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## STATEMENT

on a dissertation for obtaining  
the degree of Doctor of Education in the field of higher education Agrarian  
Forestry,  
scientific speciality 'Forest improvement, forest protection and special uses in  
forestry and special forest management

Author of the dissertation. Pavel Topalov

Dissertation Topic.

Bioecological features of the woodlice (Coleoptera, Cerambycidae) of Vitosha

Member of the scientific jury. The author of this statement is Prof. Rostislav Hristoforov Bekchiev

1. Brief introduction of the PhD student.

Pavel Topalov has a Master's degree in Biology, is a teacher and has a strong interest in nature research.

2. General characteristics of the dissertation - volume and structure.

The dissertation submitted for my opinion, prepared by PhD student Pavel Topalov, is written in 205 pages, contains the following sections.

3. Relevance of the problem.

The topic of the dissertation is undoubtedly actual. Although the family, Cerambycidae is one of the best studied in Bulgaria, information on many areas is still scarce, outdated and often based on single publications. The group is also one of the richest in protected species, as well as those of silvicultural and bioindicator importance.

4. Literary awareness.

The chapter "Literature review" is well and thoroughly developed, covering 315 titles and providing information on both the classification and morphology of the family, Cerambycidae, as well as on the state of research not only in Vitosha, but also for Bulgaria. Although, the chapter shows the high competence of the PhD student and the

deep knowledge of the studied problem, I think that the part on the morphology of the group is superfluous in the thesis and would be more appropriate for a future monograph on the cerambycid fauna of Vitosha or Bulgaria.

5. Aim, objectives and methods of the study.

The aim is clearly formulated, the tasks are realistically set. The methods of collecting and processing material are varied and enable the collection of rich material.

6. Significance of the results, interpretations, illustrations and conclusions.

The results obtained are mainly of a faunal nature, which I welcome. In many modern works this aspect is neglected, and knowledge of the distribution of invertebrate species, even for relatively well-studied groups, is still insufficient. The data obtained on the trophic relationships of many, including protected species, help to better understand, control and conserve them. The interpretation of the results is an incompletely developed part of the work, lacking any statistical analyses to the data, making the conclusions at times speculative (mainly ecological).

7. Contributions of the dissertation.

Scientific and applied contributions of faunistic, ecological and methodological nature have been made with the development of the dissertation.

- The information in the entomological literature has been summarized and the first targeted complex studies on the Secchiidae (Coleoptera: Cerambycidae) of Vitosha have been carried out.

- Fifteen new species and subspecies have been identified for Vitosha: *Aegosoma scabricorne* (Scopoli, 1763), *Pedostrangalia* (*Pedostrangalia*) *revestita revestita* (Linnaeus, 1767), *Stictoleptura* (*Maculileptura*) *pallens* (Brullé, 1832), *Stictoleptura* (*Melanoleptura*) *scutellata scutellata* (Fabricius, 1781), *Cortodera humeralis humeralis* (Schaller, 1783), *Chlorophorus* (*Humeromaculatus*) *figuratus* (Scopoli, 1763), *Isotomus speciosus speciosus* (Schneider, 1787), *Xylotrechus* (*Rusticoelytus*) *antelope* (Schoenherr, 1817), *Xylotrechus* (*Rusticoelytus*) *rusticus* (Linnaeus, 1758), *Trichoferus pallidus* (Olivier, 1790), *Hylotrupes bajulus* (Linnaeus, 1758), *Leiopus* (*Leiopus*) *taeniatus* (Gmelin, 1790), *Dorcadion* (*Cribridorcadion*) *pedestre pedestre* (Poda, 1761), *Mesosa* (*Aplocnemia*) *nebulosa* (Fabricius, 1781), *Mesosa* (*Mesosa*) *curculionides* (Linnaeus, 1761), four genera (*Aegosoma* Audinet-Serville, 1832, *Pedostrangalia* Sokolov, 1897, *Trichoferus* Wollaston, 1854, *Hylotrupes* Audinet-Serville, 1834) and three tribes (*Aegosomalini* J. Thomson, 1861, *Hesperophanini* Mulsant, 1839, *Hylotrupini* Rose, 1983).

- New faunistic data for the study area are presented for 60 species and subspecies of cerambycids, including 7 taxa rare for the country.

- Twenty-four new trophic relationships between cerambycids and woody and shrub plants were found: *Prionus coriarius* - with *Quercus dalishampii* Ten. and *Prunus avium* L.; *Hagrium bifasciatum* - with *Quercus dalishampii*; *Rhagium inquisitor inquisitor* - with *Pinus peuce* Griseb.; *Megarhagium mordax* - with *Quercus cerris* L., *Quercus dalishampii* and *Prunus avium*; *Rutpela maculata maculata* - with *Fagus sylvatica* L., *Prunus avium* and *Salix* sp.; *Saphanus piceus ganglbaueri* - with *Fagus sylvatica* and *Prunus avium*; *Cerambyx scopolii scopolii* - with *Quercus dalishampii* and *Prunus avium*; *Chlorophorus figuratus* - with *Prunus avium*; *Xylotrechus rusticus*

- with *Populus tremula* L. and *Salix caprea* L. ; *Trichoferus pallidus* - *Quercus dalishampii*; *Acanthocinus griseus* - *Pinus peuce*; *Mesosa curculionoides* - *Prunus avium*; *Mesosa nebulosa* - with *Betula pendula* Roth and *Quercus cerris*; *Saperda scalaris scalaris* - with *Prunus avium* and *Pyrus communis* L.

- A new for Bulgaria parasite-habitat relationship was found between *Billaea triangulifera* (Zetterstedt, 1844) (Diptera: Tachinidae) and *Prionus coriarius* (Linnaeus, 1758).

- For the first time in Bulgaria, trapping of woodchucks with funnel traps and an 8-component experimental mixture of pheromones of the French National Institute of Agronomic Research (INRAE) was carried out. A total of 213 specimens of 17 species and subspecies of polecats were collected, including three new to the fauna of Vitosha. The composition of the mixture attracts a large number of cerambicidal subfamilies and tribes, so it may find application for early detection and monitoring of invasive species.

#### 8. Critical comments and questions.

My only criticism relates to the lack of statistical treatment of the data, which would have greatly improved the quality of the work. With the available data, it is perfectly acceptable to use qualitative data evaluation methods. I recommend that this be straightforward in future publication of the dissertation results.

Questions:

1. Has a database been made of the bibliographic information thus summarized - source, type, distribution, etc. If yes, what is it and is it planned to publish it and make it freely available?
2. It is not clear how the routes and study sites were selected. Vitosha is an extremely accessible mountain, offering a variety of habitats and exposures, and in my opinion only 5 routes excluding interesting localities (e.g. above and between the village of Kladnitsa - Yarema locality - probably visited only sporadically).
3. Based on the better knowledge of the protected species *Morimus asper* and *Rosalia alpina* presented in the thesis, what recommendations and measures would the PhD student suggest for their better protection, habitat management and monitoring?

#### 9. Evaluation of the quality of scientific publications.

Five scientific publications are presented, all open access, independent and co-authored with prominent specialists in the group, all of high quality and containing most of the results in the thesis. I find this approach very appropriate and fruitful, as not only has Master Pavel Topalov proved that he can work both independently and in a team, but also to provide the results of his work in a format accessible to the scientific and general public.

#### 9. Personal contribution of the PhD student.

My assessment of the credibility of the material is positive, justified by the proven close ties with the best specialists in the group in Bulgaria, as well as the good theoretical preparation shown. There is no doubt that the work has a clear personal contribution and a proven mastery of a variety of methods of data collection, analysis and writing up of scientific work, which is the main task in the scientific and educational degree "Doctor".

#### CONCLUSIONS:

The criticisms I have of the dissertation cannot change the good impression it makes. It is undoubtedly the work of the doctoral student, not least because of the noted omissions. The work has a distinctly faunistic contribution, which I welcome, as faunistic science is often neglected and underestimated among entomologists in Bulgaria. At the same time, the group is important from a conservation and economic point of view and the entry of new and young specialists into it is imperative.

On the basis of the different research methods learned and applied by the PhD student, the correctly derived experiments, the made generalizations and conclusions, I consider that the presented dissertation meets the requirements of the Law on the Acquisition of Scientific Degrees and the Regulations on the Conditions and Procedure for the Acquisition of Scientific Degrees and for the Occupation of Academic Positions in the Bulgarian Academy of Sciences, which gives me the reason to evaluate it POSITIVE.

I take the liberty to propose to the esteemed Scientific Jury to vote positively and to award to Pavel Topalov the degree of Doctor of Education and Science in the field of higher education 6. Agricultural Sciences and Veterinary Medicine, professional field 6.5. Forestry, scientific specialty Forest Improvement, Forest Protection and Special Forest Uses.

Date: 07.06.2025