system manipulation and the evolution of sex-biased gene expression in *Drosophila*. **Nature Communications** 8(1):2072
29. **Veltsos P**, Keller I, Nichols RA (2008) The inexorable spread of a newly arisen Y chromosome. **PLoS Genetics** 4(5): e10000082

Published

28. **Veltsos P**, Madrigal-Roca, LJ and Jelly JK (2024) Testing the evolutionary theory of inversion polymorphisms in the wildflower *Mimulus guttatus* **Nature Communications** 15: 10397
27. **Veltsos P**, Shinde S and Ma W-J Sex chromosome evolution: The classical paradigm and so much beyond (2024) **Reference Module in Life Sciences** <http://doi.org/10.1016/B978-0-443-15750-9.00043-4>
26. **Veltsos P** and Jelly JK (2024) The quantitative genetics of gene expression in *Mimulus guttatus* **PLoS Genetics** 20(4): e1011072
25. **Veltsos P**, Porcelli D, Fang Y, Cossins A, Ritchie MG, Snook RR (2022) Experimental sexual selection reveals rapid divergence in male and female reproductive transcriptomes and their interactions **Molecular Ecology** 31(12):3374-3388
24. Gerchen JF, **Veltsos P**, Pannell JR (2022) Recurrent allopolyploidization, Y-chromosome introgression and the evolution of sexual systems in the plant genus *Mercurialis*. **Phil. Trans. R. Soc. B** 377: 20210224
23. Ma, W-J, **Veltsos P** (2021) The diversity and evolution of sex chromosomes in frogs. **Genes** 12(4): 483
22. Wiberg RA, **Veltsos P**, Snook RR, Ritchie MG (2021) Experimental evolution confirms signatures of sexual selection in genomic divergence. **Evolution Letters** 5(3): 214-229
21. Ma W-J, Pannebakker BA, Li X, Geyverink E, Anvar SY, **Veltsos P**, Schwander T, van de Zande L, Beukeboom LW (2021) A single QTL with large effect is associated with female functional virginity in an asexual parasitoid wasp. **Molecular Ecology** 30(9): 1979-1992
20. **Veltsos P***, **Rodrigues N****, Studer T⁺, Ma W-J, Sermier R, Leunberger J⁺, Perrin N (2020) No evidence that Y-chromosome differentiation affects male fitness in a Swiss population of common frogs. **Journal of Evolutionary Biology** 33(4): 401-409 ***Shared co-authors**
19. Li X⁺, **Veltsos P***, Cossard G⁺, Gerchen J⁺, Pannell JR (2019) YY males of the dioecious plant *Mercurialis annua* are fully viable but produce largely infertile pollen. **New Phytologist** 244(3): 1394-1404 ***Shared co-authors**
18. **Veltsos P**, Delph LF (2019) The X chromosome is necessary for ovule production in *Silene latifolia*. **PLoS ONE** 14(5): e0217578
17. **Veltsos P** (2018) Not all sex-biased genes are the same. **New Phytologist** 221(1): 10
16. **Veltsos P**, Cossard G⁺, Beaudoin E, Beydon G, Savova-Bianchi D, Roux C, González-Martínez SC, Pannell JR (2018) Size and content of the sex-determining region of the Y chromosome in

- dioecious *Mercurialis annua*, a plant with homomorphic sex chromosomes. **Genes** 9(6): 277
15. Ma WJ, **Veltsos P**, Sermier R, Parker DJ, Perrin N. (2018) Evolutionary and developmental dynamics of sex-biased gene expression in common frogs with proto-Y chromosomes. **Genome Biology** 19(1): 156
 14. Ma WJ, **Veltsos P**, Toups MA, Rodrigues N⁺, Sermier R, Jeffries DL, Perrin N (2018) Tissue specificity and dynamics of sex-biased gene expression in a common frog population with differentiated, yet homomorphic, sex chromosomes. **Genes** 9(6): 294
 13. Rodrigues N⁺, Studer T⁺, Dufresnes C, Ma W, **Veltsos P**, Perrin N (2017) *Dmrt1* polymorphism and sex chromosome differentiation in *Rana temporaria*. **Molecular Ecology** 26(19): 4897-4905
 12. Ala-Honkola O, Ritchie MG, **Veltsos P** (2016) Postmating-prezygotic isolation between two allopatric populations of *Drosophila montana*; fertilisation success differs under sperm competition. **Ecology and Evolution** 6(6): 1679-1691
 11. **Veltsos P**, Gregson E, Morrissey B⁺, Slate J, Hoikkala A, Butlin RK, Ritchie MG (2015) The genetic architecture of sexually selected traits in two natural populations of *Drosophila montana*. **Heredity** 115(6): 565-572
 10. **Veltsos P**, Wicker-Thomas C, Butlin RK, Hoikkala A, Ritchie MG (2012) Sexual selection on song and cuticular hydrocarbons in two distinct populations of *Drosophila montana*. **Ecology and Evolution** 2: 80-94. DOI: 10.1002/ece3.75
 9. **Toups M***, **Veltsos P***, Pannel JR (2015) Plant sex chromosomes: Lost genes with little compensation. **Current Biology** 25(10) R427-430 *Shared co-authors
 8. Tyukmaeva V⁺, **Veltsos P**, Slate J, Gregson E, Kauranen H⁺, Kankare M, Ritchie MG, Butlin RK, Hoikkala A (2015) Localisation of QTL for diapause and other photoperiodically regulated life-history traits important in adaptation to seasonally varying environments. **Molecular Ecology** 24: 2809-2819
 7. Ala-Honkola O, **Veltsos P**, Anderson H, Ritchie M (2014). Copulation duration, but not paternity share, potentially mediates inbreeding avoidance in *Drosophila montana*. **Behavioral Ecology and Sociobiology** 68(12) 2013-2021
 6. Bailey NW, **Veltsos P**, Tan YF, Millar AH, Ritchie MG, Simmons LW (2013) Development of tissue-specific transcriptomic resources in a non-model insect, the field cricket *Teleogryllus oceanicus*. **G3** 3(2): 225-230 DOI: 10.1534/g3.112.004341
 5. **Veltsos P**, Ritchie MG (2011) Sympatric Speciation. In: **eLS** 2011, John Wiley & Sons, Ltd: Chichester <http://www.els.net/> DOI:10.1002/9780470015902.a0001749.pub2
 4. **Veltsos P**, Keller I, Nichols RA (2009) Geographically localised bursts of ribosomal DNA mobility in the grasshopper *Podisma pedestris*. **Heredity** 103: 54-61
 3. Keller I, **Veltsos P**, Nichols RA (2008) The frequency of rDNA variants within individuals provides evidence of population history and gene flow across a grasshopper hybrid zone. **Evolution** 64 (4): 833-844
 2. Keller I, Chintauan-Marquier IC, **Veltsos P**, Nichols RA (2006) Ribosomal DNA in the grasshopper *Podisma pedestris*: Escape from concerted evolution. **Genetics** 174 (2): 863-874.
 1. Watts PC, **Veltsos P**, Soffa BJ, Gill AB, Kemp SJ (2004) Polymorphic microsatellite loci in the black-and-gold chromis, *Neoglyphidodon nigroris* (Teleostei: Pomacentridae). **Molecular Ecology Notes** 4 (1): 93-95

Invited Talks

- | | |
|---------|---|
| 09.2023 | Departmental seminal "Homomorphic sex chromosomes in the <i>Mercurialis</i> species complex", ULB, Brussels, Belgium |
| 03.2023 | Departmental seminal "Sexual selection and sex chromosome evolution", VUB, Brussels, Belgium |
| 10.2021 | Departmental seminal "The Y chromosome(s) of the <i>Mercurialis</i> species complex?", KU Genomics centre, Kansas, USA |
| 08.2021 | Conference speaker "Is the PAR a hotspot for genes involved with sexual antagonism and local adaptation in <i>Silene latifolia</i> ?", ESEB sex chromosome satellite symposium, Prague, Czech Republic |

- 02.2019 **Departmental seminar** "Insights into sex chromosome evolution from genetic mapping", Amherst College, USA
- 09.2018 **Departmental seminar** "Homomorphic sex chromosomes in plants and frogs", Indiana University, USA
- 06.2016 **Departmental seminar** "Sexual selection and homomorphic sex chromosomes", Chinese Academy of Sciences, Xishuangbanna, China
- 06.2016 **Departmental seminar** "Investigation of a homomorphic Y chromosome", DEE Lausanne, Switzerland
- 05.2015 **Departmental seminar** "Detecting sexual selection in the field in frogs", DEE Lausanne, Switzerland
- 11.2006 **Genetics society prize winner talk** "The inevitable accession of XY systems", Promega Young Geneticist of the Year, Mammalian genetics and development, London, UK

Workshop Presentations

- 11.2016 "Transcriptomic response to courtship in *D. pseudoobscura*", The mechanism of the behaviour regulation and its research method in pest or insect workshop, **Guangzhou, China**
- 04.2014 "My experience with RNAseq", RNAseq workshop, Centre for Genes and Genomics, **Liverpool, UK**

Conference Presentations

27 talks and 6 posters in national and international meetings.

- 02.2024 **Talk** Belgian *C. elegans* annual meeting, **Brussels, Belgium**
- 10.2023 **Talk** "Sex-specific, population-specific segregation distortion in *Silene latifolia*", Silene meeting **Lille, France** (virtual)
- 08.2022 **Talk** "The effect of chromosomal inversions on gene expression", ESEB **Prague, Czech Republic**
- 08.2021 **Talk** "Is the PAR a hotspot for genes involved with sexual antagonism and local adaptation in *Silene latifolia*?", (virtual) ESEB sex chromosome symposium, **Prague, Czech Republic**
- 01.2021 **Talk** "Sex-specific, population-specific segregation distortion in *Silene latifolia*", (virtual) Popgroup 55, **Norwich, UK**
- 01.2020 **Talk** "Artificial selection on flower size disproportionately affects sex-biased genes in *Silene latifolia*", Popgroup 53, **Leicester, UK**
- 06.2019 **Talk** "Y-chromosome degeneration in plants the effect of 10 million years", Evolution, **Providence, USA**
- 06.2019 **Poster** "An updated genetic map in *Silene latifolia* shows sex-specific selection", Evolution, **Providence, USA**
- 08.2017 **Talk** Evolution of semi-independent homomorphic Y chromosomes in an annual plant species complex", ESEB, **Groningen, Netherlands**
- 01.2017 **Talk** "Comparison of gene expression between XX and XY males in the common frog", Popgroup, **Cambridge, UK**
- 06.2016 **Talk** "Investigation of a homomorphic Y chromosome", Evolution of sex determination workshop, **la Sage, Switzerland**
- 12.2015 **Talk** "Investigation of a homomorphic Y chromosome in an annual plant", Popgroup, **Edinburgh, UK**
- 08.2015 **Talk** "Sex-biased expression as a sexually antagonistic trait", ESEB, **Lausanne, Switzerland**
- 01.2014 **Talk** "Genomic response to experimental sexual selection", Popgroup, **Bath, UK**
- 09.2013 **Talk** "Genomic response to experimental sexual selection", Entomology conference, **St Andrews, UK**
- 08.2013 **Talk** "DNA sequence response to experimental sexual selection", ESEB, **Lisbon,**

Portugal

- 12.2012 **Talk** "Are QTLs for behavioural variation within populations different to between populations?", Popgroup, **Glasgow, UK**
- 01.2012 **Poster** "Genetic maps of reproductively isolated populations of *Drosophila montana*", Popgroup, **Nottingham, UK**
- 08.2011 **Talk** "QTLs for courtship song and CHCs in natural populations of *Drosophila montana*", ESEB, **Tuebingen, Germany**
- 03.2011 **Talk** "Speciation through behaviour", SCAB symposium, **St Andrews, UK**
- 01.2011 **Talk** "Selection and population differentiation for song and cuticular hydrocarbons in *Drosophila montana*", PopGroup, **Hull, UK**
- 09.2010 **Talk** "Selection and population differentiation for song and cuticular hydrocarbons in *Drosophila montana*", New directions in sexual selection unifying behavioural and genomic approaches conference, **Bath, UK**
- 01.2010 **Talk** "Differential introgression of ribosomal DNA subgroups across a hybrid zone in the grasshopper *Podisma pedestris*", Popgroup, **Liverpool, UK**
- 08.2009 **Poster** "Distinct genetic determination of cuticular hydrocarbon profiles in divergent *D. montana* populations", ESEB, **Turin, Italy**
- 08.2009 **Talk** "Studying natural variation in reproductive isolation characters with QTLs", The role of behaviour in Speciation, **St Andrews, UK**
- 12.2007 **Talk** "Evidence of selection on rDNA in the *P. pedestris* hybrid zone", PopGroup, **Warwick, UK**
- 09.2006 **Talk** "Ribosomal DNA and reproductive isolation in the grasshopper *Podisma pedestris*", L.E.R.N conference, **London, UK**
- 07.2006 **Poster** "A tool to better understand early sex chromosome evolution", BBSRC evolutionary genetics summer school, **Edinburgh, UK**
- 02.2006 **Talk** "The effects of a sex chromosome fusion in a naturally occurring hybrid zone", Royal Entomological Society Postgraduate forum, **London, UK**
- 12.2005 **Talk** "Simulating a hybrid zone between two different sex chromosome system populations", PopGroup, **Edinburgh, UK**
- 09.2005 **Talk** "Ribosomal RNA and reproductive isolation in the grasshopper *Podisma pedestris*", L.E.R.N conference, **London, UK**
- 09.2005 **Talk** "Ribosomal RNA and reproductive isolation in the grasshopper *Podisma pedestris*", 11th meeting of PhD students in evolutionary biology, **Bordeaux, France**
- 08.2005 **Talk** "Ribosomal RNA and reproductive isolation in the grasshopper *Podisma pedestris*", ESEB, **Krakow, Poland**
- 02.2005 **Poster** "Grasshoppers, rDNA and FISH", Royal Entomological Society Postgraduate Symposium, **London, UK**
- 12.2005 **Poster** "Grasshoppers, rDNA and FISH", PopGroup, **Reading, UK**

Additional Training (Workshop / Conferences)

Participated in 26 meetings.

- 07.2024 **2nd Tree of Sex meeting**, (virtual, Prague, Czech Republic)
- 06.2024 **RSPCA/NC3Rs Amphibian Care and Welfare** (virtual, Sussex, UK)
- 05.2023 **1st Tree of Sex meeting**, (virtual, Cambridge, UK)
- 05.2021 **Silene international meeting**, (virtual)
- 01.2021 **Popgroup**, Liverpool, UK (virtual)
- 02.2020 **Advocates and allies equity workshop**, Indiana University, USA
- 09.2019 **"Sex differences in the brain"**, Gill Centre for Biomolecular Science, Indiana University, USA
- 08.2018 **ESEB**, Montpellier, France
- 04.2018 **"De novo transcriptome assembly"**, CGAS Indiana University, USA
- 06.2016 **"Evolution of sex determination"**, University of Lausanne, Switzerland

- 12.2011 **Association for the study of animal behaviour**, London, UK
- 04.2011 **"Transposable elements - Their functional and evolutionary biology"**, Genetics Society symposium, Edinburgh, UK
- 01.2010 **"Genetics and Genomics of speciation workshop"**, Peak District, UK
- 11.2009 **"Genetics and the causes of evolution 150 years of progress since Darwin"**, London, UK
- 04.2009 **"Theory of Speciation"**, Groningen, Netherlands
- 09.2008 **"Challenges in speciation research"**, Sheffield, UK
- 05.2008 **"New frontiers in epigenetics"**, Genetics Society, London
- 02.2008 **"Genes & Behaviour"** Gordon Research Conference, Lucca (Barga), Italy
- 11.2006 **"Comparative genomics and diversity"**, London, UK
- 10.2006 **"Nature, nurture or neither - Genetics in the post genome era"**, London, UK
- 11.2005 **"Speciation Symposium"**, Natural History Museum, London, UK
- 11.2005 **"C.E.E Evolutionary inferences from phylogenetic trees"**, London, UK
- 03.2005 **"Life at the Boundaries the physics of survival and endurance"**, London, UK
- 11.2004 **"A walk from the wild side the genetics of domestication of livestock and crops"**, London, UK
- 11.2004 **"Evolution and Medicine"**, London, UK

Teaching and Mentoring

Lecturing

I have written **20 lectures** on various subjects on evolutionary biology, incorporating recent advances in the subject and my own research. I also acted as a **tutorial group leader for 2 years**.

- 2024 **1 lecture, 4 paper in class discussions, student evaluation** Master course on "Evolutionary genetics and genomics of sex" coorganised course at VUB, Belgium.
- 2024 **1 guest lecture** 3rd year students on "Sex chromosome evolution" ULB, Belgium.
- 2024 **5 lectures, 1 multiple choice quiz, oral exams** BSc course on "Molecular Biology of the Cell" coorganised course at VUB, Belgium.
- 2023 **1 lecture, 4 paper in class discussions, student evaluation** Master course on "Evolutionary genetics and genomics of sex" coorganised course at VUB, Belgium.
- 2023 **1 guest lecture** 3rd year students on "Sex chromosome evolution" ULB, Belgium.
- 2018 **1 "brown bag" lecture on my research** to PhD students at Indiana University, USA
- 2010 **5 evolution lectures** to 3rd year students, St Andrews, UK
"Coadapted gene complexes", "Reproductive isolation", "Hybrid zones", "Evolution in islands"
- 2009 **3 speciation lectures** to 2nd year students, St Andrews, UK
"Speciation definitions", "Geographic modes of speciation", "Speciation comparison between plants and animals"
- 2008 **1 guest lecture** 4th year students, St Andrews, UK
"The evolution of sex chromosomes and sex determination"
- 2003-2008 **4 guest lectures**, to 2nd and 3rd year students.
The lectures introduced sex chromosome evolution, my research on cytogenetics, and hybrid zone computer simulations.
- 2008-2009 **Tutorial group lecturer**, 3rd year students, group of 8, St Andrews, UK
"Hardy Weinberg exercises", "Favourite paper discussion", "Essay writing", "Poster preparation", "Public speaking"

Teaching assistance

I was involved in running **19 large practical classes and 3 field trips** on many topics during my PhD, including marking. I also **helped run practicals and exams** for undergraduate classes in Lausanne, including setting questions and marking for one.

- 2023-2024 **Examiner 3 BSc, 2 master theses**, VUB
- 2022-2023 **Examiner 2 BSc theses**, VUB

- 2021-2022 **5-part workshop on Unix, Bioinformatics, R for genomics (over Zoom)**, University of Kansas, USA (20 PhD - Teaching assistant)
- 2014-2017 **14 Botany practicals, 1st year Biology and Pharmacology students**, University of Lausanne, Switzerland (150 BSc - Teaching assistant)
- 2015-2016 **4 population genetics practicals, 1st year Biology students**, University of Lausanne, Switzerland (80 BSc - Teaching assistant/examiner)
- 2003-2008 First and second year undergraduates, **3 days every 2 weeks** during semester, Queen Mary University of London, UK
22 Subjects covered: Meiosis, Chromosome genetics, Viruses, Evolutionary genetics snail field trip, PCR and BLAST, DNA extraction and analysis, Algae and cyanobacteria, Mitosis video, Basic techniques in biochemistry, Genetic drift, Phage lambda, Reproductive systems in land plants, Molluscs and arthropods, Biology summer school, Osmosis - plasmolysis, Introduction to microscopy, Essential microbiological techniques, Linkage analysis, Evolution - Natural History Museum visit, Cladistics, Evolution - Kew Gardens visit, Open day bioinformatics.
Class size 200-380 BSc - Teaching assistant and examiner

Mentoring

I have mentored **1 technician and 15 students** in the lab and supervised their written work. I have also worked closely with many PhD students both in my lab and on related projects in other labs (not listed). Some of this collaboration has resulted in **joint publications**, indicated by + in the publications section. More recently I have been co-supervising/mentoring all PhD students and postdocs of the Ma lab.

- 2023-now **Mentoring** 4 PhD students, 4 postdocs from Ma lab (secondary supervisor).
- 2024-now **Project co-supervision** Master thesis (Marzie Bagheri).
Pollen networks from museum specimens
- 2023-2024 **Project supervision** of 1 Undergraduate students (Tristan Correlis) VUB
C. elegans salt preference project.
- 2023 **Project supervision** of 1 first step Master students (Marzie Bagheri) VUB
Microsatellite genotyping for Swiss and Belgian *Rana temporaria*.
- 2023 **Project supervision** of Undergraduate student (Marie Aerts) VUB
Sex-specific splicing and histology in *Rana temporaria*.
- 2020-2022 **Lab supervision** of 5 Undergraduate students (Aisha Mohamed, Guled Abdi, Apolonia Arteaga, Mae Morrison, Gabe Effiong) University of Kansas, USA (with John Kelly)
>2000 of RNA and DNA extraction from plants, including greenhouse work. Also library preparation for sequencing.
- 2015-2016 **Masters student Nela Bacovska**, Institute of Biophysics, Brno, Czech Republic (with Roman Hobza)
"Cytogenetics and BAC libraries of sex chromosomes in *Mercurialis*".
- 2015 **Internship summer student Yi Huang** (8 weeks), Univeristy of Lausanne, Switzerland (with Guillaume Cossard, John Pannel)
"The viability and fertility of YY plants"
- 2009 **Undergraduate student Holden Sheffield**
"Identification of sex ratio distortion in *D. montana* lines".
- 2008-2009 **Lab technician Barbara Morrissey** (with Roger Butlin), University of Sheffield, UK
- 2005 **Supervisor of undergraduate student Alem Gebreselassie** (with Richard Nichols, Andrew Leitch)
"Fluorescent *in-situ* hybridisation and genomic *in-situ* hybridisation in *P. pedestris*".
- 2004 **Undergraduate student Hussna Jahan** (with Irene Keller, Richard Nichols)
"Fluorescent *in-situ* hybridisation in *P. pedestris*"
- 2003 **Undergraduate student lab project**
"Is the *P. pedestris* hybrid zone position stable over time?".

Outreach

- 2018 **Creator of podcast** discussing papers and presenting them to the public through improvisational sketches (13 episodes <http://thecatalyst.ch/category/projects/podcasts/science-beer-review/>).
- 12.2013 **STEM Ambassador:** Interviews with students on career choices in St Modans school in Stirling, UK.
- 03.2013 **STEM Ambassador:** Fife Open Day Science Festival demonstrator on ear and eye function.
- 01.2009 **Radio interview** by St Andrews radio on *Drosophila* courtship song.

Academic Service and Leadership

- 2023 - now **Postdoc lunch organiser** Brussels, Belgium
- 2024 - now **BDiV website portrait photos**, Brussels, Belgium
- 2019 - 2020 **Journal club** on plant evolution, Indiana, USA
- 2016 - 2017 **Journal club** on sex chromosomes founder, Lausanne, Switzerland
- 08.2015 **Volunteer conference organiser** for ESEB in Lausanne (1,200 participants)
- 2009 - 2010 **Founding member of Post Graduate BioNetwork**, St Andrews, UK
This brought together students from 4 different buildings in weekly talks and social activities, and eventually run the 2-day post-graduate symposium.
- 2004 - 2006 **Biolunch weekly staff seminar organiser**, Queen Mary University of London, UK
- 2005 - 2006 **PhD student induction**, Queen Mary University of London, UK

Bioinformatics experience

Github: <https://github.com/parisveltsos>

- | | |
|---------------------|---|
| Programming | R, Perl, Python, bash, vim |
| RNAseq analysis | Experimental design, Kallisto, EdgeR, Blast2GO, topGO |
| Genomics | RepeatMasker, BWA, Picard Tools, GATK, vcftools, Blast, FASTQC, BWA-MEM, samtools, augustus |
| QTL analysis | rqt1, Lep-Map 3, Cri-map, Asreml |
| Population genetics | Popoolation 2, adegenet |

Professional Membership

- 2019 - now Society for the Study of Evolution
- 2004 - now The Genetics Society
- 2004 - now The European Society for Evolutionary Biology
- 2010 - 2012 Association for the study of animal behaviour
- 2004 - 2009 The Royal Entomological Society

Academic Reviewing

(30 on Publons <https://www.webofscience.com/wos/author/record/803139>)

- | | | |
|---|-----------------------------------|---|
| • BMC Evolutionary Biology | • Heredity | • Molecular Ecology |
| • Biological Journal of the Linnean Society | • Insects | • Molecular Phylogenetics and Evolution |
| • Current Biology | • Journal of Evolutionary Biology | • New Phytologist |
| • Evolution | • Journal of Heredity | • PlosOne |
| • Evolutionary Ecology | • Journal of Zoology | • Proceedings of the Royal Society B |
| • Genetica | • Molecular Biology and Evolution | |
| • Genes | • Molecular Ecology Resources | |
| • Genome Biology and Evolution | | |

Grant Reviewing

6 Czech Science Foundation grants

1 Polish Science Foundation grant

Website administration

My site (<http://www.parisveltsos.com/research/>) (included distribution of teaching material)

Creation of Twitter bots to report on literature ([@sexChr_papers](#), [@silenepapers](#), [@mimuluspapers](#))

2009-2014 Ritchie lab website

2009-2014 Seminar shared calendars for departmental events in St Andrews

2009-2010 BioNetwork site

2004-2006 Biolunch site

References

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