

Review
of research and teaching activities
of Assoc. prof. Eliza Petrova Uzunova, PhD
participant in a competition for the academic position “professor”
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appointed by an Order of the Rector of Sofia University "St. Kliment Ohridski" № RD-38-611/15.11.2022 as a member of the Scientific jury for conducting a competition for the academic position “professor” in the field of high education 4. Natural sciences, Mathematics and informatics, professional line 4.3. Biological sciences (Hydrobiology – Ichthyology and aquacultures) according to the Classifier of the fields of higher education and professional directions according to the Decree 125/24.07.2002. The competition is announced by the Department „General and applied hydrobiology“ at the Faculty of Biology of Sofia University “St. Kliment Ohridski”, declared in State Gazette №82/14.10.2022 and published on the official BF website within the required timeframe. The only candidate in the competition is Assoc. prof. Eliza Petrova Uzunova, PhD, lecturer at the same faculty.

The present review was prepared on the basis of decision of the meeting of the scientific jury conducted on 19.12.2022.

The documentation submitted by the applicant meets the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria (hereafter abbreviated as LDASRB, with its changes from 25.02. 2020 г.), the Regulations for its implementation (hereafter abbreviated as RILDASRB, State Gazette from 19.02.2019 г.) and of the Regulations on the terms and conditions for obtaining scientific degrees and holding academic positions of Sofia University “St. Kliment Ohridski”. Technically, the documentation is neatly arranged and arranged exactly in accordance with the description in the Application for participation in the competition.

Eliza Uzunova (born on March 1, 1967) graduated from Sofia University "Kliment Ohridski" in 1994 with a master's degree in Fisheries and ichthyology. In 1994, after successful defence of her PhD Thesis “Effect of heat shock on ploidy, survival and sexual maturation of *Salvelinus fontinalis*” with a code “Hydrobiology”. During her professional development at the Faculty of Biology of Sofia University E. Uzunova passed through all positions of Assistant (from 1996 till 2000), Senior assistant (from 2000 till 2004), Main Assistant (from 2004 till 2012) and Associated

professor (since 2012 till nowadays). The total experience-period in the specialty until the submission of the documents for the competition is since 13.05.1996 till nowadays (according to the presented official reference - Certificate 300/23.11.2022 from "Human Resources" of Sofia University).

Assoc. Prof. E. Uzunova participated in the current competition with 27 scientific works of various volumes and nature, correctly reflected in the attached documents. All submitted materials clearly prove that her research activity is in the field of the announced competition. Sorted according to the submitted documents containing a List of publications for participation in this competition, the works are distributed by indicators as follows: 1) *Indicator A. PhD Thesis* – 1 issue (50 points); 2) *Indicator V3. Habilitation work-monograph* - 1 issue (published by the University Publishing House), 149 pp. (100 points); 3) *Indicator G5. Published monograph, which has not been represented as a habilitation work* – 1 issue (published by the University Publishing House), 339 pp. (100 points); 4) *Indicator G7. Scientific publications that are referenced and indexed in a world-famous database with scientific information (WEB of Science, Scopus) except those represented for habilitation* – 13 issues, out of which 5 are with Q2 (5x20=100 points), 5 are with Q3 (5x15=75 points) and 3 are with Q4 (3x12=36 punct), *i.e.*, totally 211 points; 5) *Indicator G8. Published chapter of a book*– 7 issues, out of which 3 are reviewed (7x15=105 points); 5) *Indicator E15. Published university handbook* - 1 issue (published by the University Publishing House), 111 pp. (100 points). All these scientific works according to the submitted documents, bring the candidate 503 points.

The documents also indicate "*Publications with more than 30 co-authors*" - 3 issues, all with Q1, which are not reflected in the lists with the Criteria under the RI LDASRB. For these three articles, no evidence of the author's contribution was presented, on which the Scientific Jury should take a written position in the reviews and opinions according to the RI LDASRB. Therefore, they are not considered in the review and are not commented on in view of the author's contributions.

These papers (with the exception of works G8.1 and G8.2, published in 2011, but not included in the two competitions mentioned), were published after the award of the doctoral degree and after taking the academic position of "associate professor", for which 45 other scientific works were presented. Thus, the 27 works submitted for the competition, make up 38% of all her scientific production. Of all the works submitted for the competition, 16 (*i.e.*, 59%) are in English and 11 (*i.e.*, 41%) are in Bulgarian. Assoc. Prof. Uzunova is a leading, first author in 16 (*i.e.*, 59%) of

these publications. I would like to emphasize that with the large teaching and administrative workload of Prof. Uzunova, this scientific activity deserves a positive assessment. The fact that she participated in the current competition not only with scientific articles, but also with two monographs and a university textbook (a manual with a volume of 111 pages) is also important.

In view of the period of publication of the works for the competition, it can be argued that the average annual publication activity is 2 publications per year, but in fact the rhythm of publication is very different and the number of publications is greatest in the last 4 years, when they were issued and the two monographs and the textbook. Distributed by number and year, the scientific works are as follows: 2003 – 1, 2011 – 2, 2017 – 5, 2019 – 2, 2020 – 7, 2021 – 6, 2022 – 4 and 2023 – 1.

The candidate in the competition also has an identification number in the prestigious World Orcid Base <https://orcid.org/0000-0003-4130-3211>, related to Scopus and WOS.

According to the Reference for the citations of the works of the candidate in the competition, they are 162. In this regard, I would like to point out that:

- 1) Citation 151 is described incompletely, with no edition details (name, volume, pages), although a link is provided, and according to that link the full citation is from a monograph: Lenhardt, M. *et al.* (2012). Fish Stock Management Cooperation in the Lower Danube Region: A Case Study of Sturgeons and Pontic Shad. In: Lagutov, V. (eds) Environmental Security in Watersheds: The Sea of Azov. NATO Science for Peace and Security Series C: Environmental Security. Springer, Dordrecht. https://doi.org/10.1007/978-94-007-2460-0_7;
- 2) Citations 146, 155 and 156 are also in monographs and no Scopus/WOS link is indicated for them in the reference documents, but all the cited monographs published by Springer (citation 151, as well as citations 146, 155 and 156) are reflected in Scopus;
- 3) Citation 107 (Traykov I. & Vladimirova M. 2015) is a self-citation of the article by Traykov I., A. Tosheva & E. Uzunova 2010 and should be excluded from reporting
- 4) Citations NN 88, 89, 92, 93, 97, 99, 101, 137, 138, 139, 147, 150, 153, 158, 159, 161, 162 are not indicated with links as citations in indexed and refereed journals (Scopus/WOS), but they are in Restoration Ecology (Q1, Scopus – NN88, 99), Sustainability (MDPI, Q1-Q2, Scopus - N89), Conservation Genetic Resources (Q3, Scopus - N92), Biomimetics & Inspiration (Web of Science, Q2 – N93), Water (MDPI, Q2 - N97), Acta

Ichthyologica et Piscicologica (Q4/2017, WOS – 101), Acta Zoologica Bulgarica (Q4/2021, Scopus – NN137, 139), Environmental Pollution (Q1/2021, Scopus – NN138), Diversity (MDPI, Q1, Scopus – N147), Journal of Environmental Protection and Ecology (Q3/2017, Scopus – N150), Environmental Biology of Fishes (Q3/2011, Scopus - N153), Biological Invasions (Q1/2017, Scopus – N 158), The Science of Nature (Springer – WOS/Scopus – N159), Turkish Journal of Fisheries and Aquatic Sciences (Q3 – N160), Bulgarian Journal of Agricultural Sciences (Q3/2019, Scopus – N161), Aquatic Ecology (Q2/2021 – N162), and, therefore, they should be accepted as such and counted with 2 points in the table of criteria under RI LDASRB;

- 5) Citations with numbers 102, 126, 140, 141, 148, 149, 154 and 157 are in International Journal of Fisheries and Aquatic Sciences (IJFAS - NN 102, 126), Ecologia Balkanica (SJR only after 2016 - N140/2013), Riverwatch & EuroNatur (N 141), Journal of Applied Ichthyology (N 148), Environmental Science (N149), Annals for Istrian and Mediterranean Studies Seria Historia Naturalis (NN149, 154), Elixir Earth Sciences (listed in Ulrich's Periodicals Directory, Proquest, USA – N 157), not indexed in WOS/SCOPUS (for some, such as Ecologia Balkanica, this only applies to the specific years) and should be counted with 1 point in the table of criteria under RI LDASRB;
- 6) The three publications with more than 30 authors, not included in the reporting according to the criteria of RI LDASRB, carry 71 (i.e., 44%) of all 161 citations, and the works until 2013 before habilitation as an associate professor – 53 (33%) of all citations.

As a result of the above, the distribution of citations is as follows: Out of a total of 161 citations, 149 (i.e., 93%) are in journals indexed and referenced in WOS/SCOPUS, 4 are in monographs indexed and referenced in WOS/SCOPUS, and 8 are in other refereed journals. Therefore, I consider that the points for Indicator 11 should be changed from the indicated 324 to 314 ($153 \times 2 = 306$ for the citations reflected in WOS/SCOPUS and $8 \times 1 = 8$ for the other citations). Regardless of this minor correction, I venture to say that the found citations are evidence of the high quality of the scientific production and the recognizability of Assoc. Prof. E. Uzunova. This can be seen from his Google Scholar profilr, where her coefficient is $h=9$ (<https://scholar.google.bg/citations?user=moicOiAAAAAJ&hl=bg>).

As far as all submitted scientific papers have been reviewed, I would not like to repeat this process and therefore I will focus on the contributions of the only candidate in the competition.

The reference for them is made in principle in accordance with the results reflected in the presented works in the field of Hydrobiology/Ichthyology and aquaculture in four research topics: a) foreign and invasive fish species; b) approaches to restore river connectivity; c) rare and endangered species of fish; (d) aquaculture. According to the candidate's views, the contributions are structured by indicators and then grouped by nature (fundamental, applied and methodical). I fully accept the contributions on the merits, recognizing that there are other possibilities for structuring them. I accept the presented contributions in essence, excluding those for publications G0.14-16 and taking into account that there are other possibilities for their structuring. I fully accept the correctly reported and described connection and building character of Assoc. Prof. Uzunova's contributions with her works before habilitation as an associate professor. The upgrade was carried out by introducing new methods, applying a multidisciplinary approach and expanding the spectrum of researched species.

Due to the limited scope of the review, I will not repeat all the contributions presented, before that I would like to emphasize that most of the results obtained are original (including many are the result of own field research), complement and enrich existing knowledge, and very little some are of a confirmatory nature. In a general version, I will allow myself to indicate the main, more significant contributions of Assoc. prof. Uzunova:

1) A complete mapping was done with a study of the population structure of two species of gobies, *Cottus gobio* and *Cottus haemusi*, with a description of important taxonomic features and sociological indicators, as well as the proposal and implementation of relevant activities for the protection of the species, including ex situ methods breeding and reproduction (Contributions according to Indicator V3);

2) A serious and thorough study of species invasive to the country was prepared with proof of the invasive nature of *Neogobius melanostomus*, and also for the first time the populations of three species of allochthonous fish were established and studied, namely: whitefish (*Coregonus marenoides*), largemouth bass (*Micropterus salmoides*) and grayling (*Salvelinus fontinalis*). An overlap of the feeding niches of *Neogobius melanostomus* with five local fish species has been proven, which hides a potential danger for their development in the conditions of competition for resources in the areas of invasion with negative consequences for protected fish in Bulgaria. At the same time, recommendations were formulated to limit the spread of the largemouth bass

Micropterus salmoides, which were submitted to the authorized institution IARA in our country. (Indicator G, Publications G7.1, G7.3, G7.4, G5, G7.6, G7.11 and G8.1);

3) An identifier of 46 invasive fish species in Bulgaria has been published, which is essential not only for ichthyologists because of the original data it contains, but is also of interest to a wide range of hobbyists and conservationists (Indicator G, publication G8.7);

4) In connection with the approaches to restoring the river connectivity, methodologies have been developed to assess and mitigate the negative effects of hydroelectric power plants, and a practical guide has been created for this purpose (Indicator G, publications G8.3-5). An analysis of a specific facility along the fish migration route through the Iskar River was developed with a view to improving its functionality (Indicator G, publication G7.2);

5) Regarding rare and threatened ichthyological species, important taxonomic and ecological data (including through a new non-lethal microinvasive approach to study the food spectrum) have been obtained for different species of endangered sturgeon from natural populations in the Danube River of the genera *Accipenser* and *Huso*, and also sturgeon populations in the Livingston Island area have been studied (Indicator G, Publications G7.7, G7.8 and G7.10);

6) In view of the development of the "Aquaculture" sector in Bulgaria, its first holistic analysis was made and the reasons for the low consumption and small production volumes of fish and fish products in the country were examined (Indicator G, publication G7.13);

7) As a result of both historical analysis of fish acclimatization attempts and personal long-term expert studies, a new methodology for the assessment of places for stocking with trout fish is proposed and a description of cultivation methods is made with the proposal of new approaches and ideas, including for reducing negative effects on the environment (Indicator G, publications G5.1, G8.1 and G8.2);

8) Among the methodical contributions is the published textbook for the students of SU and students of biological specialties from other universities for the application of mainly non-traumatic or low-traumatic methods of fish research along with the presentation of alternative research methods (Indicator E20).

I would like to emphasize the importance of work on the assessment of alien and invasive species with proposed actions to limit their spread. Along with the proposed optimizations for migrations, for breeding and breeding of protected species, they are of essential importance for

identifying and protecting both species of conservation importance and the general biodiversity of Bulgaria, as well as protected natural areas in the country.

The materials for the competition present a list of published in full text 8 reports on scientific conferences and of 38 participations in scientific forums (symposia, conferences and seminars): 34 international (with 23 reports and 11 posters) and 12 national (with 9 reports and 3 posters). Of these, 18 participations are after holding the academic position of "associate professor", of which 14 are international and 4 are national. All of the participations are in teams (in 19 of them, i.e., 50%, Eliza Uzunova is a leading author), which, as in scientific papers, confirms the skills and competencies of Assoc. prof. E. Uzunova for teamwork. The presentations of the scientific forums definitely complement the idea of the candidate's research achievements and her scientific activity.

The professional skills of Assoc. prof. E. Uzunova are confirmed by his work as an expert, researcher and academic mentor in 37 projects, out of which 19 projects after the habilitation as an associate professor. Of these 19 projects seven (37%) are international, six are national and six are funded by NSF-SU. The candidate is the leader of a total of 14 of the projects (6 after the habilitation as an associate professor), as certified in the presented Reference from the System of SU "The Authors". Therefore, the number of points in the presented table with the minimum criteria under RI LDASRB under Indicator E16 should be increased to 280 ($14 \times 20 = 280$) compared to the 200 points indicated in the documents. Regarding the other types of projects, there should also be an increase in the points under Indicator E: 1) Indicator E13 – from 150 to 160 points because the projects under it are 16, not 15 and 2) according to Indicator E15 from 120 to 140 points, because the projects under it are 7, not 6. The work on all these projects is correctly approved with contracts and certificates.

The overall image of Assoc. Prof. E. Uzunova as a candidate for the academic position of "professor" would be presented incompletely without an assessment of her teaching work and education of Diploma and PhD students. This extremely important activity is left especially for the end of the review, so that its great role in the professional life of the candidate can be outlined. In her resuming CV, she indicated reading lectures on hydrobiology, aquaculture and ichthyology and conducting practical classes at educational practices in hydrobiology and aquaculture. In addition, from years 1998 to 2012 inclusive, Associate Professor Uzunova was the supervisor of 11 diploma theses, and since 2013 – of 9. She supervised one PhD student who was awarded the right to defend and two successfully defended PhD students (2020, 2023), the first - Dmitry Dashinov worked only

under her supervision, and the second - the recently defended Borislava Margaritova - was supervised together with Prof. Lubomir Kenderov. As a result, the number of points in the table with the minimum criteria under RI LDASRB should be increased from 50 to 75 under Indicator E13.

Also important is the great administrative and organizational activity of Assoc. Prof. Uzunova as a member of the Editorial Board of the prestigious journal Acta Zoologica Bulgarica (WOS/Scopus), as a member of the Study Commission of the Faculty of Biology (2014-2019), a member of the working group for the Ordinance on Fish Passages (2015-2019), a member of the working group for amendment and addendum to the Ordinance on veterinary medical requirements for animal breeding facilities (2019-2020), member of the Monitoring Committee of the Maritime Affairs and Fisheries Program (since 2021), member of the National Council for Biological Diversity at the MoEW (since 2022 till now). I highly appreciate this time-consuming part of the diverse activities of the candidate for the academic position of "professor".

I have many years of personal impressions of Assoc. prof. Dr. E. Uzunova, since she started working as a colleague at BF of Sofia University since 1996 and I can say that he is a responsible researcher and colleague.

As a result of all the above, it can be argued that according to the scientometric indicators for minimum requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria and the Regulations for its implementation **the candidate's points are a total of 1502 instead of the indicated 1327** as a result of minimal changes only in indicators D and E:

Group of indeces	Index	Number	Points
A	1. Dissertation work for awarding the PhD degree	1	50
B	3. Monography	1	100
G	5. Published monograph, which has not been represented as a habilitation work	1	30
	7. Scientific publications that are referenced and indexed in a world-famous database with scientific information	13	211
	8. Published chapter of a collective monograph	7	105
	Total for indicator G:	21	346
D	11. Citations or reviews in scientific journals and monographies, referenced and indexed in world-famous databases with scientific information (Web of Science и Scopus) – 2	153	306
		8	8

	1 in other publications		
	Total for indicator D:	161	314
E	13. Supervising of a successfully defended PhD student (n is the number of co-supervisors of the relevant student)	1(1) + 1(2)	50+25
	14. Participation in a national scientific or educational project (10 points each)	16	160
	15. Participation in an international scientific or educational project (20 points each)	7	140
	16. Leading of a national scientific or educational project (20 points each)	14	280
	18. Attracted funds for projects managed by the applicant (1 point for each BGN 5,000)		30
	20. Published University textbook.... (20/n, where n – number of co-authors)	1 (3)	7
	Total for Indicator E:		692
	Total for Indicators A, B, G, D and E:		1502

Based on the submitted competition materials and my excellent personal impressions, I believe that the teaching experience, qualities and skills and research achievements of Assoc. prof. Dr. Eliza Petrova Uzunova are sufficient grounds for his election to the academic position of "professor" in higher education line 4 Natural sciences, mathematics and informatics, professional field 4.3. Biological Sciences (Hydrobiology – Ichthyology and aquacultures) in the Department „General and applied hydrobiology“ at the Faculty of Biology of Sofia University “St. Kliment Ohridski”. Therefore, having in mind that all scientometric indicators and submitted documents are in accordance with the Law on the Development of the Academic Staff in the Republic of Bulgaria and the Regulations for its implementation, as well as with the Regulations of Sofia University "St. Kliment Ohridski ” I allow myself to give a positive assessment of the presented materials and to recommend to the respected members of the Scientific Jury to support this choice.

6.02.2023, Sofia

Signature:

/Prof. M. P.Stoyneva, DrSc, PhD/