

Bishwarup Paul

Postdoctoral Research Fellow

Indian Institute of Science Education and Research (IISER) Tirupati

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Research Interest

My research interest lies in studying the behavioural ecology of group-living and social animals. I am particularly fascinated by the impact of interactions between individuals and group-dynamics on decision-making and life history strategies, and plan to study behaviour, personality and cognition of groups/societies.

Education

Ph.D. (Integrated Ph.D.) in Behavioural Ecology (2013 - 2019)

Department of Biological Sciences, Indian Institute of Science Education and Research (IISER) Kolkata, India

M.S. (Integrated Ph.D.) in Biological Sciences (2011 - 2013)

Department of Biological Sciences, Indian Institute of Science Education and Research (IISER) Kolkata, India

B.Sc. in Microbiology (Honours) (2007 - 2010)

Department of Microbiology, Ramakrishna Mission Vidyamandira, University of Calcutta, India

Research Experience

Postdoctoral Research (April 2019 - present)

Advisor: Dr. Nandini Rajamani, Department of Biology, Indian Institute of Science Education and Research (IISER) Tirupati, India

Investigating the impact of urbanization on the behaviour and personality of Indian palm squirrels. Predicting the current distribution and forecasting the future distribution of several squirrel species. Meta-analysis for predicting the life history traits important for adapting to urbanization.

Doctoral Research

(August 2013 - March 2019)

Thesis title: Facets of brood theft in a tropical ant *Diacamma indicum*

Advisor: Prof. Sumana Annagiri, Department of Biological Sciences, Indian Institute of Science Education and Research (IISER) Kolkata, India

Investigation of the behaviour of intraspecific brood theft in the Indian queenless ant. Detailed study of the mechanism of theft and defence against theft. Individual-level assessment of behavioural modification. Investigation of the formation of memory and its importance for brood theft.

Masters' dissertation (2nd semester)

(January 2013 – July 2013)

Thesis title: Impact of stress on nest relocation in ants

Advisor: Prof. Sumana Annagiri, Department of Biological Sciences, Indian Institute of Science Education and Research (IISER) Kolkata, India

Investigation of the robustness of the process of nest relocation in a primitively eusocial ant. Comparison of relocation dynamics under increasing levels of physical stress applied to colonies.

Masters' dissertation (1st semester)

(August 2012 - January 2013)

Thesis title: Characterization of the ACD domain of the VgrG-1 protein of *Vibrio Cholerae*

Advisor: Dr. Sankar Maiti, Department of Biological Sciences, Indian Institute of Science Education and Research (IISER) Kolkata, India

Identification of the actin-binding region of the ACD domain of the protein VgrG-1 from *Vibrio cholerae* responsible for actin cross linking activity of the protein inside human cells.

Bachelors' group project

(2009 - 2010)

Project title: Tolerance of microorganisms collected from wastelands of Kolkata against nickel chloride

Advisor: Santanu Maitra, Department of Microbiology, Ramakrishna Mission Vidyamandira, University of Calcutta, India

Investigation and quantification of resistance to nickel toxicity in the soil microorganisms collected from the wastelands of Kolkata. Identification of the microorganisms and developing pure cultures for further genetic and chemical analysis.

Awards and Honours

- Postdoctoral Research Fellowship**, Department of Biology, Indian Institute of Science Education and Research (IISER) Tirupati. (2019 - present)
- International Travel Grant**, Indian Institute of Science Education and Research (IISER) Kolkata, India. (2018)
- Best oral presentation**, International conference for Zoological Sciences and Ants (11th ANeT), Punjabi University, India. (2017)
- Eligibility for Lectureship**, Joint CSIR-UGC Test for Junior Research Fellowship and Eligibility for Lectureship (NET). (December 2012)
- Post-Bachelors Integrated Ph.D. (PBIP) fellowship**, Department of Biological Sciences, Indian Institute of Science Education and Research (IISER) Kolkata. (2011 - 2019)
- INSPIRE-SHE scholarship** for Higher studies in Basic and Natural Sciences, Department of Science and Technology (DST), India. (2007 - 2010)

Publications

- Palassery, S.A., Ponnu, D., **Paul, B.**, D'Souza, S. & Rajamani, N. Commensalism advantages evidenced by anthropogenic nest materials and nesting in close proximity to humans in the three-striped palm squirrel. *[In preparation]*
- Paul, B.** & Annagiri, S. Achieving a balance between brood rescue and nest relocation on facing an emergency. *[In review]*
- Mukherjee, I., **Paul, B.** & Annagiri, S. Does Information of Target Nest Impact Relocation Dynamics in an Indian Ant? *[In review]*
- Paul, B.** & Annagiri, S. (2019). Caught red-handed: Behaviour of brood thieves in an Indian ant. *Journal of Experimental Biology*, 222, jeb193755.
- Paul, B.** & Annagiri, S. (2018). Tricks of the trade: Mechanism of brood theft in an ant. *PLoS ONE*, 13(2): e0192144.
- Annagiri, S., Kolay, S., **Paul, B.** & Sona, C. (2017). Network approach to understanding the organization of and the consequence of targeted leader removal on an end-oriented task. *Current Zoology*, 63(3), 269-277.
- Paul, B.**, Paul, M. & Annagiri, S. (2016). Opportunistic brood theft in the context of colony relocation in an Indian queenless ant. *Scientific Reports*, 6 (36166).

Peer Review for Journals

Insectes Sociaux

(2020)

Conference Presentations

Virtual poster presentation: Paul, B., Palassery, S.A., D'Souza, S., Udayraj, S. & Rajamani, N. Modelling palm squirrel distributions with citizen science, social media and traditional data sources. CitSci India 2020. (2020)

Virtual poster presentation: Paul, B. & Annagiri, S. Investigating break-ins: Intraspecific brood theft in a tropical ant. Animal Behaviour Live: Annual Online Conference. (2020)

Oral presentation: Paul, B. & Annagiri, S. Investigating break-ins: Intraspecific brood theft in a tropical ant. 57th Annual Conference of the Animal Behaviour Society (Virtual). (2020)

Speed talk-cum-poster presentation: Paul, B. & Annagiri, S. Achieving balance between two tasks at hand: Rescue vs relocation in an ant system. Understanding Behaviour, IISER Kolkata, India. (2019)

Poster presentation: Paul, B. & Annagiri, S. Behaviour of brood thieves in an Indian ant. 9th European conference on Behavioural Biology (ECBB), Liverpool, United Kingdom, (2018)

Poster presentation: Paul, B. & Annagiri, S. Behaviour of brood thieves in an Indian ant. Frontiers in Modern Biology (FIMB), IISER Kolkata, India. (2018)

Oral presentation: Paul, B. & Annagiri, S. Mechanism of brood theft in an Indian ant. International Conference in Zoological Sciences and Ants (11th ANeT), Punjabi University, India. (2017)

Poster presentation: Paul, B. & Annagiri, S. Intraspecific brood theft in an Indian queenless ant. Young Ecologists Talk and Interact (YETI), Tezpur University, India. (2017)

Oral presentation: Paul, B., Paul M. & Annagiri, S. Intraspecific brood theft in an Indian queenless ant. India – Behaviour, Ecology and Evolution (I-BEE), Corbett National Park, India. (2016)

Poster presentation: Paul, B., Paul M. & Annagiri, S. Robbing thy neighbour: A study in an Indian queenless ant. Frontiers in Modern Biology (FIMB), IISER Kolkata, India. (2015)

Poster presentation: Paul, B., Paul M. & Annagiri, S. Robbing thy neighbour: A study in an Indian queenless ant. National Conference on Ethology and Evolution (NCEE) (39th Annual meeting of Ethological Society of India), IISER Mohali, India. (2015)

Poster presentation: Paul, B., Paul M. & Annagiri, S. Stealing the young: A case study in the Indian queenless ant. Frontiers in Modern Biology (FIMB), IISER Kolkata, India. (2013)

Workshops Attended

- Application of Geoinformatics in Ecological Studies, IIRS, ISRO, India. (2020)
- 1st DST-SERB School on Chemical Ecology, NCBS, India. (2017)
- Speciation and the Web of Life, IISER Thiruvananthapuram, India. (2016)
- SERB School in Neuroscience, 8th Edition (Brain Circuits), IISER Pune. (2014)

Teaching Experience

- Co-instructor for Behavioural Ecology** with Dr. Nandini Rajamani, Department of Biology, IISER Tirupati, India. (2020)
- Teaching assistant for Organismal Biology and Evolution** by Prof. Sumana Annagiri, Department of Biological Sciences, IISER Kolkata, India. (2018)
- Teaching assistant for Animal Behaviour (practical)** by Prof. Sumana Annagiri, Department of Biological Sciences, IISER Kolkata, India. (2016)
- Teaching assistant for Ecology and Behaviour (practical)** by Prof. Sumana Annagiri and Dr. Anindita Bhadra, Department of Biological Sciences, IISER Kolkata, India. (2016)
- Teaching assistant for Organismal Biology and Evolution** by Prof. Sumana Annagiri, Department of Biological Science, IISER Kolkata, India. (2015)
- Teaching assistant for Organismal Biology and Evolution** by Prof. Sumana Annagiri, Department of Biological Science, IISER Kolkata, India. (2014)

Participation in academic events

- Conducted the workshop “Basics of working with R”** in the conference Understanding Behaviour, IISER Kolkata, India. (2019)
- Member of the organizing committee** of the conference Understanding Behaviour, IISER Kolkata, India. (2019)
- Student volunteer for organizing the workshop** Ambassadors of Evolution, European Society for Evolutionary Biology (ESEB) Outreach Initiative, IISER Kolkata, India. (2017)

Memberships

- Animal Behaviour Society, USA** – Annual membership (2020-2021)
- Ethological Society of India** – Lifetime membership (2019)

Computer skills:

Experience of using both Windows and Linux operating systems

Programming and data analysis in R and Python, and experience of using GitHub

Document editing in Microsoft Office/Libreoffice and LaTeX

Designing websites in HTML + CSS

Creating/editing artwork in Adobe Photoshop + Illustrator, GIMP, Inkscape

Editing videos using Openshot, Kdenlive

Experience of using Wacom graphic tablets

References

Prof. Sumana Annagiri

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Professor, Department of Biological Sciences, IISER Kolkata, India

Dr. Nandini Rajamani

Email: nandini@iisertirupati.ac.in

Assistant Professor, Department of Biology, IISER Tirupati, India

Dr. Anindita Bhadra

Email: abhadra@iiserkol.ac.in

Associate Professor, Department of Biological Sciences, IISER Kolkata, India