
PD Dr habil. Christopher Kaiser-Bunbury

Senior Researcher | Ecological Networks | Department of Biology | TU Darmstadt, Germany

+49(0) 6151 16 75 410 | @ ckaiser-bunbury@bio.tu-darmstadt.de | <http://www.bio.tu-darmstadt.de/kaiserbunbury>

ACADEMIC POSITIONS

- 07/2015 – present **Honorary Fellow** at the University of Seychelles
- 03/2013 – present **Research Group Leader: *Applied Network Ecology and Island Conservation***
Affiliated to Prof. Nico Blüthgen, *Ecological Networks*, TU Darmstadt, Germany
- 02/2011 – present **Associate Researcher** with the Seychelles Islands Foundation (SIF)
- 2010 – 03/2013 **Research Fellow**, Prof. Jens Olesen, Ecology & Genetics, Aarhus University, Denmark
- 2008 – 08/2010 **Post-doctoral Researcher**, Prof. Peter Edwards, Plant Ecology, ETH Zurich, Switzerland
- 2007 – 08/2010 **Post-doctoral Researcher**, Prof. Jaboury Ghazoul, Ecosystem Management, ETH Zurich
- 2006 – 2010 **Managing Editor**, BIOTROPICA journal, Association of Tropical Biology & Conservation
Lecturer & Supervisor of MSc and BSc courses and projects at ETH Zurich

QUALIFICATIONS/EDUCATION

- 2015 **Habilitation**, Biology/Ecology, TU Darmstadt, Germany | *Networks in island ecology: A synergistic approach to connect ecological theory with conservation application*
- 2006 **Doctorate**, Institute of Environmental Sciences, University of Zurich (UZH), Switzerland.
Supervisors: Prof. Christine Müller, Prof. Jane Memmott (Univ. Bristol).
Integrity of the pollinator community in restored habitats in Mauritius
- 2002 **Diploma**¹ in Biology: 1st ('summa cum laude'), University of Bonn, Germany
- 1999–2000 ERASMUS scholarship (1yr), University of East Anglia, Norwich, UK
Final Project: *Comparative studies of life history in fish* (1st)
- 1995 **Abitur** (1.9)² at Helmholtz-Gymnasium, Bonn, Germany

RESEARCH ACTIVITIES (see [ResearcherID](#), [GoogleScholar](#))

I have conducted several large research projects to assess the impact of anthropogenic disturbance and ecological restoration on ecosystem integrity, and to investigate ecological and evolutionary concepts of island biotas with the aim of developing comprehensive and long-term evidence-based conservation programmes. Specifically, I have applied a diverse set of tools and approaches in an island setting in the Western Indian Ocean biodiversity hotspot, the Seychelles, integrating community field experiments and ecological research with quantitative network analysis and theoretical modelling.

Current projects as Principal Investigator (PI) | Funding: German Research Foundation (DFG; 2013 – 2016)

(1) *Plant–pollinator networks* | I am employing large-scale field experiments and mutualistic interaction networks to investigate ecosystem resilience and derive recommendations for biodiversity conservation.

2014 – ongoing *Plant–pollinator communities of the granitic Seychelles: oceanic or continental island biotas?* |
Collaboration: Biodiversity and Climate Research Centre (BiK-F)

2013– ongoing *Modelling dynamics and robustness of pollination networks with cost and fitness functions to account for intra- and interspecific competition* | Collaboration: Max-Planck Leipzig and University Nice

2010– ongoing *A novel experimental approach with complex pollination network analysis to quantify the impact of habitat restoration on ecosystem integrity* | Collaboration: Seychelles National Parks Authority

(2) *Endemic palm forest* | I am researching the ecology and evolution of a palm forest community and providing the knowledge basis for adaptive management against invasive alien species, poaching and habitat degradation.

¹ equivalent to MSc (6 yr degree)

² equivalent to A-Levels

- 2014 – ongoing *Developing novel chemo-ecological methods to study niche complementarity of pollinators of six sympatric endemic palm species* | Collaboration: University of Würzburg
- 2013 – ongoing *The ecology of the threatened giant bronze gecko *Ailuroonyx trachygaster* and its role as top predator in an endemic palm forest ecosystem* | Collaboration: SIF, Durrell WCT & Microsoft Research
- 2007– 2016 *Demographic structure, reproduction and genetic diversity of *coco de mer* *Lodoicea maldivica** | Collaboration: SIF | Partly funded by ETH Zurich

Other key projects

- 2015 – 2018 *Importance of single and double plant-vertebrate mutualisms on islands: double benefits and double risks? A comparative study across three archipelagos* | **Co-PI** on a collaborative project with Prof. Anna Traveset (CSIC-UIB) | Funding: Spanish Research Council
- 2014 – 2017 *Habitat restoration of Seychelles' upland forest: community engagement and long-term effects on ecosystem integrity* | **PI and project manager** | Funding: Environment Trust Fund & Small Grants Projects UNDP/GEF
- 2012 – 2016 *Functional ecology of native and invasive flora of Seychelles* | **Collaboration** with Dr Christoph Kueffer at ETH Zurich | Funding: ETH Zurich
- 2013 – 2016 *From understanding to predicting: Giant tortoises as drivers of the seed dispersal network of Aldabra* | **Collaboration** with Dr Dennis Hansen, UZH | PhD project funded by SNSF
- 2012 – 2013 *The impact of invasive alien plant species on ecosystem processes: using seed dispersal as model system* | **Collaboration** with Dr Hansen, UZH | Funding: UZH, SNSF
- 2011 – 2014 *Threats of the invasive yellow crazy ants *Anoplolepis gracilipes* to the UNESCO palm forest ecosystem of the Vallée de Mai, Seychelles* | **MSc supervisor and scientific advisor** as part of an EU-funded project (€1 Mio.) on preserving the ecological integrity and enhancing the resilience of Seychelles' World Heritage Sites | **Collaboration** with SIF
- 2008 – 2009 *Design and setup of long-term phenology monitoring on Aldabra Atoll, Seychelles* | **Research implementation and scientific advice** in collaboration with SIF
- 2007– 2010 *Using plant–pollinator networks to identify barriers to plant reproduction and population viability of endangered endemics on Seychelles' inselbergs* | **PI** | Funding: SNSF
- 2007 – 2010 *Ecological and genetic processes underlying Allee effects among plant populations in the context of divergent population histories* | **Co-PI and PhD supervisor** at the Ecosystem Management group, ETH Zurich | Funding: ETHIIRA, ETH Zurich

SELECTED PUBLICATIONS

Peer-reviewed (for a full list, see [GoogleScholar](#))

- Kaiser-Bunbury CN** & Blüthgen. 2015. Network ecology meets applied conservation: a synthesis and implementation pathway. *AoB Plants* 7: plv076 (Editor's Choice)
- Kaiser-Bunbury CN**, Mougal J, Valentin T, Gabriel R & Blüthgen N. in press. Herbicide application as a habitat restoration tool: Impact on native plant communities. *Applied Vegetation Science*. 18: 650-660
- Edwards P, Fleischer-Dogley F & **Kaiser-Bunbury CN**. 2015. The nutrient economy of *Lodoicea maldivica*, a monodominant palm producing the world's largest seed. *New Phytologist*. 206: 990-999
- Kaiser-Bunbury CN**, Fleischer-Dogley F, Dogley D & Bunbury N. 2015. Scientists' responsibilities towards evidence-based conservation in a Small Island Developing State. *Journal of Applied Ecology*. 52: 7-11
- Kaiser-Bunbury CN**, Vázquez D, Stang M & Ghazoul J. 2014. Determinants of the microstructure of plant-pollinator networks. *Ecology* 95: 3314-3324
- Kueffer C & **Kaiser-Bunbury CN**. 2014. Reconciling conflicting perspectives for biodiversity conservation in the Anthropocene. *Frontiers in Ecology and the Environment* 14:131-137.

- Fleischer-Dogley F, Kettle C, Edwards P, Ghazoul J, Määtänen, K, **Kaiser-Bunbury CN**. 2011 Morphological and genetic differentiation in populations of the dispersal-limited coco de mer (*Lodoicea maldivica*): implications for management and conservation. *Diversity & Distribution* 17: 235-243.
- Kaiser-Bunbury CN**, Valentin T, Mougai J, Matatiken D, & Ghazoul J. 2011 The tolerance of island plant–pollinator networks to alien plants. *Journal of Ecology* 99: 202–213 (Editor’s Choice)
- Kaiser-Bunbury CN**, Muff S, Memmott J, Müller CB & Caflisch A. 2010 The robustness of pollination networks to the loss of species and interactions: A quantitative approach incorporating pollinator behaviour. *Ecology Letters* 13: 442–452.
- Kaiser-Bunbury CN**, Traveset A & Hansen DM. 2010 Conservation and restoration of plant–animal mutualisms on oceanic islands. *Perspectives in Plant Ecology, Evolution and Systematics* 12: 131–143.
- Kaiser-Bunbury CN**, Memmott J & Müller CB. 2009 Community structure of pollination webs of Mauritian heathland habitats. *Perspectives in Plant Ecology, Evolution and Systematics* 11: 241–254
- Kaiser CN**, Hansen DM & Müller, CB. 2008 Habitat Structure Affects Reproductive Success of the Rare Endemic Tree *Syzygium mamillatum* (Myrtaceae) in Restored and Unrestored Sites in Mauritius. *Biotropica* 40: 84–96

GRANTS

In addition to the **€ 1,234,870 raised for research projects** outlined above, I secured the following smaller grants:

- US Embassy Mauritius, *Centralized geo-location database to enhance strategic protection for sea turtles and their habitats in the Republic of Seychelles* (2015; US\$ 80,795, **Co-PI** with TAGS)
- Roche Research Foundation, PhD scholarship (2005; CHF 17,100, **PI**)
- British Ecological Society Award, towards TBA field course, Uganda (2001; £ 270, **PI**)
- DAAD scholarship, towards field work for the Diploma thesis in Kenya (2001; € 1600, **PI**)

CONFERENCE CONTRIBUTIONS

- 2015 GFÖ annual meeting, Göttingen, Germany. **Symposium organiser**
GTOE annual meeting, Zurich, Switzerland. **Symposium organiser and talk**
- 2014 GFÖ annual meeting, Hildesheim, Germany. (Talk)
Island Biology conference, Honolulu, Hawaii. (Talk)
- 2013 INTECOL & BES annual meeting, London, UK. (Talk)
Theory of Networks, workshop, ZIF, Bielefeld, Germany. (Talk)
Ecological Networks Symposium, Coimbra, Portugal. (Talk)
- 2011 EEF 12th Congress, Ávila, Spain. **Invited symposium talk.**
- 2010 NEOBIOTA 2010, Copenhagen, Denmark. **Symposium talk.**
BES annual meeting, Leeds, UK. **Symposium talk.**
- 2009 ATBC annual meeting, Marburg, Germany. **Invited symposium talk.**
Seychelles Islands Foundation Annual General Meeting, Praslin, Seychelles. **Invited talk.**
SCAPE09 annual meeting, Finland. (Talk)
FFEM Island Restoration Workshop, Mahé Seychelles. **Invited talk.**
- 2008 SCAPE08 annual meeting, Norway. (Talk)
- 2007 ATBC annual meeting, Mexico. **Invited symposium talk.**
Society for Tropical Ecology (GTÖ) annual meeting, Germany. **Merian Prize for best talk.**
Biology07, Geneva, Switzerland (Talk)
- 2005 Society of Conservation Biology (SCB) annual meeting, Brazil. (Talk)
Ecological Seminar, University of Göttingen, Germany. **Invited Talk.**

- Biology05, Conference in Evolution and Ecology, Basel, Switzerland. (Talk)
- 2004 Symposium of the Zürich-Basel Plant Science Centre, ETH Zürich and Royal Entomological Society London, UK: Special Interest Group: Insect Pollination. (Poster)
- 2003 British Ecological Society (BES) and ATBC, Aberdeen, Scotland. (Poster)
- 2002 Symposium 'OekoDoSe', UZH, Switzerland. (Talk)
- Scandinavian Association for Pollination Ecology (SCAPE 02), Denmark. (Talk)

 REVIEWER
Journals & societies

Acta Oecologia, American Naturalist, American J Botany, AoB Plants, Austral Ecology, Australian J Botany, Basic and Applied Ecology, Biological Conservation, Biological Invasions, Biotropica, Botanical J Linnaean Society, Conservation Biology, Diversity & Distributions, Ecology, Ecology Letters, Functional Ecology, IUCN, J Biogeography, J Applied Ecology, J Ecology, J Pollination Ecology, National Geographic Society, Nordic J Botany, Oecologia, Oikos, PLoS One, Plant Biology, Proceedings B, Restoration Ecology

Policy paper and reports

- National Coco de Mer Policy and Cabinet Paper, Ministry of Environment, Seychelles (2015)
- Mapping Seychelles habitat-types on Mahé, Praslin, Silhouette, La Digue and Curieuse (2014)
- Seychelles Sustainable Development Plan 2011–2020 (2010)
- Seychelles National Strategy for Plant Conservation 2005–2010 (2010)
- Plant Conservation Research Agenda 2008–2015 (2007)

 MEDIA COVERAGE (selection)

- *National Geographic Magazine*, In the Seychelles, Taking Aim at Nature's Bullies, 03/2016
- *Science News*, How slow plants make ridiculous seeds, 02/05/2015
- *Discover, Inkfish*, The palm tree that waters and fertilizes itself, 17/03/2015
- *Tages-Anzeiger* (Swiss National Daily), Der rätselhafte Rekord-Samen auf den Seychellen 16/03/2015
- *Der Spiegel*, Im Schatten der Mütter, 12/02/2015
- *Nature World News*, Massive Miracle Seeds Grow in Terrible Conditions, But How? 09/02/2015
- *New Scientist*, The secret of the world's largest seed revealed, 06/02/2015
- *Seychelles News Agency*, Bridging the divide between research and action – case study from Seychelles shows rare success, 05/11/2014
- *hoch3* (TU Darmstadt), Beherrzter Eingriff in die Natur, 07/2013
- *BBC4*, From Our Own Correspondent, 16/07/2011

 TEACHING & SUPERVISORY EXPERIENCE

I have (co)-supervised 4 PhD, 7 MSc and 5 BSc students, taught 16 full courses (under- and post-graduate), across four European highly ranked universities, with a total of 742 h contact time across lectures, seminars, practicals, field trips; teaching subjects ranging from basic biological, ecological and evolutionary concepts to island biogeography, applied conservation science, scientific writing, communication skills through to advanced statistics (e.g. mixed models in R). I am responsible for developing my own courses and exams, and contribute to teaching of shared units. At the University of Seychelles (accredited by and affiliated to University of London) I was contracted to provide external exam and teacher quality assessments of the Environmental Sciences BSc. In addition, I supervised and intensively trained local and international research field assistants in Europe and Africa for the last 15 years.

Research student supervision

PhD

1. Francisco Fuster (2015-2018), IMEDEA, CSIC, co-supervision Prof. A Traveset

2. Wilfredo Falcón (2013-2016), University of Zurich, co-supervision Dr D Hansen
3. Emma Morgan (2013-2016), ETH, co-supervision Dr C Kettle
4. Aline Finger (2008–2011), ETH, co-supervision Prof J Ghazoul
5. Charlotte Klank (2006–2010), ETH, co-supervision Prof J Ghazoul

MSc

1. Shivan Bhogun (2014), supervisor, TU Darmstadt
2. Thomas Mogensen (2013), supervisor, Aarhus University
3. Nina Thürlimann (2013), supervisor, University of Zurich
4. Rachel Taylor (2012/13), supervisor, University of Zurich
5. Harriet Cuthbert (2010), co-supervision UEA, UK
6. Tamsyn Noble (2009) , co-supervision UEA, UK
7. Gabor v. Bethlanfalvy (2005), co-supervision, University of Zurich
8. Karin Beer (2004), co-supervision, University of Zurich

BSc

1. Indira Gamatis (2015), supervisor, University of Seychelles
2. Annabelle Constance (2014), supervisor, University of Seychelles

POLICY & CONSERVATION IMPACT

2015 – 2020	Technical Advisor to <i>Ecosystem Based Adaptation to Climate Change in Seychelles</i> (US\$ 6.5 Mio)
2014	Lead consultant <i>Electronic data collection with CyberTracker: capacity building through training of trainers and conservation practitioners</i> UNDP-GEF
2013 – 2014	Lead consultant <i>Development of a CyberTracker manual and stakeholder training</i> , UNDP-GEF
2013	Lead consultant <i>Development of a data capture software based on CyberTracker™ to be used for rapid assessment of key biodiversity areas</i> UNDP-GEF
2011 – 2012	Consultant <i>Management of invasive alien creepers in selected sites in Seychelles forests</i> , UNDP-GEF
2011 – 2012	Advisor to Seychelles National Parks Authority on <i>Sustainable Development Plan Seychelles 2010–2020</i>
2010 – 2011	Advisor and editor: Review of <i>Seychelles National Strategy for Plant Conservation 2005–2010</i>
2010	Advisor <i>Review of IAS control and eradication programmes in Seychelles</i> , UNDP-GEF
2009	Statistical advisor <i>Cost-effective techniques for the rehabilitation of burned and degraded lands in Seychelles</i> , UNDP-GEF
2007 – ongoing	Lead scientist and mediator of ‘Coco de Mer ecology & conservation working group’, participants include four NGOs, Seychelles Ministry of Environment and ETH Zurich
2007 – 2008	Workshop organiser and editor <i>Seychelles Plant Conservation Research Agenda 2008–2015</i>
2007 – 2010	Consultancy on vegetation rehabilitation on North Island, Seychelles
2003 – 2004	Scientific Advisor to Mauritian Government (NPCS) on management strategies of <i>Conservation Management Areas in Black River Gorges National Park</i>