



INSTITUTE OF DENDROLOGY POLISH ACADEMY OF SCIENCES

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Kórnik 17th May 2021

Announcement about recruitment to the Poznań Doctoral School Institutes of the Polish Academy of Sciences at the Institute of Dendrology Polish Academy of Sciences No. 3/2021/ID/PSD

I. Position type: doctoral student

II. Number of vacancies: 1

III. Discipline: biological sciences

IV. Application deadline: 24/06/2021

V. Detailed information about recruitment process can be found on the website: <http://www.idpan.poznan.pl/doctoral-school-pds-ipas/information-on-recruitment-at-the-institute-dendrology-pas> and <https://www.ibch.poznan.pl/pl/main-pl/st-doktoranckie/psd-ipan/>

VI. Research topic: Impact of invasive tree species on ecosystem services: plant biodiversity, the carbon and nitrogen cycle, and climate regulation

VII. Principal Investigator / Research group: dr. Marcin K. Dyderski, Department of Ecology

VIII. Project Description:

Invasive trees and shrubs are one of the major threats to forest biodiversity and ecosystem services. In the research project we aimed to check how two the most common invasive trees in Europe – black cherry (*Prunus serotina* Ehrh.) and black locust (*Robinia pseudoacacia* L.) impact on forest ecosystems functioning. During four years we will establish 192 study plots reflecting invasion gradient. This will allow to check the influence of black cherry and black Locust on biomass, its production and decomposition, carbon and nitrogen cycling, natural regeneration, biodiversity, and microclimate. During project we will test the following hypotheses:

1. Invasive species presence will increase both biomass stock and rate of matter cycling;
2. Invasion effects per alien species biomass unit (*per capita*) will differ between black cherry and black locust, due to different strategies of nitrogen acquisition;
3. Presence of invasive species will increase taxonomic diversity, but will decrease phylogenetic and functional diversity;
4. Increased quantity of invasive species will decrease daily temperature amplitudes and will increase forest floor humidity;
5. Increased quantity of invasive species will decrease forest ecosystem resilience via decreasing native species natural regeneration ability.

In the research project we will use detail measurements from study plots to develop models of black cherry and black locust impacts on forest ecosystems. Such models will allow us understand which quantity of invader is sufficient to cause irreversible changes in forest ecosystem functioning, and how studied species modify forest ability to carbon and nitrogen storage. Results of the project will significantly expand knowledge on the mechanisms of biological invasions and matter cycling in forests, contributing to fulfilling the gap in knowledge on the relationships among biodiversity, ecosystems functioning, and their productivity.

PhD student tasks will cover: selection of the majority of study plots, biometric measurements and plant material collection, conducting production and decomposition experiments, and analyzing invasive species impacts on biodiversity and ecosystem functioning. During the project PhD student will learn how to estimate biomass of trees, shrubs, and herbaceous species, obtaining and analyzing root and stem increments samples, assessing mass and decomposition rate of leaf litter, surveying vegetation and natural regeneration, and describing microclimate. During data analysis PhD student will develop mathematical models of biomass, its production, decomposition, and biodiversity. We expect that we will publish these results in the best international scientific journals regarding forest ecology. We also aim to present the results during the most relevant international conferences. In the project we planned participation of PhD student in at least two international conferences.

In our research project we offer a collaboration with a wide team of specialists on biodiversity and nutrients cycling in forest ecosystems. Joining to our research team will support wider studies aimed to increase our understanding of forest ecosystems functioning and mechanisms of biological invasions. We offer ability to wide exchange of ideas and scientific development in a dynamic team, focused on broad scope of ecological researches, and having a big experience in publishing in the best scientific journals.

IX. Additional information:

1. Research and doctoral dissertation will be conducted under research project: Impact of invasive tree species on ecosystem services: plants biodiversity, carbon and nitrogen cycling and climate regulation (2019/35/B/NZ8/01381).
2. The doctoral student will receive a doctoral scholarship in the amount of about 4180 PLN gross (about 3789 PLN net) monthly during the entire doctoral studies, 38 months with the possibility of extension.
3. The doctoral student will have the social insurance costs referred to in art. 6 clause 1 point 7b of the Act of October 13, 1998 on the social insurance system (Dz. U. z 2019 r. poz. 300, 303 i 730).

X. Requirements for candidates:

1. Master degree in discipline of biological sciences, forest sciences, Earth and environment sciences or related or meeting the conditions specified in art. 186 section 2 of the Act of July 20, 2018 Law on Higher Education and Science (Dz. U. z 2018 r., poz. 1668 z późn. zm.).
2. Very good skills in oral and written English, allowing for preparing manuscripts of scientific publications and oral presentations during international conferences.

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3. Ability to conducting field investigation I during entire season and prior experience in fieldwork.
4. Ability to determine basic tree and shrub species from forest ecosystems of Poland.
5. Experience in research studies in biology and ecology of trees or forestry, documented by prior scientific activity (e.g. conferences or publications).
6. Basic data analyses skills using statistical software (preferably R or other open source software).
7. Favorably: experience with specialized R packages for vegetation analyses (vegan, FD, ade4), experience with advanced statistical methods (mixed-effects models, machine learning), spatial analyses skills and experience in spatial data processing in QGIS, driving license.

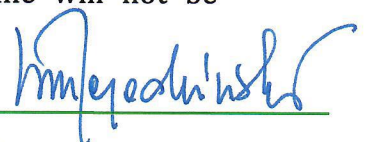
XI. Required documents:

1. An application to PDS IPAS, including consent for the processing of personal data for the purposes of the recruitment procedure, and a declaration of familiarity with these rules.
2. A copy of the degree certificate confirming graduation or a certificate of graduation; in the case of degree certificates issued by foreign higher education institutions, the certificate referred to in Article 326(2)(2) or Article 327(2) of the Act, giving the right to seek to obtain a doctoral degree in the country under whose higher education system the issuing institution operates. A candidate who does not have the aforementioned documents will be obliged to supply them before being admitted to PDS IPAS. Additional information on foreign diplomas is available on the website: <https://nawa.gov.pl/en/recognition/recognition-for-academic-purposes/applying-for-admission-to-doctoral-studies>.
3. A curriculum vitae showing previous education and employment, information on involvement in scientific activity (membership of student scientific groups, participation in scientific conferences, completed internships and training courses, prizes and distinctions received) a list of publications.
4. A motivation letter, containing a short description of interests, scientific accomplishments, and reasons for wishing to study at the doctoral school.
5. Certificates or other documents confirming the candidate's knowledge of English, if the candidate has such.
6. Contact details of at least one previous academic supervisor or other academic employee who has agreed to provide an opinion regarding the candidate.

The application should be sent by e-mail to the address psd.idpan@man.poznan.pl with the subject "**Competition for the position of doctoral student No. 3/2021/ID/PSD**" in the form of an pdf attachment. If sending by electronic means is not possible, applications sent to the address Institute of Dendrology, Polish Academy of Sciences, Scientific Information Department, Parkowa 5, 62-035 Kórnik, Poland with the note on the envelope "**Competition for the position of doctoral student no. 3/2021/ID/PSD**" are also accepted. Please do not send original documents.

XII. Application deadline: 24/06/2021.

Incomplete applications and applications submitted after the deadline will not be considered.



XIII. Criteria for assessing candidates:

1. The candidate's academic accomplishments, based on grades attained during studies, scientific and popular science publications, scholarships, awards and distinctions resulting from research or student activity, and other achievements.
2. The candidate's academic and professional experience, based on participation in conferences, workshops, training courses and internships, participation in research and commercial projects, involvement in scientific groups and associations, international and professional mobility, and experience in other fields, including in industry.
3. Candidate's knowledge in the biological science discipline.
4. Knowledge of the topics listed in the recruitment notice.

XIV. Competition results: until 10/07/2021.

XV. A description of the recruitment process can be found in the Recruitment Regulations for PDS IPAS. After the recruitment is completed, unaccepted candidates will be informed of the strengths and weaknesses of their applications.

XVI. Admission to PDS IPAS is refused by administrative procedure. The decision may be appealed with to the Director of the Institute of Dendrology of the Polish Academy of Sciences.

XVII. Additional information may be provided Principal Investigator/Research group: dr. Marcin K. Dyderski (e-mail: mdyderski@man.poznan.pl, phone: (+48) 61 817 00 33.

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