



Post-doc position at the Mammal Research Institute  
Polish Academy of Sciences, Białowieża  
for the project:

**"Historical morphometrics of the European bison skulls and its association  
with species inbreeding increase"**

**The summary and objectives of the project:**

European bison is a species of unique demographic history. It has been through an extremely severe bottleneck in the 1920s. The whole contemporary population originates from a meager group of founders. Just two of them turned out to be predominant, and their share in the contemporary gene pool is above 80%. The effects are extremely low genetic variation (Wójcik et al., 2009; Tokarska et al., 2009; Tokarska et al., 2011) and highly increased inbreeding level, reaching 75% (Pertoldi et al., unpublished). Although increased inbreeding is regarded as an important factor affecting the viability of a population, resulting in lowered genetic differentiation and decreased fitness, its impact on the European bison seems milder than might be expected. Long term fertility coefficients are stable and satisfactory (Kraśńska i Kraśński, 2017) and no indisputable inbreeding depression symptoms are observed (Tokarska et al., 2011). The reported potential inbreeding depression symptoms are related to skeleton conformation. Baranov et al. (1997) reported signs of developmental instability of skull morphology in the European bison skulls and indicated developmental instability as essential for characterizing the condition of the population. Analyses of fluctuating symmetry of the European bison, associated with genetic diversity (Makowiecka, 1994) suggest that the Białowieża line of the European bison had the lowest, unbeneficial, developmental instability as the result of inbreeding. Until recently, the only method of estimating inbreeding level was pedigree analysis – a rough and inaccurate method. The development of genomic techniques enables precise calculation of inbreeding level using high density SNP (single nucleotide polymorphism) set. This method has been successfully used in the European bison studies and allowed for the first, accurate inbreeding calculations, using ROH (Runs of Homozygosity) analyses (Iacolina et al., 2016, Pertoldi et al., unpublished).

This project enables the actual effect of extreme inbreeding on skull conformation in a historical context to be estimated, by association of genomic and morphometric data in one of the most inbred mammals known – the European bison.

We will use hundreds of 3D skull scans from European collections and museums and juxtaposition them with their inbreeding level information based on SNP markers. The objective of the project is to specify whether and in what extent inbreeding level shaped the skull conformation of European bison individuals by answering three questions:

Has the morphometry of the skull fluctuated over time? Has the growing inbreeding of the European bison influenced its skull morphometry? If yes, what morphometric skull features have been affected by growing inbreeding?

## The working environment



Mammal Research Institute, Polish Academy of Sciences (MRIPAS) in Białowieża, funded 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.

### We provide:

1. 4-years contract;
2. Work in a friendly research team, in a well-equipped and organized laboratory with support and supervision of competent colleagues;
3. The possibility of effective scientific development through cooperation with the best world research centres;
4. Participation in an interesting scientific project with travelling opportunities;
5. The possibility to apply for inexpensive accommodation in MRI PAS flats.

### Post-doc tasks and duties within the project

1. Writing scientific papers and participating in relevant conferences and workshops.
2. Supervising PhD students.
3. Performing genome-wide association analysis based on the genomic data and morphometrical measurements on European bison skulls, preferably using GoldenHelix or Plink softwares.
4. Visualisation of the data, presenting results and preparing manuscripts.

### Requirements:

1. PhD in biology or genetics.
2. Experience in morphometric analyses, usage of Stratovan (or adequate) software.
3. Team cooperation skills.
4. Fluent spoken and written English.
5. Fun and excitement from performing science and presenting the results highly welcome.

### Required documents:

1. CV and motivation letter.
2. Copy of PhD diploma.
3. Full-text version (pdf/word file) of your PhD thesis.

4. Information on the candidate's scientific experience (specialization, research techniques, and achievements (including list of publications and reports) (max. 500 words).
5. An opinion from the academic tutor or/and previous scientific employer.
6. Declaration of consent for processing of personal data, attached below (only first signed page should be scanned and delivered through e-mail).

### **Conditions of employment**

1. Post-doc salary of 6200.00 złotych netto / month = approx. 1300 Euro netto. This is the highest allowed salary for PhD in the NCN project. As living in Poland is cheaper than in Western Europe, this ensures quite satisfactory standard of living.
2. Project will last 4 years. Position is full time, but can be realized partly remote.

The recruitment rules will follow NCN regulations. The selection will be based on the qualifications of the candidates including scientific achievements, experience, awards, internships, skills and competences. An interview will be part of the selection of candidates. 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 shortly present your PhD thesis).

Applications should be sent directly to Małgorzata Tokarska by letter or electronically by 22nd December 2023. The selected candidates will be invited to an online or stationary interview and the decision will be announced by 30th December 2023.

### **Contact:**

Małgorzata Tokarska PhD – project leader  
Mammal Research Institute Polish Academy of Sciences  
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**Declaration of consent for processing of personal data within the framework of the competition procedure for granting scientific scholarships in research projects funded by the National Science Centre**

I consent for my personal data to be processed by the Institute of Mammal Research Institute Polish Academy of Sciences (hereinafter referred to as IBS PAN) for the purposes necessary for the recruitment process on the award of scientific scholarships in research projects funded by the National Science Centre (in accordance with the Regulation of the European Parliament and of the Council (EU) 2016/679 of 27 April 2016, on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Regulation on Data Protection ) (J.L. EU. 2016, No. 119, p. 1) - hereinafter referred to as RODO, and national data protection regulations issued on its basis.

.....  
Place, date

.....  
Signature

I consent for my personal data to be processed by the Mammal Research Institute Polish Academy of Sciences in Białowieża (hereinafter referred to as IBS PAN) for the purposes of the recruitment process for the award of scientific scholarships in research projects funded by the National Science Centre (required if the data provided include special categories of data referred to in Article 9(1) of the RODO).

.....  
Place, date

.....  
Signature

## **General Regulation on Data Protection (RODO) information clause**

(drawn up in connection with the implementation of the obligation indicated in Article 13 of Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons in connection with the processing of personal data and on the free movement of such data and repealing Directive 95/46/EC. (Official Journal of the EU L 119, p. 1).

1. The Administrator of your personal data is the Mammal Research Institute of the Polish Academy of Sciences in Białowieża (hereinafter referred to as IBS PAN), represented by the Director of IBS PAN 1 Stoczek St., 17-230 Białowieża, e-mail address: [mripas@ibs.bialowieza.pl](mailto:mripas@ibs.bialowieza.pl), tel. 85 682 77 50.
2. Any questions regarding the manner and extent of the processing of your personal data and your rights under the RODO, can be directed to the designated Data Protection Officer at email address: [iod@ibs.bialowieza.pl](mailto:iod@ibs.bialowieza.pl) or by writing to the registered office address indicated above with the reference "Data Protection Officer".
3. Your personal data will be processed for the purpose and in the scope necessary to carry out the competition procedure for the scholarship, awarding scientific scholarships in research projects funded by the National Centre for Science, and in the case of selection for the position of a scholarship holder, in connection with the conclusion of a scholarship agreement for the payment of a scientific scholarship and activities connected with the collection of the scientific scholarship, your data will be processed on the basis of the Rules of Procedure for Awarding Scientific Scholarships in Research Projects Funded by the National Centre for Science, the Agreement for the Implementation and Financing of the Research Project (hereinafter referred to as "Project") in the framework of which the competition for the position of a scholarship holder is carried out (art. 6 1(b) RODO). Your personal data will also be processed on the basis of your consent to the processing of data in order to carry out the competition procedure - the basis for the processing of personal data will then be Article 6(1)(a) RODO and Article 9(2)(a) RODO. The Administrator may also process personal data in order to protect its legitimate interests (Article 6(1)(f) RODO) - in order to service, investigate and defend in the event of the occurrence of mutual claims.
4. The recipients of your personal data will be: The National Science Centre in Cracow, the appointed Scholarship Committee, entities assessing or controlling the proper implementation of the Project, within the framework of which the agreement was concluded, entities conducting control and evaluation and other entities entitled to obtain data on the basis of legal regulations.
5. Your personal data will be stored until the end of the recruitment process from the date of your application, unless, before the expiry of the period indicated above, you withdraw your consent to the processing of your data or restrict it, subject to point 6. In the event, that the basis for the processing of your personal data after the recruitment process has been completed is the legitimate interest of the administrator (e.g. in case when the processing of your personal data after the recruitment process is based on the legitimate interest of the administrator (e.g. in connection with the proceedings before the administrative court initiated by the candidate as a result of the refusal to grant the NCN research scholarship or suspension of the NCN research scholarship payment in connection with the termination of the scholarship agreement), your personal data will be processed only until the proceedings based on the legitimate interest of the administrator is completed or until you make an effective objection.

6. In the case of obtaining a NCN research scholarship (i.e. successful completion of the recruitment process and conclusion of an agreement for a NCN research scholarship payment), the processing of your personal data will take place for the entire period of the agreement for the implementation and financing of the research project within the framework of which the competition for the position of a scholarship holder was held, until the completion of Project implementation and settlement of the agreement for Project implementation and financing concluded with National Science Centre, and then until the expiration of the period of limitation of any possible claims resulting from the contract in the Project, and after that period the data will be kept for archiving purposes - for the period provided for by the law.

7. You have the right to request access to your personal data (including making a copy of it) and, under the conditions set out in the RODO, the right to rectify (amend), erase or restrict processing, object to the processing of your data, transfer your data and the right to lodge a complaint to the supervisory authority, which in Poland is the Inspector General for the Office for Personal Data Protection, having its registered office at: Office for Personal Data Protection, 2 Stawki St., 00-193 Warsaw.

8. You also have the right to withdraw your consent for the control to process your personal data at any time. Withdrawal of consent does not affect the compliance of the processing of your personal data which was performed on the basis of consent given before its withdrawal. However, revoking your consent to data processing during the recruitment process may make it impossible to grant an NCN research scholarship.

9. Providing your personal data is voluntary, but necessary to participate in the competition procedure in the competition procedure, and in the case of a scholarship award it is a condition for the conclusion and performance of the agreement for the payment of a NCN research scholarship.

10. Your personal data obtained for recruitment purposes will not be transferred to a third country or international organization.

11. Your personal data will not be subject to automated decision-making, including in the form of profiling.