Rishi De-Kayne

Date of birth: 01/10/94
Address: Bundesstrasse 10, Luzern, 6003, Switzerland
Phone: +41794311535
Email: rishi.de-kayne@eawag.ch
Website: http://rishidekayne.github.io/

Education:

EAWAG department of Fish Ecology & Evolution/University of Bern Institute of Ecology & Evolution 2016-Present: PhD Candidate

- Topic: Adaptation and Speciation Genomics of the Alpine Whitefish

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

- Thesis: 'Endophytic fungal, not bacterial, communities differ between sympatric palm species'

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

- Final Year Project: 'Resolving the phylogeny of the sharks using 20 transcriptomes' (1st)

St. Michael's School (The Bryn, Llanelli)

- 2012: A Levels – A*AAA
- 2009/2010: GCSEs - 9A*, 1A

Publications:

Citations: 31 - h-Index: 2
https://scholar.google.co.uk/citations?user=mgVYiCQAAAAJ&hl=en

4. **R De-Kayne**, Stefan Zoller, PGD Feulner (2019)
A de novo chromosome-level genome assembly of *Coregonus sp. "Balchen"*: one representative of the Swiss Alpine whitefish radiation. BioRxiv 771600

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 (12), 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 (3), 1254-1266

1. PGD Feulner, **R De-Kayne** (2017)
Genome evolution, structural rearrangements and speciation. Journal of Evolutionary Biology 30 (8), 1488-1490

*authors contributed equally

Research Experience:

Field Technician – Savolainen Lab Imperial College London (Lord Howe Island): August-September 2015
This project aimed to determine whether *Howea* palms, a textbook example of sympatric speciation, are adapted to different soil types on Lord Howe Island. I co-designed and solely implemented a large reciprocal transplant experiment on the island. I gained and developed valuable skills in fieldwork logistics, experimental design, plant identification and soil analysis as well as interpersonal and communication skills by working closely with the local community on Lord Howe.

Undergraduate Research Opportunity Placement (UROP) – Bidartondo Lab Kew Gardens: July-September 2014
This project aimed to investigate the diversity and distribution of mycorrhiza across Europe. Whilst at Kew 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 bioinformatic processing of the sequence data in Geneious.

Volunteer in Conservation/Research department - National Botanic Garden of Wales: Summer 2011 and 2013
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). I was responsible for collecting samples and independently carrying out DNA extractions, PCR and gel electrophoresis to sequence the *rbcL* and *matK* regions for the 'Barcode Wales' database.

Teaching Experience:

Teaching assistant at University of Bern - Practical in Aquatic Ecology and Evolution 2018 and 2019
In this course students designed their own practical investigation 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. Each of the investigations aimed to address questions in the ecology and evolution of fish in Swiss lakes e.g. How has the fish community composition in Lake Constance changed though time? The students collected the sediment cores, extracted fossils, carried out the necessary lab work (including molecular lab work to amplify specific DNA barcodes of their focal species), analysed their data, and wrote the investigation up in a manuscript format. I assisted during all stages of the practical and drafted and provided 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.

Teaching assistant at University of Bern - Introduction to R for Beginners 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.

Contributed Presentations:

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. *International Conference on Integrative Salmonid Biology (ICISB) 2019*. Edinburgh, UK - **Oral presentation**

11. **R. De-Kayne**, S. Zoller, O. Seehausen and P.G.D. Feulner. 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*. Neuchatel, 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*. Zurich, 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**

Skills:

- Proficient IT skills, specifically in bioinformatics using Bash, Python and R scripting for population genetics, genome assembly/annotation.
- Molecular lab experience including multiple methods of DNA extraction (including high molecular weight DNA for genome sequencing), DNA purification and amplification, RAD library preparation, microsatellite sequencing and analysis.
- Fieldwork experience in a variety of habitats from broad biodiversity studies to species-specific collections.
- Aquarium experience breeding and rearing salmonid larvae.
- Herbarium specimen preparation and organization.
- Sediment core collection and sampling.
- Possess a full, clean driving licence.

Science communication:

- Founded, write and publish the PhDetails blog: http://phdetails.blogspot.com/ which features weekly interviews with biology PhD students from around the world to promote the diversity of people and projects in biology. Over 80 PhD students have featured to date.

References: (Available on request)

1. Dr. Philine Feulner
- Philine.feulner@eawag.ch
- +41 58 765 2106

2. Professor Ole Seehausen
- ole.seehausen@iee.unibe.ch
- +41 31 631 31 31

3. Professor Vincent Savolainen
- v.savolainen@imperial.ac.uk
- +44 20 7594 2374