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OPINION

by Professor Boyko B. Georgiev, DSc, Institute of Biodiversity and Ecosystem Research – Bulgarian Academy of Sciences (IBER-BAS), on a competition for the academic position of "Associate Professor" in Area 4.3. Biological Sciences (Zoology of Invertebrates – Entomology) for the needs of the Faculty of Biology, Sofia University "St. Kliment Ohridski", announced in the State Gazette, issue 5 of 17.01.2025, with candidate Chief Assistant Dr Ilia Vladimirov Gjonov

Dr Ilia Gjonov is the only candidate participating in the competition for Associate Professor in "Biological Sciences (Zoology of Invertebrates – Entomology)" for the needs of the Faculty of Biology of the Sofia University.

Dr Gjonov graduated with a master's degree in Biology and Chemistry in 2001 at Sofia University "St. Kliment Ohridski" with a very good overall grade and an excellent grade in the defence of his thesis. From 2002 to 2016, he worked as a manager of a small business enterprise, which, in my opinion, contributed to the development of his corporate skills. From 2013 to 2016, he was a doctoral student in the Entomology Doctoral Programme at Sofia University, conducting research on the fauna of fulgoromorph cicadas, a topic that has been the main his research area in the following years. In this area, he is currently one of the recognized European specialists. In 2016-2017, he was a research biologist in the Department of Zoology and Anthropology of the Faculty of Biology, and from 2017 to the present, he is a chief assistant professor in the same department.

Dr Gjonov is well integrated into both the research and teaching process of the Department of Zoology and Anthropology. He teaches the lecture courses *Zoology of Invertebrates* and *Biological Invasions* for the Bachelor's program "Biomanagement and Sustainable Development" and "Methods of Entomological Research" for the Master's program "Entomology". He leads practical classes in "Zoology of Invertebrates" and "Entomology" in various Bachelor's degree programs, "Biological Invasions" for the Bachelor's Program "Biomanagement and Sustainable Development", "Methods of Entomological Research" and "Large Practicum in Entomology" in the Master's Program "Entomology". He is also a lecturer in the teaching and research practices "Zoology of Invertebrates" in the Bachelor's programs and "Entomology" in the Master's program "Entomology". He has supervised eight diploma theses in the bachelor's and master's degrees. These data well illustrate his role and place in the teaching process.

A characteristic and very valuable feature of Dr. Gjonov's professional activity is the combination of his zoological and entomological erudition with remarkable digital knowledge and skills. This applies to both teaching and research aspects. I would say that in this respect he is a unique specialist for the zoological community within the country, with a significant role in raising the digital training of Bulgarian biologists-systematists.

Dr Gjonov applies in the competition for associate professor as the author of 42 scientific articles in journals, one chapter of a monograph and 3 popular-science publications. Of the scientific articles, 18 are in journals with an IF and SJR, and 7 are in journals with SJR only. Their thematic grouping in the application documents is logical and allows his research profile to be outlined.

Dr Gjonov has remarkable original scientific contributions, which are very well presented in the account presented by him. Here, I will mention some of the contributions that I find particularly important.

The candidate's habilitation work is entitled "Taxonomic, morphological, faunistic, biological and ecological studies of insects of the infraorder Cicadomorpha (Hemiptera, Auchenorrhyncha)". It primarily covers taxonomic and morphological studies. An important achievement is the description of the new species *Balcanocerus agapetomyrmices* Gjonov, 2024 (Hemiptera: Cicadellidae: Eurymelinae) based on materials from Strandzha Mts. A detailed morphological description of the males, females and nymphs includes microphotographs, SEM micrographs and illustrations of the genital apparatus. The studies allowed for a convincing differential diagnosis and the elaboration of an identification key to the European representatives of the genus *Balcanocerus*.

A fossil find of the genus *Aphrophora* from Bulgaria (Western Rhodopes, Satovcha) is described for the first time. The studied material from the Middle Miocene deposits represents the first recorded evidence of a fossil of Auchenorrhyncha in Bulgaria. An illustration of the forewing of the new find is presented, as well as a review of the known fossils of this genus.

Faunistic studies on the group present new data on the distribution of cicadomorphs and their associated specialized parasitoids of the family Dryinidae (Hymenoptera). New taxa for the fauna of Bulgaria have been identified – 4 genera and 12 species. An introduced species of Asian origin – *Orientus ishidae* (Matsumura, 1902) (Hemiptera, Cicadellidae) has been identified for the first time. One genus of singing cicada (*Tettigettula*) and three species (*Cicadetta brevipennis* sensu lato, *Cicadetta cantilatrix* and *Tettigettula pygmea*) have been reported as new to Bulgaria. Because of a long-term study of the specialized cicada parasitoids of the family Dryinidae, two genera – *Echthrodelphax* and *Neodryinus*, as well as 7 species have been recorded for the first time in Bulgaria. Of particular interest is the North American species *Neodryinus typhlocybae* (Ashmead, 1893), which was introduced to Bulgaria. A taxonomic list of the representatives of the Dryinidae known from Bulgaria has been prepared, which contains 32 species.

Because of two other long-term studies, all 17 species from two families of the superfamily Cercopoidea and 16 species of singing cicadas (family Cicadidae) have been mapped. A distribution map has been prepared for each species of these taxonomic groups. The materials of the superfamily Cercopoidea, stored in the Zoological Collection of Sofia University (BFUS), were collected from 888 localities during the period 1997–2022. The collection includes 8722 specimens, grouped into 6670 collection objects and digitized in the Specify platform. Regional synonyms and identifiers from eight taxonomic infrastructures have been noted for each species: GBIF, BOLD, OpenBiodiv, BHL, CoL, Plazi, EOL and TaxonWorks, as well as data from the literature and new data on their distribution. An analysis of the altitudinal and spatial distribution of the species has been made.

In the field of cicada biology and ecology, an additional food plant of the known polyphagous species *Orientus ishidae* (Hemiptera, Cicadellidae) – *Celtis australis* has been identified. The clarification of the full food spectrum of this invasive introduced species is important for possible plant protection measures. For the described new species *Balcanocerus agapetomyrmices*, the food plant – *Pyrus amygdaliformis* Villars, 1807 (Rosaceae) has been identified and a review of the food plants of all species of the genus *Balcanocerus* has been made. The trophobiont relationships of the new species with ants have been described, and observations have been made on the behaviour of cicadas and ants. The phenology and altitudinal distribution of species from the superfamily Cercopoidea have been documented based on the large amount of data for Bulgaria. A new food plant – *Asphodeline lutea* (L.)

Rchb. (Asparagales, Asphodelaceae) for the previously considered monophagous species *Philaenus signatus* Melichar, 1896.

The hosts of the parasitoids *Gonatopus formicarius* and *G. horvathi* (Chrysidoidea, Dryinidae) were confirmed to be cicadas belonging to *Psammotettix* sp. and *Balclutha punctata*, respectively. Other species of the family Dryinidae that parasitize cicadamorphs were also identified. Another study focused on the trophobiont relationships between cicadas (Hemiptera: Cicadellidae) and ants. It established for the first time that ants were caring for *Hephatus freyi* and *Selenocephalus obsoletus*, and for *Hephathus nanus* and *Balcanocerus balcanicus*, the data on trophobiont were confirmed. A historical review of the literature on trophobiont in cicadas was conducted, with the data for *Hephathus nanus* being the first in more than 100 years. A proposal was made for a classification of the behavioural responses of trophobiont cicadas.

Data from bioacoustic studies of singing cicadas from Bulgaria have been published, which is largely based on bioacoustic data. Oscillograms of all 16 species of singing cicadas are presented, and the acoustic signal of each of them is described in detail. An acoustic method for identifying the singing cicada *Cicada orni* (Hemiptera, Cicadidae) was also used in the study of cicadas that damage forest shelterbelts in Dobrudja cicadas. The study reveals new opportunities for monitoring pests in shelterbelts.

Considering the high scientific results achieved as well as my personal impressions, I consider Dr Gjonov to be an excellently prepared, active and capable scientist. His scientific contributions are significant and well known to the scientific community. I believe that he has reached the necessary qualifications to occupy the academic position of "Associate Professor". Based on the above, I strongly support the election of Senior Assistant Professor Dr. Iliya Vladimirov Gjonov as associate professor in Direction 4.3. "Biological Sciences" (Zoology of Invertebrates – Entomology) for the needs of the Faculty of Biology of the Sofia University "St. Kl. Ohridski".

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