

Extreme conservation: reproductive strategies of Malagasy shorebirds

University of Debrecen (Hungary) - Debrecen Biodiversity Centre

Prof Tamás Székely (Hungary) & Dr Sama Zefania (Madagascar)

Applications accepted until 15 March 2024 – EU applicants only

About the Project

Research Fields: Behavioral Biology, Biodiversity, Ecology, Evolution, Conservation

Do you want to build your career in wildlife conservation or behavioural ecology? Our project offers the extraordinary opportunity to conduct cutting-edge research in one of the world's most captivating and ecologically diverse locations: Madagascar.

Madagascar is one of the global biodiversity hotspots with an outstanding frequency of endemism. This diversity, however, is rapidly eroding before the fundamental aspects of natural history, behaviour and ecology have been explored. Our team is monitoring the behaviour, ecology, and reproduction of three species of Malagasy shorebirds: the Kittlitz's plover, white-fronted plover and, black-banded plover. This studentship offers a fieldwork opportunity to study these shorebirds enabling us to better understand the factors driving their diverse reproductive behaviours and use this information to design conservation strategies. One of these species, the black-banded plover, is listed as Vulnerable by the IUCN, making your work critical and impactful.

The student will observe mate choice, pair-bonding, and parenting behaviours following a protocol recently developed by our team, which can be found at <https://elvonashorebirds.com/>. S/he will have hands-on field experience in the Southwestern coasts of Madagascar, observing and studying shorebirds in their natural habitat. Additionally, investigate the ecological factors influencing reproduction. The student will also test whether reproductive behaviours can be predicted by population density and sex ratios through field observations and demographic data analysis. Previous work has revealed significant variations in reproductive behaviour; however, the underlying evolutionary drivers and the fine-scaled details of the associations between reproduction, ecology, and demography remain unclear. Understanding the outcome of reproductive decisions will, in turn, inform conservation efforts of these plovers and shed light on the critical stages of their reproduction.

The student will have access to data on behaviour, ecology and demography of plovers compiled by our team. Using theoretical frameworks, s/he will investigate reproduction from both ecological and demographic perspectives. The student will receive comprehensive training in behavioural ecology and demographic analyses and will apply evolutionary theory to advance biodiversity conservation. The PhD will be based at Debrecen Biodiversity Centre in Hungary. We have an extensive network of collaborators internationally and have a track record of helping PhD students in publishing in top research journals. We seek bright, motivated, and independent students from EU countries interested in biodiversity conservation. Interest in field biology, willingness to work in wild and remote study areas and driving licence are essential for this PhD position.

Debrecen is a liveable city in eastern Hungary with large international student community. Debrecen has good public services and rental housing and food are affordable. The Debrecen Biodiversity

Centre - a recently created institute at the University of Debrecen that carries out cutting edge research and conservation focused on climate change, water management and biodiversity. Our research team works closely with Hortobágy National Park – a UNESCO Heritage Site just outside Debrecen.

The studentship will start in September 2024.

If you are interested in this PhD, please send i) a cover letter explaining your research interests and suitability for the position, ii) a copy of your CV with a list of scientific publications, and iii) contact information of two referees to T.Szekely@bath.ac.uk Please put in the subject line "DBK Madagascar PhD". Application deadline: 15 March 2024.

For further details, please see the supervisors websites:

Prof Tamás Székely

<https://www.szekelylab.com/>

[https://en.wikipedia.org/wiki/Tam%C3%A1s_Sz%C3%A9kely_\(biologist\)](https://en.wikipedia.org/wiki/Tam%C3%A1s_Sz%C3%A9kely_(biologist))

<https://elvonalsshorebirds.com/group/core-team/tamas-szekely/>

Dr Sama Zefania

<https://www.researchgate.net/profile/Sama-Zefania>

Funding Notes

Promising candidates will be interviewed and the top candidate will be put forward for University of Debrecen scholarship. EU nationals will receive full tuition and a stipend that will be topped up to 1200 EUR per month. This is substantially above the normal stipend PhD students receive in Hungary and it is comparable to the average salary.

Selected recent publications

- Amano, T., T. Székely, B. Sandel, Sz. Nagy, T. Mundkur, T. Langendoen, D. Blanco, C. U. Soykan, W. J. Sutherland. 2018. Successful conservation of global waterbird populations depends on effective governance. *Nature* 553: 199-202.
- Cooney, C. R, C. Sheard, A. D. Clark, S. D. Healy, A. Liker, S. E. Street, C. A. Troisi, G. H. Thomas, T. Székely, N. Hemmings & A. E. Wright. 2020. Ecology and allometry predict the evolution of avian developmental durations. *Nature Communications* 11: 2383
- Eberhart-Phillips, L. J, C Küpper, T. E. X. Miller, M. Cruz-López, K. H. Maher, N. dos Remedios, M. A. Stoffel, J. I. Hoffman, O. Krüger & T. Székely. 2017. Adult sex ratio bias in snowy plovers is driven by sex-specific early survival: implications for mating systems and population growth. *Proceedings of The National Academy of Sciences US* 114: E5474-E5481.
- Kubelka, V., M. Šálek, P. Tomkovich, Zs. Végvári, R. Freckleton & T. Székely. 2018. Global pattern of nest predation is disrupted by climate change in shorebirds. *Science* 362: 680-683.
- Liker, A, V. Bókony, I. Pipoly, J-F Lemaitre, J-M Gaillard, T. Székely, R. P. Freckleton. 2021. Evolution of large males is associated with female-skewed adult sex ratios in amniotes. *Evolution* 75: 1636-1649.
- Székely, T. 2019. Why study plovers? The significance of non-model organisms in avian ecology, behaviour and evolution. *Journal of Ornithology* 160: 923-933.
- Székely, T., M. C. Carmona-Isunza, N. Engel, N. Halimubieke, W. Jones, V. Kubelka, R. Rice, C. E. Tanner, Z. Tóth, J. O. Valdebenito, K. Wanders & G. C. McDonald. 2023. The causes and implications of sex role diversity in shorebird breeding systems. *Ibis* (accepted).