Curriculum vitae - Rishi De-Kayne

Personal information:

Rishi De-Kayne
Website: https://rishidekayne.github.io/
Google scholar: https://scholar.google.co.uk/citations?user=mgVYiCQAAAAJ&hl=en
GitHub: https://github.com/RishiDeKayne/

Education and employment:

University of Edinburgh - Institute of Evolutionary Biology 01/2021-06/2022: Visiting Research Fellow - Funded by SNSF Early Postdoc Mobility fellowship

- Project: The evolution and maintenance of wing-pattern supergenes in Danaus butterflies

Eawag - Department of Fish Ecology & Evolution/University of Bern - Institute of Ecology & Evolution 10/2016-11/2020: PhD Student

- Title: The genetic basis of adaptation and speciation in the Swiss Alpine whitefish radiation.
- Supervisors: Prof. Ole Seehausen and Dr. Philine G. D. Feulner

Imperial College London 10/2015-10/2016: MRes Tropical Forest Ecology - Pass with Distinction

- Course supervisor: Prof. Robert Ewers
- Thesis: 'Endophytic fungal, not bacterial, communities differ between sympatric palm species'
- Project supervisor: Prof. Vincent Savolainen

Imperial College London 10/2012-10/2015: BSc Biology - 1st Class Honours

- Thesis: 'Resolving the phylogeny of the sharks using 20 transcriptomes'
- Project supervisor: Prof. Vincent Savolainen

Publications in peer reviewed journals:

Citations: 50
h-Index: 3
*authors contributed equally

5. **R De-Kayne***, D Frei*, R Greenway, SL Mendes, C Retel, PGD Feulner (submitted to Molecular Ecology Resources) The future of next generation sequencing datasets: technological shifts provide opportunities but pose challenges for reproducibility and reusability

4. **R De-Kayne**, S Zoller, PGD Feulner (2020)
A de novo chromosome-level genome assembly of *Coregonus sp.* "Balchen": one representative of the Swiss Alpine whitefish radiation. Molecular Ecology Resources 20:1093–1109

3. **R De-Kayne**, PGD Feulner (2018)
A European whitefish linkage map and its implications for understanding genome-wide synteny between salmonids following whole genome duplication. G3: Genes, Genomes, Genetics 8: 3745-3755

2. OG Osborne*, **R De-Kayne***, MI Bidartondo, I Hutton, WJ Baker, Colin GN Turnbull, Vincent Savolainen (2017) Arbuscular Mycorrhizal fungi promote coexistence and niche divergence of sympatric palm species on a remote oceanic island. New Phytologist 217:1254-1266

1. PGD Feulner, **R De-Kayne** (2017)
Genome evolution, structural rearrangements and speciation. Journal of Evolutionary Biology 30:1488-1490

Employment history:

Field Technician – Savolainen Lab Imperial College London (Lord Howe Island):
August-September 2015 - Supervisor: Prof. Vincent Savolainen
This project determined whether *Howea* palms, a textbook example of sympatric speciation, are adapted to different soil types on Lord Howe Island. **Responsibilities**: I co-designed and implementing a large reciprocal transplant experiment on the island, which I set up singlehandedly. I gained valuable skills in fieldwork logistics, experimental design, plant identification and soil analysis as well as further developing my interpersonal and communication skills by working closely with the local community.

Undergraduate Research Opportunity Placement (UROP) – Kew Gardens:
July-September 2014 - Supervisor: Martin Bidartondo
This project investigated the diversity and distribution of mycorrhiza across Europe. **Responsibilities**: I independently processed and cleaned plant roots before identifying roots with mycorrhizal colonies. I then carried out DNA extractions on these roots, PCR, gel electrophoresis and did bioinformatic processing of the sequence data in Geneious.

Volunteer in Conservation and Research department - National Botanic Garden of Wales:
Summer 2011 and 2013 - Supervisor: Natasha De Vere
This project aimed to DNA barcode all native flowering plants and conifers of Wales (DNA Barcoding the Native Flowering Plants and Conifers of Wales, de Vere et al. 2012). **Responsibilities**: collecting samples and independently carrying out DNA extractions, PCR and gel electrophoresis to sequence the *rbcL* and *matK* regions for the 'Barcode Wales' database.

Supervision of Students:

Co-supervision of Romano Josi – University of Bern BSc Summer Research Student 06-07/2017
This research project used diagnostic microsatellites to determine the pedigree of lab-reared whitefish larvae and the abundance of gynogenetic haploid individuals My supervision involved training Romano in molecular lab techniques including DNA extraction, PCR, and microsatellite sequencing and analysis.

Teaching Experience:

University of Bern - Practical in Aquatic Ecology and Evolution 03-05/2018 and 2019
In this course students designed their own practical investigation to study the ecology and evolution of fish in Swiss lakes from start to finish. In both 2018 and 2019 these projects revolved around scale and fossil bones excavated from sediment cores collected from various Swiss lakes. The students collected the sediment cores, extracted fossils, carried out the necessary molecular lab, analysed their data, and wrote the investigation up in manuscript format. I assisted during all stages of the practical and drafted an 'introduction to scientific writing' guide to help the students through the writing process. I then graded student reports at the end of the practical.

University of Bern - Introduction to R for Beginners 09/2019
In this five-day course, second- and third-year BSc students received an introduction to R covering basic syntax, an outline of different data types, linear modelling, writing functions, and carrying out descriptive statistics in R. I assisted students to work through R exercises throughout the course and provided them with feedback on their code. I also graded the final homework exercises from the course.

Memberships to panels and scientific reviewing:

- PhD and Postdoc representative (Unteren Mittelbau) on the hiring committee for a new Professor for Theoretical Ecology and Evolution at the University of Bern 2019.
- Scientific manuscript reviewing for: G3 (Genes, Genomes and Genetics) and Molecular Ecology Resources, and co-review of a manuscript from Genome Biology and Evolution.

- Scientific grant reviewing for: Great Lakes Fisheries Commission

Active memberships to scientific societies:

European Society of Evolutionary Biology (ESEB) member – since 2017

Grants, prizes and awards:

- SNSF Early Postdoc Mobility fellowship (18 months) **– CHF 73,150**
- Best student poster at PopGroup51 01/2018 **– 2nd Place (CHF 190)**
- Best student talk at PopGroup53 01/2020 – **1st Place (CHF 316)**
- Best conference poster at Biology20 02/2020 – **2nd Place (CHF 150)**

Contributions to conferences:

14. **R. De-Kayne**, S. Zoller, O. Seehausen and P.G.D. Feulner. Towards understanding adaptation and speciation in the Swiss Alpine whitefish radiation. *Biology20 Conference,* Freiburg, Switzerland - **Oral presentation**

13. **R. De-Kayne**, S. Zoller, O. Seehausen and P.G.D. Feulner. Towards understanding adaptation and speciation in the Swiss Alpine whitefish radiation. *53rd Population Genetics Group Meeting (PopGroup53)*. Liecester, UK - **Oral presentation**

12. **R. De-Kayne**, S. Zoller, O. Seehausen and P.G.D. Feulner. A de novo chromosome-level genome assembly of *Coregonus steinmanni* – towards understanding adaptation and speciation in the Swiss Alpine whitefish radiation. *4th International Conference on Integrative Salmonid Biology (ICISB2019).* Edinburgh, UK - **Oral presentation**

11. **R. De-Kayne**, S. Zoller, O. Seehausen and P.G.D. Feulner. Genomics of adaptation in the Alpine whitefish radiation - genomic resources to study adaptation and speciation. *2019 Congress of the European Society for Evolutionary Biology (ESEB2019).* Turku, Finland - **Poster presentation**

10. **R. De-Kayne**, S. Zoller and P.G.D. Feulner. Assembling the genome of *Coregonus steinmanni* – unlocking the secrets of the Swiss Alpine whitefish radiation. *EAWAG Fish Ecology and Evolution Symposium 2019*. Kastanienbaum, Switzerland - **Oral presentation**

9. **R. De-Kayne**, S. Zoller, O. Seehausen and P.G.D. Feulner. Towards the understanding of adaptation and speciation in the Swiss Alpine whitefish radiation. *Biology19 Conference*. Zurich, Switzerland - **Oral presentation**

8. **R. De-Kayne**, S. Zoller, O. Seehausen and P.G.D. Feulner. Towards the understanding of adaptation and speciation in the Swiss Alpine whitefish radiation. *52nd Population Genetics Group Meeting (PopGroup52).* Oxford, UK - **Oral presentation**

7. **R. De-Kayne**, S. Zoller, O. Seehausen and P.G.D. Feulner. The Swiss Alpine whitefish radiation – first steps in understanding the genomic basis of adaptation and speciation. *Programming for Evolutionary Biology (PEB) Conference 2018*. Buttermere, UK - **Oral presentation**

6. **R. De-Kayne**, O. Seehausen and P.G.D. Feulner. The Swiss Alpine whitefish radiation – genomic resources to study adaptation and speciation. *2018 Congress of the European Society for Evolutionary Biology (ESEB2018).* Montpellier, France - **Poster presentation**

5. **R. De-Kayne**, O. Seehausen and P.G.D. Feulner. Producing genomic resources for pre-Alpine whitefish and what they can tell us about genome evolution. *EAWAG Fish Ecology and Evolution Symposium 2018.* Kastanienbaum, Switzerland - **Oral presentation**

4. **R. De-Kayne**, O. Seehausen and P.G.D. Feulner. Constructing a linkage map for Swiss Alpine whitefish. *Biology18 Conference*. Neuchatel, Switzerland - **Poster presentation**

3. **R. De-Kayne**, O. Seehausen and P.G.D. Feulner. Constructing a linkage map for Swiss Alpine whitefish. *51st Population Genetics Group Meeting (PopGroup51).* Bristol, UK - **Poster presentation**

2. **R. De-Kayne**, O. Seehausen and P.G.D. Feulner. Investigating the genomic basis of adaptation and speciation in the Alpine whitefish radiation. *EAWAG Fish Ecology and Evolution symposium 2017.* Kastanienbaum, Switzerland - **Oral presentation**

1. **R. De-Kayne**, O. Seehausen and P.G.D. Feulner. The genomic basis of adaptation and speciation in the Swiss Alpine whitefish radiation. *Biology17 Conference.* Bern, Swtizerland. **Poster presentation**

Personal skills:

- Bioinformatics programming: using R, Python and Bash.
- Lab experience: extensive Molecular lab experience including RAD library preparation and extracting high molecular weight DNA for genome sequencing. Aquarium experience breeding and rearing salmonid larvae. Herbarium specimen preparation and organization.
- Fieldwork experience: biodiversity studies and species-specific collections in multiple habitats.

Outreach activities:

I founded and run the PhDetails blog: http://phdetails.blogspot.com/ - featuring interviews with biology PhD students from around the world to promote the diversity of students in biology. Over 100 PhD students have featured to date and the blog gets an average of 1150 hits/month.