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## INSTITUTE OF NATURE CONSERVATION - POLISH ACADEMY OF SCIENCES

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### PhD Position position on mammal monitoring in mountain ecosystems through camera trapping, artificial intelligence and citizen science

We seek a highly motivated and creative candidate, with good communication skills and a strong working capacity for a **PhD position at the Institute of Nature Conservation, Polish Academy of Sciences (IOP PAN), Kraków, Poland** in collaboration with research and monitoring staff from the Tatra National Park, Poland. We offer a **full-time position for 48 months starting in October 2026** as a joint collaboration between the IOP PAN and the project [WildINTEL](#) “Building a scalable WILDLife monitoring system by integrating remote camera sampling and artificial INTELLIGENCE with Essential Biodiversity Variables” (2023/05/Y/NZ8/00104).

**Keywords:** camera trapping, citizen science, deep learning, artificial intelligence, species detectability, hierarchical modelling, population trends, community indicators, biodiversity monitoring.

**Location of the project:** Institute of Nature Conservation, Polish Academy of Sciences, Adama Mickiewicza 33, 31-120 Kraków, Poland

**Supervisors:** Dr hab Nuria Selva and Dr Carlos Bautista

**Scholarship:** approx. **5000 PLN monthly** (tax-free, but Social Security contributions and health insurance will be deducted, approximately 20% of the salary). The project will cover costs of business trips during the WildINTEL project implementation (e.g., travel and accommodation during project meetings and scientific conferences). There are additional financial bonuses at the IOP PAN (e.g., for publications) and opportunities to apply for independent research projects. The costs associated with PhD courses and the defense will be covered by the Doctoral School and the IOP PAN.

**Recruitment process:** Recruitment to the project (conducted in accordance with the rules of the NCN) will be combined with the admission process to the **Doctoral School of Natural and Agricultural Sciences**, so candidates must submit a set of documents specified in [Appendix No. 2 to the Rules for Admission](#); see also below). The selection will be based on qualifications, including scientific achievements, experience, awards, internships, skills, and competences. An interview with pre-selected candidates will form part of the selection process. The successful candidate will be admitted to the Doctoral School and obliged to carry out the duties of a doctoral student arising from its regulations and program of study (see Terms and Conditions [here](#)).

**Deadline:** 25th of August 2026, 12:00 CET (Tuesday)

**Applications:** Please email all required documents (in a single PDF) to [sekretariat@iop.krakow.pl](mailto:sekretariat@iop.krakow.pl) with the subject line: “**PhD application – WildINTEL**”

**Contact for inquiries:** [carlos@iop.krakow.pl](mailto:carlos@iop.krakow.pl)

**Pre-selected candidates will be invited to an interview in September 2026.**





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**Short description of the WildINTEL project:** This project started in February 2024 and is a collaboration of European research teams from Poland, Spain, Norway and Germany, funded under the BiodivMon joint call launched by BiodivERsA+. The Institutions involved are the Institute of Nature Conservation Polish Academy of Sciences (project coordinator); the Centre for Advanced Studies in Physics, Mathematics and Computation, Faculty of Experimental Sciences, University of Huelva (Spain); the Department of Natural Resources and Environmental Health, University of South-Eastern Norway; the German Centre for Integrative Biodiversity Research (iDiv) Halle-Jena-Leipzig, Martin Luther University Halle-Wittenberg; GBIF Spain, Coordination Unit, Spanish National Research Council (CSIC); and, the Electrical Engineering and Computer Science (EECS)/ Computer Science and AI Laboratory (CSAIL) from the Massachusetts Institute of Technology (USA).

The main goal is to develop a cutting-edge coordinated wildlife monitoring system underpinned by the Essential Biodiversity Variables (EBVs) framework. We combine camera trapping, citizen science, artificial intelligence, and hierarchical models for the automated production of species population and community structure EBVs. Our objective is to enable stakeholders to obtain reliable and timely automated assessments of species conservation status and conservation actions to halt biodiversity loss. WildINTEL collects remote camera images in pilot study areas representing four main European biogeographical regions: Mediterranean, Continental, Alpine and Boreal; namely in Tatra National Park (Poland), Doñana National Park (Spain), Indre-Østfold area (Norway) and the Oder river valley (Germany and Poland).

Currently the WildINTEL system is focusing in mobilise and optimise the use of existing data and integrate camera-trap projects from other areas while supporting the analysis of the drivers of global change and biodiversity loss at spatiotemporal scales. We focus on mammals as they are condition sentinels as well as crucial indicators of ecosystem trophic integrity and global change.

**Main research questions for the PhD position:** Mountain ecosystems are sensitive to multiple global change components such as climate change, tourism pressure and land-use practices. Accordingly, they require biodiversity monitoring systems capable of detecting ecological responses to anthropogenic disturbances but also natural ones that are associated with global environmental change; bark beetle outbreaks, windthrow events, forest dieback and avalanche dynamics.

This PhD will investigate the spatio-temporal dynamics of mammal communities in the Tatra Mountains integrating camera-trapping, with artificial intelligence and citizen-science.

The project will address three main research questions:

1. How do tourism intensity and recreational infrastructure affect mammal occupancy, activity patterns and community composition across mountain ecosystems?
2. How do forest structure, natural disturbances and management practices influence mammal communities in mountain regions?
3. How can camera-trap monitoring systems be optimized to efficiently monitor communities and selected focal species across forest and alpine habitats?

This PhD will help to better understand the factors shaping mammal communities in mountain ecosystems currently and under future global change. Additionally, will contribute to the development of scalable monitoring systems for mountain wildlife. The results will support biodiversity conservation and adaptive management in Tatra National Park and other mountain regions that are also increasingly threat by environmental and anthropogenic pressures.





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**Description of the work:** The PhD project will investigate the distribution, relative abundance, detectability and community composition of terrestrial mammals in mountain ecosystems using camera-trap data. The candidate will build upon the existing camera-trap-based monitoring systems in Tatra National Park within the WildINTEL project, which integrates classified records of wildlife by artificial intelligence and citizen-science into workflows for biodiversity monitoring.

Analyses will focus on spatio-temporal patterns in species occurrence and abundance, their environmental drivers, and the development of predictive models to support wildlife monitoring and conservation. Depending on the research questions and data characteristics, analytical approaches may include occupancy models, Royle–Nichols models, N-mixture models, multi-species occupancy models, random encounter models, and community-level analyses of species turnover and beta diversity.

Predictive modelling will be used to estimate species distributions and community patterns in unsampled areas. Environmental predictors will include topography, habitat characteristics, vegetation productivity, snow cover, forest structure, natural disturbances and management practices, using the highest spatial and temporal resolution data available.

Fine-scale habitat characteristics will be quantified through a combination of field surveys, camera-trap image interpretation, remote-sensing products and expert assessments. The project will be conducted in close collaboration with Tatra National Park, ensuring access to high-quality ecological data and facilitating the transfer of results to conservation practice.

Research outputs will be disseminated through peer-reviewed scientific publications, conference presentations, technical reports, policy briefs and outreach activities.

**Requirements for candidates:** We seek a highly motivated and creative person, with good communication skills, a strong capacity for work, and the ability to think independently. She/he will be part of an [international research team](#). She/he will work closely with collaborators across several institutions. Therefore, a cooperative character, and a willingness to travel and conduct research stays abroad are highly desirable. All qualified applicants will receive consideration regardless of race, color, religion, sex, sexual orientation or identity, national origin or disability status.

The ideal candidate should demonstrate strong quantitative and analytical skills, particularly in the analysis of ecological and biodiversity data. Previous experience with implementing camera-trap projects for wildlife monitoring, species distribution modelling, occupancy modelling or related approaches are required.

Candidates should hold a Master's degree (or equivalent) in ecology, environmental science, geography, or a related field. She/he should be skilled in R and/or python and have experience with GIS software and spatial data analysis. Experience with platforms designed to organize, process, and analyze massive multimedia datasets generated by camera traps is required. Familiarity with statistical modelling and biodiversity monitoring concepts is highly desirable. Good oral and written communication skills in English are required, as the project will involve international collaboration and publication in peer-reviewed journals.

The project includes fieldwork in mountain environments; therefore, candidates should be willing and physically able to conduct field activities under variable weather and terrain conditions.





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Knowledge of the WildINTEL project, camera-trap monitoring workflows, artificial intelligence applications in biodiversity monitoring, and citizen-science approaches will be considered strong assets. Good command of Polish, both spoken and written, will be advantageous for collaboration with local stakeholders and protected-area managers.

### **Application for the PhD position:**

For details and templates of required documents for admission to Doctoral School in academic year 2026/2027, please see <https://botany.pl/en/doctoral-school-en/admission-en>

- 1) Application for admission to the Doctoral School along with reasons therefore, i.e., a letter of interest, detailing the qualifications of the candidate for the position, his/her research experience, and how this position will help to fulfil personal career goals (see Doctoral School webpage for the template);
- 2) Consent to the processing of personal data for the purposes of the admission procedure in accordance with the template thereof attached as Appendix to the Rules for Admissions);
- 3) CV specifying a list of scientific achievements, employment record and participation in scientific projects, conferences, workshops, training and internships, together with list of publications;
- 4) Contact information to two academic referees or people with whom a candidate have worked;
- 5) Personal data form (see Doctoral School webpage for template);
- 6) 2 photos + one photo in electronic form (passport-sized format); these can be submitted later, only by a selected candidate;
- 7) Diploma certifying completion of Master studies or a document confirming the fulfilment of the conditions set out in § 2 sec. 6-8 of Recruitment Rules (see Doctoral School webpage); in the case of a diploma of study abroad, it should be endorsed with an apostille clause;
- 8) Photocopy of the student's record book/diploma supplement containing the relevant entries;
- 9) Certificate or diploma certifying completion of studies, confirming English language competencies at no less than B2 level; the list of certificates is specified in Appendix to these Rules for Admissions;
- 10) Statement concerning previously commenced doctoral studies or doctoral programme, or education at another doctoral school;
- 11) Information on the doctoral scholarship received at the doctoral school and the period for which it has been paid;
- 12) A copy of the abstract of the Master's thesis in Polish or English;
- 13) A statement of no health-related contraindications to carry out the tasks provided for under the research theme concerned;
- 14) A statement to the effect that the person can use electronic equipment in order to attend classes held with the use of distance learning methods and techniques;
- 15) Declaration of disability where applicable.

Documents should be combined into a single pdf and sent by email to the address [sekretariat@iop.krakow.pl](mailto:sekretariat@iop.krakow.pl) with the subject line: "PhD application – WildINTEL".

