Department of Zoology
Faculty of Science / University of Peradeniya

Prof. N. P. S. Kumburegama

B.Sc. (Perad.), Ph.D. (Hawaii, USA)

Professor

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About Me

I am a graduate of University of Peradeniya with a B.Sc. Special Degree in Zoology (First Class Honors) in 2001 and joined the University in 2002. At present I am a Senior Lecturer with a Ph.D. in Zoology from University of Hawaii at Manoa, USA. My expertise are in Developmental Biology and Malacology and I conduct research related to topics in biodiversity conservation, taxonomy and phylogeny, and developmental biology.

Higher Education Qualifications

PhD

University of Hawaii at Manoa - USA
(2009)

BSc

University of Peradeniya
Sri Lanka
(2001)

Awards, Scholarships, Memberships & Fellowships

- Postdoctoral Associate, Department of Biology, University of Miami, USA (May 2014 – July 2014)
- Best Overall Award for poster presentation at the John A. Burns School of Medicine Biomedical Symposium, 2007
- Commendable presentation – Annual Research Session 2002, University of Peradeniya.
- Member – Board of Study in Zoological Sciences, Postgraduate Institute of Science (2014 to date)
- University Scholarship 2001 for best results in Zoology

Positions Held

- Professor of Zoology- (28 October 2022 to date)
- Chairperson, Ethical Clearance Committee, Postgraduate Institute of Science, University of Peradeniya- (June 2023 to date)
- Senior Lecturer Grade I – Department of Zoology, University of Peradeniya- (10 November 2015 to 27 October 2022)
- Senior Treasurer, Zoologists' Association of University of Peradeniya- (June 2019 to February 2023)
- Secretary – Board of Study in Zoological Sciences, Postgraduate Institute of Science- (2014-2017)
- Senior Lecturer Grade II – Department of Zoology, University of Peradeniya- (November 2009 to November 2015)
- Coordinator – M.Sc. in Applied Epidemiology, Postgraduate Institute of Science- (2012 to 2013 and 2016 to date)
- Lecturer – Department of Zoology, University of Peradeniya- (October 2002 to October 2009)

My Teachings

- BL102: Plant and Animal Form and Function
- ZL201: Animal Embryology
- ZL206: Invertebrate Diversity
- ZL426: Developmental Biology
- ZL428: Independent Study and Seminar

Research Interests (Research Fields/ Projects)

Developmental Biology, Malacology, Environmental DNA for biodiversity monitoring

Ongoing Research and Projects

Assessment of fish species richness in Negombo and Puttalam lagoons using environmental DNA (eDNA) metabarcoding

In Sri Lanka there are 82 Lagoons of which 62 are located in the coastal region of the dry zone, 15 in the wet zone and 4 in the intermediate zones (Silva et al., 2013). Lagoons are highly productive ecosystems. A comprehensive knowledge of the processes, chemistry, biology and ecology of the lagoons are necessary for the sustainable use of lagoon resources. However, estuaries and lagoons worldwide are under immense pressure due to anthropogenic influence and accumulation of pollutants from land based and in situ human settlements and activities. The fauna in these ecosystems act as indicators of the health of the ecosystem. Environmental DNA (eDNA) technique is a versatile, multi-species sensitive approach that could provide spacio-temporal composition of fish species. This is a non-intrusive method where no animal specimens are collected. Therefore, in the proposed research, an extensive eDNA analysis of Negambo and Puttalam lagoons will be conducted to determine the species composition of fish.

Embryonic development in freshwater fishes of Sri Lanka

Sri Lanka is home to a relatively large number of freshwater fish. Even though the biology, ecology, and behavior of many of these species have been studied, little or no attention has been given to their embryonic development. An understanding of their embryonic development has many implications for aquaculture, ex situ and in situ conservation as well as our understanding of many aspects of biology including neurobiology and development. At present we are conducting a comparative analysis of embryonic development in different native and exotic fish species.

Freshwater gastropod diversity

Sri Lankan freshwater snails are scarcely studied, understated group of animals. There is considerable uncertainty in their taxonomy due to synonymy, and gastropod shell plasticity. Furthermore, their ecology and biology are mostly unknown. These invertebrates may have a huge potential as environmental indicators or biomonitering tools through assessment of their community composition. On the contrary, they also act as intermediate hosts of several helminth parasites where humans or their livestock act as primary hosts. At present we are evaluating the morphological and molecular diversity of this group of animals.

Invasive Alien Species (IAS) in Sri Lanka

Invasive alien species are animals or plants that are introduced accidentally or deliberately to a new environment where they were not recorded previously. Such introductions can lead to extreme negative impacts on the environment. In fact invasive species are the second largest threat after loss of habitat to biodiversity in a particular region or environment. We are involved in research studying the impacts of such flora and fauna to our biodiversity.

Key Publications

EvoDevo - (2011)

Strabismus-mediated primary archenteron invagination is uncoupled from Wnt/beta-catenin-dependent endoderm cell fate specification in Nematostella vectensis (Anthozoa, Cnidaria): Implications for the evolution of gastrulation.

Dev. Biol. - (2007)

Asymmetric developmental potential along the animal-vegetal axis in the anthozoan cnidarian, Nematostella vectensis, is mediated by Disheveled.

Conferences

Annual meeting on Tropical Biology and Conservation – Asia-Pacific Chapter (ATBC-AP) held at , 2019

HELD AT : MAS ATHENA, Thulhiriya, Sri Lanka - (2019)
TOPIC : *Relationship between environmental factors and gastropod occurrence in natural and semi natural forest in NuwaraEliya district, Sri Lanka*

24th International Forestry and Environmental Symposium, 2019

HELD AT : University of Sri Jayewardenepura, Sri Lanka - (2019)
TOPIC : *Spatial variation of terrestrial gastropod in natural and semi-natural forest in NuwaraEliya district, Sri Lanka*

The International Symposium on Environmental DNA for Conservation and Biomonitoring in Southeast Asia 2023

HELD AT : Kuala Lumpur, Malaysia - (14th March 2023)

2nd UN Ocean Decade Regional Conference & 11th WESTPAC International Marine Science Conference

HELD AT : The Berkeley Hotel Pratunam, Bangkok, Thailand - (22 April to 25 April 2024)
TOPIC : *Fisheries, biodiversity and dynamics of mangroves' aquatic ecosystem*

International Symposium on Environmental DNA for Conservation and Biomonitoring in Southeast Asia (eDNAConBio 2025)

HELD AT : KLTC - The University of Nottingham Teaching Centr - (18th to 20th February 2025)
TOPIC : *Environmental DNA*

My Publications

Please goto the website.

https://sci.pdn.ac.lk/zoology/staff/Shalika-Kumburegama

