

STATEMENT

By **Daniela Marinova Nikolova, PhD**

Professor at the Faculty of Biology, University of Sofia “St. Kliment Ohridski”

Of a PhD thesis for awarding the educational and scientific degree “Doctor”

Field of higher education: **4. Natural sciences, mathematics and informatics,**

Professional area: **4.3. Biological Sciences,** Science Major: **Zoology**

Author: Polina Dimitrova Hristova

Topic: "BREEDING BIRD COMMUNITIES IN FOREST FRAGMENTS IN THE WESTERN THRACIAN LOWLAND"

Scientific supervisors: Assoc. Prof. Hristo Dimitrov, PhD - “Paisii Hilendarski” University of Plovdiv”, Assoc. Prof. Georgi Popgeorgiev, PhD – National Museum of Natural History, BAS

1. General presentation of the procedure and the doctoral student

By order No ПД-21-494 of 27 February 2024 of the Rector of the “Paisii Hilendarski” University of Plovdiv, I have been appointed as a member of the scientific jury to ensure a procedure for the defense of the PhD thesis entitled "Breeding bird communities in forest fragments in the Western Thracian lowland", in the field of higher education 4. Natural sciences, mathematics and informatics, Professional area 4.3. Biological Sciences, Science Major Zoology. Author of the PhD thesis is Polina Dimitrova Hristova – full-time PhD student in the Zoology Department of the Faculty of Biology at “Paisii Hilendarski” University of Plovdiv, with scientific supervisors Assoc. Prof. Dr. Hristo Dimitrov - “Paisii Hilendarski” University of Plovdiv" and Assoc. Prof. Dr. Georgi Popgeorgiev – National Museum of Natural History, BAS.

The presented set of materials by Polina Hristova is under Article 36 (1) of the Regulations for the Development of the Academic Staff of the University of Plovdiv, and includes all the necessary documents described in the application to the Rector of the “Paisii Hilendarski” University of Plovdiv. The documents are prepared and presented correctly and accurately. The PhD student has submitted 3 scientific papers accepted for publishing in

specialized peer-reviewed scientific journals, indexed in the Scopus and Web of Science databases: one paper in *Acta Zoologica Bulgarica* and two papers in *Ecologia Balkanica*.

2. Relevance of the topic

Many bird species are associated with forest ecosystems. Under the influence of anthropogenic impacts, however, their communities are susceptible to changes. Behind the loss and fragmentation of natural forest ecosystems are various forest practices, the expansion of settlements and the increase of agricultural areas, where forest territories are exploited. Therefore, studies on changes in bird communities concerning management practices and climatic changes are of great importance today. In this sense, the present study aims to expand knowledge of the species composition and distribution of birds in the lowland forests of the Western Upper Thracian lowland, as well as to assess the environmental factors that impact the bird communities, which determine its relevance and significance.

3. Knowing the problem

From the literature review and the discussion, the good awareness of the doctoral student on the researched problem is evident. In the literature review, the existing knowledge about the influence of the structure and composition of forests, forest management practices and fragmentation on species richness and abundance of birds is consistently and fully presented. Evidence of the doctoral student's awareness of the problem is also the many modern scientific publications she cites in support of the stated assumptions when discussing the results.

4. Research methodology

The PhD student uses modern research and analysis methods. The present study is conducted in 15 fragments of lowland forests in the Western Upper Thracian lowland, which is sufficient for the present work. The minimum recommended plot size is correctly chosen and described. The point transects method, which is used in the dissertation is a widely applied method for assessing the relative abundance of songbirds. Distance software is used to

estimate the numbers and density of breeding birds. The biological information is collected through the SmartBirds Pro mobile application. The use of various software programs such as Q-GIS, Distance, etc. is a prerequisite for the objectivity of the obtained results. It can be seen that the doctoral student skillfully applies them, which proves that she has the necessary methodological training.

5. Characterization and evaluation of the dissertation work and contributions

The dissertation contains 132 pages and includes 20 tables, 16 figures, 19 appendices and 201 literary sources, of which 23 are in Cyrillic and 178 are in Latin. It presents the results for the number, density and distribution of the breeding birds in forest fragments in the Western Thracian lowland, in the large part visualized with tables and figures, and evaluated reasonably the influence of the structure and characteristics of the fragments on their populations by modern and correctly selected statistical and spatial analyses. The dissertation concludes with nine conclusions summarizing the results of the study. They meet the set goals and objectives and outline the contributions of the dissertation work.

Although studies on forest bird species in the Upper Thracian lowland, concerning their habitat preferences exist in the scientific literature, for the most part, they were conducted a long time ago. In this sense, the assessment of the species diversity and density of birds in fragmented lowland forests of the Western Upper Thracian lowland fills this gap and expands knowledge. Besides, in recent years, studies concerning the influence of habitat structural characteristics on birds and their communities have also expanded and deepened in Europe, which complements the interest in the dissertation work and its scientific value. The obtained results confirm that the structural characteristics of forests have a strong impact about the species diversity and abundance of birds. Thus, species with specific preferences for the forest interior have a lower frequency of occurrence and relative abundance in the forest fragments. It is argued that the size of the fragments is important for supporting a high bird species richness, in cases of high level of habitat heterogeneity. Along with this, the dissertation also has a well-defined scientific-applied character. The prepared list of the breeding bird species in the lowland forests of the Western Upper Thracian lowland and the identified main factors influencing the bird species are of great importance in the comparative analysis and assessment of changes in the breeding bird communities concerning management practices. I believe that the dissertation is entirely personal work of the doctoral student.

6. Assessment of the PhD student's publications and personal contributions

The three publications that the PhD student provides related to the thesis topic have been accepted for publication in the specialized scientific journals *Acta Zoologica Bulgarica*, quartile Q4 2022 and *Ecologia Balkanica*, quartile Q4 2022. The publications are co-authored, but in all three the doctoral student is the first author, which is proof of her leading role in the research. Publications carry a total of 36 points, out of a required 30, according to the minimum national requirements under indicator group "Г". The dissertation has also been presented with 1 oral presentation and 1 poster in one international and one national forum - International Conference One Health and Zoology, Hisarya, oral presentation; Third National Young Scientists Conference on Biology. Plovdiv, poster session. These participations complement the research activity of Polina Hristova and her scientific contributions.

7. Abstract of the PhD thesis

The abstract covers 32 pages and fully reflects the chapters of the dissertation. The abstract presents the main results, the original contributions of a scientific and scientific-applied character, achieved in the dissertation. It is concisely written and meets the requirements of the Regulations for the Development of the Academic Staff of the University of Plovdiv.

8. Recommendations for future use of dissertation contributions and results

I have a few minor critical remarks. In Bulgarian, the term "*obilie*" expresses the „*relative abundance*“ of populations. In the dissertation, however, this term is also used as „*relative obilie*“, which I find incorrect. Also, I consider it more correct to speak of numerous species rather than abundant ones.

CONCLUSION

The dissertation of Polina Hristova contains original scientific and scientific-applied results that meet all the requirements of the Act for the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for its implementation and the relevant Regulations of the University of Plovdiv "Paisii Hilendarski". The dissertation shows that Polina Hristova

possesses in-depth theoretical knowledge and professional skills in the scientific major of Zoology, demonstrating qualities and skills for independent conduct of scientific research, which outlines her as a young scientist with a pronounced scientific profile. Given the above, I confidently give my positive assessment of the conducted research, presented by the above-assessed dissertation, abstract, results and contributions, and I propose to the honourable scientific jury to award the educational and scientific degree "doctor" to Polina Dimitrova Hristova in the field of higher education: 4. Natural sciences, mathematics and informatics, professional area 4.3. Biological Sciences, Science Major "Zoology".

Statement prepared by:

(Prof. Daniela Nikolova, PhD)

26.03.2024