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REVIEW

regarding the competition for the academic position of "Associate Professor" in the professional field "4.3. Biological Sciences," scientific specialty "Ecology and Ecosystem Conservation," for the needs of the "Community Ecology and Conservation Biology" Section within the "Ecosystem Research, Ecological Risk, and Conservation Biology" Department at the IBER-BAS

by Prof. Zlatozar Boev, D.Sc., Ph.D., from the "Vertebrates" Department at the National Museum of Natural History, Bulgarian Academy of Sciences (BAS)

Within the legally stipulated deadline for the competition, only one candidate submitted a complete set of valid documents: Chief Assistant Professor Dr. Emilia Dimitrova Vacheva, from the "Ecosystem Research, Ecological Risk, and Conservation Ecology" Department at the Institute of Biodiversity and Ecosystem Research (IBER) of the Bulgarian Academy of Sciences (BAS). This review has been prepared in accordance with the criteria established by the IBER.

1. General information regarding the candidate's career and thematic development

Chief Assistant Professor Dr. Emilia Dimitrova Vacheva was born in 1989 in the town of Montana. Her entire professional career to date (approximately 13 years) has been spent within the Bulgarian Academy of Sciences (BAS)—specifically at the National Museum of Natural History (NMNH) and the Institute of Biodiversity and Ecosystem Research. Between 2016 and 2019, she was a full-time PhD student at the National Museum of Natural History (BAS). Her dissertation was titled: "Relationships among representatives of three lizard families – Anguidae, Lacertidae, and

Scincidae (Reptilia: Squamata: Sauria) – regarding their spatial and trophic niches in Western Bulgaria."

I have known her for 11 years, during which time I have come to recognize her as an enthusiastic, talented, and competent young zoologist with a strong, distinct interest in the study of reptiles—specifically lizards. In 2021, as a member of the scientific jury for her PhD defense, I had the opportunity to gain direct insight into some of her compelling research. It became clear that my initial, highly positive impressions were entirely well-founded. She possesses an excellent command of English and strong computer literacy (MS Office, MS Access, ArcGIS, Statistica, PAST).

2. Main Areas of the Candidate's Research and Key Scientific Contributions

The candidate has categorized their scientific contributions into four areas: (1) ecology and faunistics, (2) genetic research, (3) karyological research, and (4) chemical communication. In my view, separating genetic research from karyological research is unnecessary, as karyological studies are a subset of genetic research, falling under cytogenetic methods for analyzing chromosome number and structure. Karyological research is a specific type of cytogenetic study focused on the karyotype—that is, the number and morphology of chromosomes. Upon reviewing the subject matter of the publications, however, distinguishing between ecology and faunistics appears much more justified, as each of these two areas is represented by a sufficient number of works. Among her "most important" scientific contributions are: studies on reproduction (Balkan green lizard); the role of chemical communication during courtship (horned viper); trophic niches (meadow, Balkan wall, common wall, European green lizards, European copper skink); the identification of specific areas in the country as important for reptile conservation (Kresna Gorge); the discovery of new, isolated localities for reptile species of conservation significance (Erhard's wall lizard); research on seasonal activity, dietary spectrum, age composition, and population sex structure (northern crested newt, sand lizard); the isolation of a pathogenic strain of *Pseudomonas aeruginosa* (common wall lizard); the determination of chromosomal variability (slow worms); studies on thermo-ecological behavior (European green, Balkan green, and sand lizards); winter activity (snake-eyed lizard); comprehensive national distribution (northern crested newt, grass

snake, and dice snake); the status and distribution of invasive species (red-eared pond slider); nocturnal activity (European green lizard); somatometry (European green lizard); etc.

3. Significance of the Results Obtained

Chief Assistant Professor Dr. E. Vacheva is the author of a total of 42 scientific publications; however, she is participating in the current competition with 31 of these (excluding three publications related to her dissertation, 2019). All of these are published in specialized scientific journals. A total of 18 of the publications submitted for the competition appeared in journals with an "Impact Factor." Three of these works were published in first-quartile (Q1) journals. Twenty-four works have been cited in journals with an Impact Factor, and 10 in journals with an SJR ranking, accounting for a total of 83 citations. All of these works are written in English. In addition to Bulgaria, E. Vacheva's work has been published in eight other countries: Germany, Italy, the United Kingdom, Romania, the USA, Turkey, Montenegro, and Switzerland. This further demonstrates that the candidate is an internationally accepted and recognized researcher within the global scientific herpetological/batrachological community. This is also confirmed by the provided list of citations, which attests to the utilization of her scientific contributions.

4. Significant Scientific and Applied Achievements

The contributions mentioned above encompass both fundamental and practical/applied aspects. This is because the numerous fundamental contributions—covering morphology, ethology, ecology, and faunistics—can be utilized in a wide variety of practical conservation activities, such as reintroduction, breeding, captive rearing, species identification, and the selection of suitable habitats, among others. In short, "significant scientific and applied achievements" are present in the majority of the submitted works. These publications reveal new, previously unstudied, and important facets of the biology, ecology, and distribution of our reptiles and amphibians—insights that are essential for their conservation. This alone is sufficient to substantiate the scientific and applied value of the work.

5. Demonstrated Skills or Aptitude for Leading Scientific Research

In nearly one-third of the works submitted for the competition (9 out of a total of 31), E. Vacheva is the lead ("first") author. The candidate has no sole-authored publications among those submitted. Of her total publications, 23 are co-authored with Prof. Borislav Naumov; 12 with Prof. Simeon Lukanov and Assoc. Prof. Miroslav Slavchev; 6 with with Prof. Georgi Popgeorgiev; and 5 with Dr. Yuriy Kornilev, etc. Formally speaking, this may serve as evidence of her ability to work within teams, but it could also indicate a (somewhat) limited level of personal initiative.
Between 2018 and 2025, E. Vacheva served as a co-investigator on ten research projects focused on the distribution and conservation of amphibians and reptiles in Bulgaria. As a Chief Assistant Professor, Vacheva is an active participant in specialized scientific conferences, having presented her findings at 24 such events, both domestic and abroad.

6. Profile of Research Work

The candidate's research profile is clearly defined by the subject matter of her scientific publications, as well as the scope of the journals in which she publishes and is cited. Her primary field is undoubtedly herpetology, with a focus on its applied aspects—specifically the conservation of reptiles (and amphibians). Of the 31 scientific works submitted, 18 focus on Bulgarian representatives of the order Sauria (lizards)—a group for which the candidate is one of the leading specialists in the country. Key areas of study include biology, ecology, reproduction, distribution, venoms, microbiology, sexual dimorphism, and more. All of these fall squarely (albeit sometimes indirectly) within the professional field of "4.3. Biological Sciences," specifically under the specialization "Ecology and Conservation of Ecosystems" (02.22.01).

7. Role of the candidate in the training of young researchers

In her capacity as a Chief Assistant Professor to date, Dr. Vacheva has not held the authority to serve as a scientific supervisor for doctoral students.

8. Remarks
(not listed in order of importance)

- "Herpetology Notes" (inconsistent capitalization in the text)
- Some PDF files of the submitted works do not open – Nos. 1, 4, 22–24.

9. Conclusion

Based on the provided summary (which I accept in its entirety), it is evident that for all four key scientometric indicators, E. Vacheva's values are 2 to 6 times higher, convincingly exceeding the required minimums. The candidate's total score (660 points)—against a required minimum of 400 points as per the IBEI Regulations for the Application of the Act for the Development of the Academic Staff (ZRAS)—represents an excess of 40%.

The H-index of Chief Assistant Professor Dr. E. Vacheva, according to ResearchGate, is 8; this is close to 10—a value often considered a threshold for a recognized, accomplished specialist in a specific field.

Based on the highlighted scientific, applied-scientific, and teaching contributions, I believe that Chief Assistant Professor Dr. Emilia Dimitrova Vacheva fully meets the established criteria for the academic position of "Associate Professor" in the professional field "4.3. Biological Sciences," scientific specialty "Ecology and Ecosystem Conservation" (02.22.01), as set forth in the Regulations for the Application of the Act for the Development of the Academic Staff (ADAS). Consequently, she is qualified to hold this position at the Institute of Biodiversity and Ecosystem Research of the Bulgarian Academy of Sciences. Therefore, I confidently recommend that the members of the esteemed Scientific Council of IBER-BAS vote in favor of the candidate's appointment to this academic position.

Sofia, October 15, 2026

REVIEWER:

(Zlatozar Boev)