



Opening of application for PhD

at the Mammal Research Institute PAS, Białowieża, Poland

within the project “Influence of nutritional resources on a refugee species performance: European bison as a model species” funded by the National Science Centre, Poland (OPUS grant nr. NCN 2021/41/B/NZ8/03904):



Project description

The refugee species concept was originally developed on European bison, being confined to suboptimal forest habitats, with consequences of decreased fitness and density. Increasing evidence shows that refugee species occur on all continents and include a diversity of animal species. Currently, a major limitation of the refugee species concept is that the understanding of the mechanisms whereby refugee species suffer lower fitness when confined to suboptimal habitats is lacking. These mechanisms could include top down (e.g. predation) or bottom up (e.g. nutritional resources) limitations. The planned project will address this problem through focussing on the influence of nutritional resources on the reproductive performance and macrophysiological indices of a number of European bison populations that vary in their access to food resources, using a non-invasive approach. Differences in the habitat structure at reintroduction sites and the management practices used, the latter including varying amounts and quality of supplementary fodder provided to European bison (from natural conditions without feed supplementation to intensive winter feeding), creates a well-replicated natural field experiment to test influence of diet quality on large herbivore reproductive strategies and fitness.

The project specifically aims to:

1) contrast annual pattern of diet quality in populations under natural foraging conditions and those with winter food supplementation;

- 2) analyse the influence of nutritional conditions on European bison fitness across multiple populations;
- 3) investigate reproduction parameters and breeding synchrony in populations of European bison having varying access to diversified foraging resources.

The study will be conducted in free and semi-free-ranging populations of European bison and include both field and laboratory methodology. The project is a novel combination of non-invasive methodologies in order to perform advanced statistical models to study the interaction of food resources, body condition, nutritional stress and reproductive performance of European bison populations in a gradient of nutritional conditions.

Relevant literature

- Corlatti L. 2020. Anonymous fecal sampling and NIRS studies of diet quality: Problem or opportunity? *Ecol.Evol.* 10: 6089–6096
- Kerley GIH, Kowalczyk R, Cromsigt JPGM. 2012. Conservation implications of the refugee species concept and the European bison: king of the forest or refugee in a marginal habitat?. *Ecography* 35 : 519-529.
- Lea, J. M. D., Kerley, G. I. H., Hrabar, H., Barry, T. J., & Shultz, S. (2016). Recognition and management of ecological refugees: A case study of the cape mountain zebra. *Biological Conservation*, 203, 207–215
- Srivastava T., Kumar A., Kumar V., Umapathy G. 2021. Diet Drives Differences in Reproductive Synchrony in Two Sympatric Mountain Ungulates in the Himalaya. *Front. Ecol. Evol.* 9: 647465.

Working environment:

The Mammal Research Institute, Polish Academy of Sciences (MRIPAS) in Białowieża, founded in 1952, conducts research in the field of ecology, ethology, morphology, population genetics as well as population management and conservation of mammals and other terrestrial vertebrates. The mission of the Institute is to acquire, advance, and disseminate knowledge of natural patterns and processes in order to improve the scientific basis for effective nature conservation activities and sustainable development. We focus mainly on Białowieża Primeval Forest (UNESCO Biosphere Reserve and World Heritage Site) as a study area, but also on other regions of Poland and Europe. The Institute employs 60 people, including researchers, PhD students, and qualified technical and office staff. The institute is based in the village of Białowieża in the middle of Białowieża Forest, Poland. This is a remote place (ca. 1500 inhabitants) close to the Polish-Belarusian border, ca 20 km from a nearest city.

The project team involves 7 collaborators (including PhD student), mainly from MRI PAS, but also Centre for African Conservation Ecology, Nelson Mandela University.

PhD student will be supervised by dr hab. [Rafał Kowalczyk](#)

Tasks and duties of PhD student:

- 1) Collecting samples and photo documentation in different European bison populations;
- 2) Diet quality analysis (NIR analysis);
- 3) Photo documentation analysis (body condition scoring, calf size);
- 4) Processing and statistical analysis of data;
- 5) Preparing drafts of scientific articles;
- 6) Presentation of project results.

The selected candidate will be asked to apply to the [Bioplanet Doctoral School](#) of the Polish Academy of Science and participate in the entrance examination (via Zoom/Skype).

Requirements:

1. M.Sc. degree in biology, ecology or other relevant subject (Master's degree obtained before Doctoral School program begins in October 2022);
2. Good and relevant publication record;
3. Knowledge on refugee species concept, foraging and reproductive ecology of large herbivores;
4. Practical experience in ecological field studies;
5. Proficiency in statistics, knowledge of R language and environment;
6. Fluent skills in English both in speaking and writing;
7. Skills in analysing and solving research problems. Ability to work both in a team and independently
8. Driving licence.

Additional important qualifications

1. Skills in nature photography and drone operating;
2. Experience in lab work.

What do we offer?

1. Fully developed ambitious research project; field work in close contact with European bison;
2. MRI PAS facilities located in the middle of the study area - **Białowieża Primeval Forest**, which is one of the most natural forest ecosystems in the European lowlands and biodiversity hotspot inhabited by a rich community of large mammals.
3. Full-time salary (for **4 years**) and full coverage of all research costs and participation in conferences. Monthly gross salary 5.000 PLN (c. 1.089 euro; the highest National Science Centre) allows for PhD students), ensuring pretty good life standard in Poland. Please keep in mind that living in Poland is much cheaper than in W-Europe!
4. Help with accommodation – relatively inexpensive flats in Białowieża, either located at the MRIPAS or to be rented from local residents.

When?

Start of work: October 2022

Deadline for application:

31 July 2022.

Planned dates for interview (via Zoom):

8-9 August 2022

Final result will be announced:

until 10 August 2022.

How to apply?

Please send the following documents to the project leader Rafał Kowalczyk (rkowal@ibs.bialowieza.pl):

1. Certified copy of diploma or certificate of completion of studies (for the PhD obliged to provide them before the Doctoral School program begins);
2. CV with detailed information on your education, scientific career, list of publications;
3. Certificates or other documents confirming knowledge of English (if available);
4. Motivation letter;

5. Include at least two reference persons (e.g., prior research supervisors) familiar with your qualifications, together with e mail addresses;
6. Signed declaration of consent for processing of personal data (link below).

Assessment of candidates:

The recruitment rules will follow regulations of [National Science Center](#). Selection will be based on the qualifications of the candidates including scientific achievements, experience, awards, internships, skills and competences. Recruitment is a two-stage process and includes: 1) evaluation of candidates' documentation and 2) an interview with selected candidates (you will be asked to present your MSc thesis in a few slides).

Postgraduate studies:

The selected candidate will be asked to apply to the [Bioplanet Doctoral School](#) of the Polish Academy of Sciences and participate in the entrance examination (via Zoom/Skype). The school does not charge tuition fees and provides compulsory and optional courses (conducted in English) for doctoral students. PhD candidate will join the academic year 2022/2023 that starts 1st October 2022.

Contact person

Rafał Kowalczyk (rkowal@ibs.bialowieza.pl) is the principal investigator of the project and will be the supervisor of PhD student. If you want to learn details concerning the project, necessary qualifications or any other information, I will be very happy to informally meet and talk to potential candidates (via Zoom, Skype), so do not hesitate to contact me.

Please sign and add the declaration of consent for processing of personal data to your application:

<https://bip.ibs.bialowieza.pl/konkursy-na-stanowiska/oferty-pracy-w-2022-roku/nabor-zubr-jako-gatunek-modelowy-bison-model-species/>