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S T A T E M E N T

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Regarding the competition for the academic position „Professor" in Professional Area 4.3. Biological Sciences, scientific speciality "Ecology and Ecosystem Protection", announced by IBER - BAS, State Gazette no. 63/01.08.2025

The competition has been announced for the "Community Ecology and Conservation Biology" Section of the "Ecosystem Studies, Ecological Risk and Conservation Biology" Department at the Institute of Biodiversity and Ecosystem Research - Bulgarian Academy of Sciences (IBER-BAS). The sole candidate for this position is Associate Professor Simeon Petrov Lukanov from the same department and section at the IBER-BAS. To date, the candidate has 11 years and 6 months of experience in the specialty at IBER-BAS. He has submitted all the required documents.

The documents submitted by Associate Professor Lukanov indicate that the procedure for disclosure and announcement was carried out in accordance with the requirements of the Act on the Development of the Academic Staff in the Republic of Bulgaria and its accompanying implementation regulations. Additionally, it complies with the Regulations on the Conditions and Procedures for Acquiring Scientific Degrees and for Holding Academic Positions at the Bulgarian Academy of Sciences, as well as the relevant regulations at the IBER–BAS.

Scientometric Indicators and the Significance of Research Results

Assoc. Prof. Dr. Lukanov is participating in this competition with 21 publications, all indexed in WoS/ Scopus. Most of his scientific work is co-authored. In 14 of these publications, which account for two-thirds of his total, Lukanov is listed as either the first or second author, demonstrating his leading role in scientific research. Assoc. Prof. Lukanov has two independent publications.

The reference confirming his fulfillment of the minimum national requirements under Article 2b of the Act on the Development of the Academic Staff in the Republic of Bulgaria for the scientific field 4 (Natural Sciences, Mathematics, and Informatics) and professional area 4.3 (Biological Sciences) indicates a point total that meets, and even exceeds, the required minimum for the established criteria. Therefore, the minimum national requirements for the position of professor are fulfilled as follows:

The indicator from group "A" is fulfilled (50 points).

The indicators from Group B provide the candidate with the necessary 100 points. This includes four articles indexed in WoS/Scopus, all of which are in the Q1 quartile. These articles are published in the specialized scientific journals *Molecules, PeerJ, Animals*, and *Diversity*. The journals have an impact factor (IF) ranging from 2.1 to 4.4, indicating their high quality.

According to indicators from group "Г" (Г 7), Assoc. Prof. Lukanov has presented publications for 266 points out of the required 200 (220 according to the requirements of the Bulgarian Academy of Sciences), distributed as follows: two articles with Q1, three with Q2, six with Q3, and three with Q4 quartile, as well as three articles in journals with SJR without IF. The articles are published in prestigious scientific journals *Ecological Frontiers, Biochemical Systematics and Ecology, Herpetozoa, Acta Herpetologica, Vertebrate Zoology, Acta Zoologica Bulgarica*.

According to the "D" indicator, the candidate has 328 points, out of the required 100 (120 according to the requirements of the Bulgarian Academy of Sciences). Out of a total of 164 citations, 142 citations are in journals indexed in WoS. The number of cited scientific works is 31. The high citation rate of scientific works in prestigious scientific journals such as *Environmental Reviews, Herpetological Journal, Journal of Experimental Zoology part B, Herpetological Conservation and Biology, Environmental Science and Pollution Research* further confirms the significance of his scientific research.

The indicators for group "E" are represented by a total of 389 points, exceeding the 150 points required by national standards. Assoc. Prof. Lukanov was the scientific supervisor of Blagovesta Dimitrova, a full-time doctoral student at IBER-BAS, who successfully defended her dissertation on June 12, 2025. According to the reference, Assoc. Prof. Lukanov has participated in 17 national scientific projects. He has also led four completed national scientific projects, funded by the Bulgarian National Science Fund - the Ministry of Education and

Science, the Bulgarian Academy of Sciences, and the Regional Inspection for Environment and Water in Burgas, as well as one international project under the COST program. This demonstrates his high project activity, strong communication skills, and effective leadership in scientific research. Furthermore, his proficiency in English and Spanish enhances his ability to lead projects and collaborate with international teams. The materials submitted for consideration also indicate specific financial resources that the candidate has successfully attracted to his organization through his leadership of these projects. All the mentioned projects fall within the scope of the competition.

Main Research Areas and Key Scientific Contributions

Associate Professor Dr. S. Lukanov has a well-defined profile in scientific research. His main areas of interest include population ecology, toxicology, biochemical ecology, faunistics, and the biogeography of amphibians and reptiles. Every study conducted in these fields utilizes modern and carefully selected analytical methods, including toxicological, hydro-ecological, and molecular-genetic techniques. This approach has enabled the acquisition of new and significant results concerning the amphibian and reptile species studied. Some of his most important contributions in these areas include the following:

Population ecology. Research on the influence of the environment, seasonality, and body condition on the population parameters of the Buresch's crested newt (*Triturus ivanbureschi*) demonstrates that the most pronounced effect on the activity of newts is temperature. At the same time, the authors found that newts of both sexes are active in the water throughout the winter period, even when the lake surface is frozen. It is assumed that winter activity may carry energy costs, but later in the season. It is interesting to continue research in this direction to delve deeper into their behavioral ecology.

Given that there is almost no data on the diet of the great crested newt (*Triturus cristatus*) for its southernmost populations, the analysis of its food spectrum in the aquatic phase and the comparison with the available prey in three reservoirs in the Balkan Mountains, Northwestern Bulgaria, reveal new facts about the diet, feeding frequency, and diversity.

Faunistics and biogeography. Using modern molecular-genetic methods, a comprehensive assessment of the speciation of the yellow-bellied bomb *(Bombina variegate)*, including a revision of its nomenclatural history and the scientific names of the phylogeographic lineages, has been carried out. A revision of the distribution of the great

crested newt, grass snakes (genus Natrix), the Erhard's wall lizard (*Podarcis erhardii*) in Bulgaria has also been carried out, as well as protected amphibian species in arable lands and protected reptile species in the Kresna Gorge. The findings reveal that the distribution of *T. cristatus* in Bulgaria is wider than previously thought, and it covers almost the entire northwestern part of the country. It is confirmed that the grass snake species are most abundant at lower altitudes. Furthermore, an isolated population of the *P. erhardii* has been discovered more than 100 km east of its previously established range. The authors suggest that this occurrence is likely due to human intervention rather than a natural expansion of the species' range, supporting their argument with findings from genetic studies. Similarly, the authors identify three areas of importance for four key species of conservation importance in the Kresna Gorge: *Testudo graeca*, *T. hermanni*, *Elaphe quatuorlineata*, and *Zamenis situla*, confirming its importance as a region with high species diversity. The research conducted has not only fundamental but also applied relevance for conservation biology.

Ecotoxicology. The applied nature of the candidate's research is particularly evident in the studies conducted in ecotoxicology. Toxicological studies indicate that ammonium nitrate adversely impacts the survival, growth, and movement of Agile frog tadpoles (*Rana dalmatina*). A similar effect is also observed in the Common toad (*Bufo bufo*), although to a lesser extent. Since the excessive use of fertilizers can lead to the accumulation of harmful chemicals in water bodies near agricultural fields, these findings are significant for the conservation of protected species as well as for preserving biological diversity and balance in nature.

Systematics and methodology. Among the most interesting and significant studies by Assoc. Prof. Lukanov is examining the mating calls of *Hyla arborea* and *Hyla orientalis* in Bulgaria. His analysis of the coloration in various populations of these species across the country did not reveal any significant differences. However, notable differences were identified in their bioacoustic characteristics. This observation leads Assoc. Prof. Lukanov to propose that the populations studied actually represent two well-defined groups corresponding to the known distribution areas of *H. arborea* and *H. orientalis*. The value of this study lies not only in distinguishing between the species but also in providing a foundational point for future research on the evolutionary development of signaling in these frogs.

Some studies in this area have methodological contributions. Research shows that the most effective method for automatically identifying vipers is by using frontal images of their heads. Additionally, the effectiveness of a non-invasive method for individual recognition

based on the shape of the lateral stripe in the Common Tree Frog (*Hyla arborea*) has been demonstrated.

Biochemical ecology. The analysis of skin secretions in vipers and other snakes has been conducted using gas chromatography/mass spectrometry. This research has clarified the role of identified compounds in skin water permeability and chemical communication.

Profile of the Candidate's Research Work and Personal Impressions

Associate Professor Simeon Lukanov has a clear scientific profile in ecology, supported by both his fundamental and applied research, as well as his project work and educational activities.

The extensive expertise of the candidate is further demonstrated by his active role as an anonymous reviewer for numerous prestigious journals, including *Journal of Herpetology, International Journal of Zoology and Animal Biology, Northwestern Journal of Zoology, Diversity, Toxins, and Ecotoxicology*. He is currently subject editor for Herpetology at the *Northwestern Journal of Zoology* and editor-in-chief of *Acta Zoologica Bulgarica*.

I know Associate Professor Lukanov personally, and in our professional interactions, he has always been respectful and principled. He is unafraid to express and defend his beliefs, actively seeks solutions to achieve his goals, and has a perfectionist mindset. These qualities undoubtedly contribute to his success and make him deserving of the academic position of "Professor."

CONCLUSION

The candidate for the announced competition, Assoc. Prof. Dr. Simeon Lukanov is a distinguished scientist with significant contributions in the fields of population ecology, ecotoxicology, phylogeography, and the taxonomy of amphibians and reptiles. He not only meets but exceeds the requirements of the Act on the Development of the Academic Staff in the Republic of Bulgaria, as well as the criteria established by the Institute of Biodiversity and Ecosystem Research at the Bulgarian Academy of Sciences for the academic position of "Professor." The candidate's scientific profile aligns perfectly with the thematic profile for which the competition has been announced. Based on my evaluation of the scientific papers presented by the candidate, as well as the significant scientific and applied contributions they

contain, I fully believe in giving my high positive assessment and recommend to the members of the esteemed Scientific Council of IBER-BAS to vote positively for the election of Assoc. Prof. Dr. Simeon Lukanov to the academic position of “Professor” in the professional area 4.3. Biological Sciences, speciality “Ecology and Ecosystem Protection”.

Sofia, 18.11.2025

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