

PERSONAL INFORMATION

Piyal Karunarathne



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RESEARCH INTERESTS

My research interests are mainly in the fields of evolutionary ecology, biogeography, phylogenetic diversity, and conservation biology. I am fascinated by the mechanisms that lead to speciation and diversification of plants. I strongly believe that the study of traditional ecology combined with genetic tools and ecological niche modelling has a great potential to unravel many unanswered questions in evolution.

EDUCATION SUMMARY

July 2015 - January 2019

PhD in Evolutionary Biology

Magna cum laude

Department of Systematics, Biodiversity and Evolution of Plants
University of Göttingen, Germany (<https://www.uni-goettingen.de/en/153591.html>)

- **Thesis:** Cytotype associations, Ecological Divergence and Genetic Variations in the Apomictic Complex Paspalum intermedium Munro ex Morong.
- **Methods used:** Flow cytometry, ecological niche modeling, genetic marker analyses, reproductive mode analyses, and population genetics analyses

April 2011 - August 2014

Master of Philosophy (M.Phil.) in Plant Biology

Full time research degree

Postgraduate Institute of Science, University of Peradeniya, Sri Lanka (www.pgis.lk)

- **Thesis:** Taxonomy and Phylogenetic Studies on the two genera *Alpinia* Roxb. and *Amomum* Roxb. of the family Zingiberaceae in Sri Lanka.
- **Methods used:** Taxonomic and Phylogenetic analyses, Morphometric analyses
- **Courses followed:** MB558 - Biostatistics
MB540 - Bioinformatics

June 2006 - July 2010

BSc (Honors) Special Degree in Biology

240 ECTS

Faculty of Science, University of Peradeniya, Sri Lanka (www.fos.pdn.ac.lk)

- **Major Subjects:** Botany, Zoology, Molecular Biology & Biotechnology
- Completed with Second Class Honours and a cumulative GPA of 3.18/4.00

AWARDS AND FELLOWSHIPS

- 2012 ▪ Gate Mudaliyar Research Fellowship for Postgraduate studies, University of Peradeniya, 2012
- 2012 ▪ Idea Wild equipment grant for young researchers, 2012 (www.ideawild.org)
- 2013 ▪ University of Cambridge Students' bursary to present at the Students Conference on Conservation Science, University of Cambridge, UK, 2013.
- 2013 ▪ Students' full scholarship for the participation in the course "Near-Sensing Forest Conditions"

- XTBG China 2013.
- 2014 ▪ Students' bursary to present at the Students Conference on Conservation Science Bangalore, India, 2014.
- 2014 ▪ Students' bursary to present at the Students Conference on Conservation Science, Beijing, China.

WORK EXPERIENCE

- 06/2019 – to present **Post-doctoral research associate in Plant Science**
Department of Life Sciences
Texas A & M University Corpus Christi, Texas, USA
- 07/2015 – 14/10/2018 **Researcher**
Department of Systematics, diversification and evolution of plants
University of Göttingen, Germany
- Apart from Ph.D. studies, I conducted laboratory classes and mentored bachelor and master students.
- 01/2015 – 06/2015 **Biodiversity Consultant**
IUCN World Conservation Union Sri Lanka
- I was responsible for contributing as a flora consultant in all the projects and conservation implementation plans carried out by IUCN in Sri Lanka
- 11/2014 – 01/2015 **Visiting Lecturer**
Postgraduate Institute of Science, University of Peradeniya, Sri Lanka
- I was responsible for conducting lectures and practical classes under the masters programme
Experimental Biotechnology
Courses conducted Bioinformatics, Phylogenetic Analysis
- 07/2014 – 06/2015 **Flora Consultant (part time)**
Science and Technology Cell, University of Colombo, Sri Lanka
- I was responsible for assisting as a flora consultant in Environmental Impact Assessment projects conducted by University of Colombo.
- 01/2015 – 06/2015 **Research Assistant (part time)**
Department of Botany University of Peradeniya, Sri Lanka
- I was responsible for assisting in research activities in the Plant Ecology lab of University of Peradeniya under the supervision of Prof. S. Gunatillake
- 01/11/2014 – 01/12/2014 **Teaching Assistant**
Department of Molecular Biology and Biotechnology, University of Peradeniya, Sri Lanka
- I was responsible for assisting in conducting lectures and practical classes in the Molecular Biology and Biotechnology Department.
- 09/2014 – 10/2014 **Research Assistant**
Department of Botany, University of Peradeniya, Sri Lanka
- I was responsible for conducting research work in the Plant Pathology lab under the supervision of Prof. N.K.B. Adikaram

01/2011 – 12/2013

Research Assistant

National Science Foundation Sri Lanka

Responsibilities Identification of targeted plant species in the field and collection of plant materials, morphological enumeration and analysis of collected species, DNA extraction, PCR amplification, primer design, DNA sequencing, DNA sequence analysis and phylogenetic analysis, preparation of publications

TRAINING AND RESEARCH EXPERIENCE

- 2017 Followed a course in **introduction to computer clusters**
GWDG – University of Göttingen July 2017
- 2016 Followed a course in **introduction to population genetics and genomics**
VetMed Uni – Vienna, Austria 2016
- 2016 Followed a course in **Python programing (in genome analysis)**
VetMed Uni – Vienna, Austria 2016
- 2013 Participated in the field course **Near-Sensing forest conditions** in China.
Organized by Texas Tech University USA and Chinese academy of Sciences, at XTBG China.
- 2012 Followed the **Advance Field Ecology Course**
Xishuanbanna Tropical Botanical Garden China
- 2013 Certificate course in **Molecular Phylogenetic analysis**
National Herbarium of Sri Lanka.
- 2013 Received training in **Next-Generation Sequencing and Applications** at XTBG China.
- 2014 Followed a course in **Species Distribution Modeling using MaxEnt**
Student Conference on Conservation Science, Beijing China 2014
- 2014 Followed a course in **Species occupancy modeling**
Student Conference on Conservation Science Bangalore, India, 2014.
- 2013 Followed the short course **GIS as a tool in Biodiversity Conservation**
University of Cambridge, UK. 2013
- 2014 Followed a course in **Use of phylogenetic analysis in Biodiversity Conservation**
Student Conference on Conservation Science, Bangalore India 2014
- 2012 Followed the certificate course **Statistical Analysis of Ecological Data with R** Postgraduate
Institute of Science, University of Peradeniya, Sri Lanka
- 2011 – 2014 Carried out **molecular phylogenetic studies** on two plant genera in the Plant Systematic Lab at
University of Peradeniya, supervised by Prof. Deepthi Yakandawala and Dr. Preminda
Samaraweera
- 2010-2011 Volunteered in a research project that looked into **The factors that influence the distribution
of endemic plant assemblages in a Tropical secondary forest** under the supervision of Prof.
Nimal Gunatilleke.

- 2010 – 2012 Conducted research on [approaches to assess the level of recovery in regeneration of tropical forests in Sri Lanka](#), linked to a forest restoration programme.
CTC Biodiversity Centre- Maragamuwa, Sri Lanka.
Presented the findings at the SCCS at the University of Cambridge, UK 2013
- 2008 – 2015 **Field researcher** for Botanical Society of University of Peradeniya
- 2008 – 2015 **Field researcher** for Zoologists' Association of University of Peradeniya

RESEARCH SKILLS

- Extensive knowledge of Plant ecology, Plant Diversity and Conservation Biology
- Extensive knowledge in population genetics, genomics and systematics and phylogenetic analysis
- Extensive knowledge of ecological niche and species distribution modelling (MaxEnt)
- Sound knowledge of evolutionary theory
- Advanced-intermediate user of programming and statistical analysis languages R and Python
- Frequent user of Bash command line (Linux)
- Knowledge in the use of high performance computer clusters
- Extensive knowledge of field research activities
- Knowledge of statistical analysis tools of Biodiversity and Ecosystem assessments
- Other software skills
R, Python, MaxEnt
Molecular analysis tools (PAUP, GENEIOUS, GENEMARKER, BEAST, QIIME)
QGIS
Image J, Adobe Illustrator, Adobe Photoshop
MS Office (Word, Excel, Power point, Access, Front Page, MS Project)

PRESENTATIONS

- Niche divergence in the apomictic plant complex *Paspalum intermedium* – A talk given at the [International Genetic Congress](#), Foz do Iguazu, Brazil 2018
- Cytotype associations in a polyploid grass complex in South American sub-tropics. A talk given at the [BioSyst.EU](#), Gothenburg, Sweden, 2017.
- Inferences from the phylogenetic analysis of the two genera *Alpinia* and *Amomum* of the family Zingiberaceae in Sri Lanka. Talk given at the [University of Peradeniya International Research sessions](#) 2014, Sri Lanka. 2014
- Assessing the importance of urban landscapes for biodiversity conservation in Tropics: A Case study in Sri Lanka. A talk given at the [Students Conference on Conservation Science](#) 2014. Peking University, Beijing China. 2014
- Skinks as Indicators of Tropical Forest Recovery. Talk presented at the [Student Conference on Conservation Science](#). Department of Zoology, University of Cambridge, UK. 2013
- Taxonomy and Systematic Analysis of The Two genera *Alpinia* and *Amomum* of The Family Zingiberaceae in Sri Lanka. Talk presented at [18th International Forestry and Environment Symposium](#), Sri Lanka. 2013

- Sri Lankan *Alpinias*, a deteriorating, yet an important understory plant group; Re-assessing the taxonomy of the Genus. A poster presented at the [Sixth International Symposium on Family Zingiberaceae](#). Department of Botany, Calicut University, Kerala, India. 2012

PUBLICATIONS

- Piyal Karunarathne, Mara Schedler, Eric J. Martinez, Ana I. Honfi, Anastasiia Novichkova, and Diego Hojsgaard 2018. [Intraspecific ecological niche divergence and reproductive shifts foster cytotypic displacement and provide ecological opportunity to polyploids](#). *Annals of Botany* 121: 1183-1196
- Piyal Karunarathne, Deepthi Yakandawala, and Preminda Samaraweera. 2015. [Important Notes on the Identity of *Alpinia fax* \(Thwaites\) B.L. Burt & R.M. Sm.](#) *Taiwania* 60(4): 204-207
- Piyal Karunarathne, Deepthi Yakandawala, and Preminda Samaraweera. 2014. [On the occurrence of a new variety of *Amomum villosum* in Central Hills of Sri Lanka](#). *Phytotaxa*. 172 (2): 129-132.
- Piyal Karunarathne, Deepthi Yakandawala, and Preminda Samaraweera. 2014. [Inferences from the phylogenetic analysis of the two genera *Alpinia* and *Amomum* of the family Zingiberaceae in Sri Lanka](#). *Proceedings of the Peradeniya Univ. International Research Sessions, Sri Lanka, Vol. 18, 4th & 5th July, 2014*. Pp. 597.
- Piyal Karunarathne, 2014. [Assessing the Importance of Urban Landscapes for Biodiversity Conservation in Tropics: Case Study in Sri Lanka](#). *SCCS Beijing, China 2014*. Pp. 311-314
- Piyal Karunarathne, 2014. [Why We Need "Citizen Science" in Sri Lanka](#). *Sciscitator*. 2014. Pp. 53-55
- Piyal Karunarathne, Deepthi Yakandawala, and Preminda Samaraweera. 2013. [Taxonomy and Systematic Analysis of The genera *Alpinia* and *Amomum* of The Family Zingiberaceae in Sri Lanka](#). *Proceedings of 18th International Forestry and Environment Symposium, Sri Lanka 2013*. Pp. 26.
- Piyal Karunarathne, 2013. [Skins as Indicators of Tropical Forest Recovery](#). *Proceedings of the SCCS Cambridge UK, 2013*. Pp. 7
- Piyal Karunarathne, Deepthi Yakandawala, and Preminda Samaraweera. 2012. [Sri Lankan *Alpinias*, a deteriorating, yet an important understory plant group; Re-assessing the taxonomy of the Genus](#). *Proceedings of Sixth International Symposium on Family Zingiberaceae*. 19-20

Submitted

- Piyal Karunarathne, Verena Reutemann, Mara Schedler, Adriana Glücksberg, Eric J.

Martinez, Ana I. Honfi, Anastasiia Novichkova, and Diego Hojsgaard. Sexual modulation and the evolutionary implications of a TUG OF WAR between sexual-apomictic reproductive modes in a polyploid grass species. A manuscript submitted to *New Phytologist*. Currently under review

- Piyal Karunaratne and Diego Hojsgaard. Genetic and population structure variations echo the distribution, coexistence and niche divergence of cytotypes in the polyploid grass species *Paspalum intermedium* (Poaceae). Manuscript submitted to *Frontiers in Plant Science*. Currently under review.
- Piyal Karunaratne, Deepthi Yakandawala, Preminda Samaraweera. 2018. New Insights to the Ginger Phylogeny: Evolutionary Relationships of *Alpinia* and *Amomum* (Zingiberaceae) in Sri Lanka Inferred from Chloroplast Genome Regions trn L-F and trn S-fM: a manuscript submitted to *Plant Systematics and Evolution*. Currently under review.