

BULGARIAN ACADEMY OF SCIENCES NATIONAL MUSEUM OF NATURAL HISTORY

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OPINION

By Prof. Georgi Sashev Popgeorgiev MD Place of work National Museum of Natural History - BAS Member of a scientific jury appointed by Order No. 12/30.01.2025 of the Director of IBER-BAS

Regarding the defense of a dissertation for the acquisition of the degree of Doctor of Kristina Rashkova Panova, a full-time PhD student in the field of higher education: 4. "Natural Sciences, Mathematics and Informatics"; Professional field: 4.3. "Biological Sciences"; scientific specialty: "Ecology and Ecosystem Conservation", at the Department of Animal Diversity and Resources of IBER-BAS, with scientific supervisor Assoc. Boris Petrov Nikolov, PhD, thesis topic: "Passive acoustic monitoring of birds in beech forests affected to varying degrees by human activity".

Biographical data

Kristina Panova was born on 02.07.1989 and graduated in 2011 with a Bachelor's degree from the Faculty of Biology, Sofia University "St. Kliment Ohridski". St. Kliment Ohridski", specialty "Biomanagement and Sustainable Development". A year later, she graduated with a master's degree in Ecology and Environmental Protection at the same faculty. For the period 2011 – 2020 she worked as a "specialist biologist" at the research group "Bulgarian Ornithocentral", Department of Biodiversity, Population Biology and Vertebrate Resources, Department of Animal Diversity and Resources of IBER – BAS. In 2022 she was enrolled as a full-time PhD student in the scientific specialty "Ecology and Ecosystem Conservation" (02.22.01) of the Department of Biodiversity, Population Biology and Vertebrate Resources at IBER - BAS.

Work on the dissertation and personal qualities of the PhD student

The topic of the dissertation is interesting, provocative and suitable to research. Results of fundamental and applied nature have been achieved. The specialized scientific terminology is used freely and correctly. The style of expression is correct and scientific.

Kristina Panova has set herself ambitious and clearly formulated goals, namely characterization with the help of acoustic data of communities of nesting bird species in beech forests, influenced to varying degrees by human activity. This is commendable and shows good theoretical training, broad scientific interests and striving for scientific development. The research is a personal work of the PhD student and was conducted in an interesting and well-selected geographical area in the northern slopes of Mount Belasitsa, as well as in the Kongura Reserve.

The modern methods chosen are well defined and focus on the use of basic acoustic indices. The chapter "Results and discussion" is represented by 2 consolidated and published articles, presenting the credible research performed by the PhD student.

The contributions from this study are grouped into two categories: scientific (4 pcs.) and scientific-applied (4 pcs.). All of them have their significance and weight, and more interesting can be defined: 1) Four acoustic indices (ACI, ADI, AEI and BI) have been validated as indicators of the species richness of birds in beech forests, which expands the application of acoustic methods in ecological studies. 2) The results of the study show how the values of the acoustic indices vary between different types of beech forests (unaffected mature forests, managed mature forests and managed young forests), providing valuable information about ecosystem features and habitats. 3) Basic parameters of the structure of beech forests (cover of tree crowns, number of trees with hollows, standing dead wood) related to the vocal activity of the Lesser Flycatcher in its nesting habitats are presented. This can be useful for future monitoring programmes and tracking changes in ecosystems due to forestry practices.

The content and structure of the dissertation fully comply with the established norms. Kristina has published the results in two co-authored scientific articles, both of which she is the first author. This shows good teamwork skills, as well as individual and leadership qualities. Both scientific articles have been published in journals with impact factor. In addition, the PhD student has taken part in two scientific conferences with international participation. All this meets the scientometric criteria and requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria.

Conclusion

I believe that the dissertation contains original scientific contributions and has been prepared in accordance with the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria, as well as with the Regulations of IBER-BAS. The complex scientific work carried out on the dissertation and the prepared dissertation, which I can say is the personal work of the PhD student, show the growth of Kristina Panova as an accomplished scientist with the potential for the development of a successful scientific career. In connection with the above, I strongly support the awarding of the degree of Doctor to Kristina Rashkova Panova, a full-time PhD student in the field of higher education: 4. "Natural Sciences, Mathematics and Informatics"; Professional field: 4.3. "Biological Sciences"; scientific specialty: "Ecology and Ecosystem Conservation".

Plovdiv:

19.03.2025

Drawn:

/G. Popgeorgiev/