

## REVIEW

Under a **competition for the academic position of 'professor'** announced in the State Gazette, issue no. 88/ 13.10.2020 within the professional direction 4.3 Biological Sciences (Ecology and Ecosystem Protection - Phytoecology), for the Faculty of Biology, Sofia University "St. Kl. Ohridski "

Prepared by Prof. Dr. Iva Apostolova, Department of Plant and Fungal Diversity and Resources, Institute of Biodiversity and Ecosystem Research at the Bulgarian Academy of Sciences, included in the Scientific Jury by order № ПД 38-569/03.12.2020 of the Rector of Sofia University "St. Kliment Ohridski "

### 1. General description of the received materials

Assoc. Prof. Dr. Rosen Tsonev is the only candidate who submitted documents in the competition for a professor in the scientific field "Ecology and Ecosystem Protection". The submitted documents are in accordance with the requirements of the Academic Staff Development Act in Bulgaria and the Regulations for its implementation, as well as the Regulations of Sofia University. The set of materials presented by Assoc. Prof. Tsonev, which I received, is on electronic media only and is duly described in an Application to the Rector of Sofia University "Kl. Ohridski "from 11.11.2020.

The candidate takes part in this competition with a total of 50 scientific papers, of which 6 are for the indicator "B", 38 are for the indicator "Г", where 18 of them form this indicator scoring, 5 scientific papers are essentially book chapters and they are associated with indicator "Г8" and for the indicator "Г9" an author's textbook is pointed. Out of the presented studies, 26 are in journals with impact factor or impact rank, classified as follows: 6 are in Q1, 4 are in Q2, 10 are in Q3 and 6 are in Q4.

The H-index of Dr. Tsonev according to the Scopus database is 9 , and according to Google Scholar is 17.

In the review I do not comment the submitted articles related to ornithological and zoological research (G7.3 and G7.10) , as they are not strictly on the topic of the competition ( phytoecology ) . I believe that these publications may be dropped from the total number, which will reduce the points by 27, but the total number of points for this indicator will remain above the required.

A list of 27 scientific and educational projects is presented in which he has participated. For 22 projects Tsonev has received positive reference from the project managers.

There is a reference to meet the minimum national criteria for the academic position of "professor". The report shows that the candidate has covered the required minimum of points on all indicators.

## **2. Brief biographical data of the candidate a**

Rosen Tsonev graduated in the Faculty of Biology at Sofia University "Kl. Ohridski " in 1998. During the period from 1999 to 2002 he is a full-time doctoral student at the Department of Botany at Sofia University, and the topic of his doctoral dissertation is "Flora and vegetation in the Middle Danube Plain between the valleys of the rivers Vit and Studena." After the successful defense of his doctoral dissertation, Tsonev began working as an assistant in the Department of Ecology and Environmental Protection at the Faculty of Biology . During the period 2002-2006 he was a assistant in the same department, and from 2006 to 2011 he worked as a senior assistant. Since January 2011 , he takes the academic position "associate professor" and ever since works in the Department of Ecology and environmental protection of the Faculty of Biology.

Throughout the period of 18 years of service Tsonev has acquired teaching, scientific and professional experience necessary for the carrier development in the field of ecology and ecosystem protection.

## **3. General characteristics of the educational-pedagogical and scientific activity of the candidate**

### *3.1. Assessment of educational and pedagogical work*

The scientific career of Assoc. Prof. Rosen Tsonev has passed at the Faculty of Biology of Sofia University. He has lectured on the disciplines "Protected Areas and Conservation of Biological Diversity", "Biogeography", "Methods of Ecological Research", "Phytoecology", "Fundamentals of Ecology", "Biodiversity and Bioresources" at the Faculty of Biology, Faculty of Geology and Geography and at the Faculty of Chemistry and Pharmacy of Sofia University

He has lectured in four undergraduate and three graduate programs of Faculty of Biology, an undergraduate program of the Faculty of Chemistry and Pharmacy and a Masters program of Geology and Geography Faculty. Of these courses, 9 are compulsory and two are elective.

The study load, according to the attached reference is 282 hours of lectures and 89 hours of exercises. He has been a supervisor of 14 graduate students and 5 PhD students, one of which successfully defended.

In the pedagogical activity of Assoc. Tsonev stand the following achievements: (1) Prepared d a textbook on protected areas and conservation of biodiversity ; (2) Young specialists in the field of ecology have been trained ; (3) Training programs for 6 different disciplines have been developed and implemented in three faculties of Sofia University . From the above mentioned it can be concluded that Assoc. Prof. Tsonev has a significant contribution to the training and development of qualified personnel in the field of plant ecology.

### *3.2. Evaluation of the scientific activity*

The thematic directions Dr. Tsonev has worked on should be related to the study of vegetation diversity, modeling and mapping of natural habitats, assessment of the conservation significance of

species and natural habitats, as well as practical and applied activities related to nature protection. His scientific work is very diverse, ranging from studies related to classical syntaxonomy, through the floristics up to the studies related to environmental protection, including also zoology and in particular ornithology. An indisputable priority in the subject, however, is the syntaxonomic characteristics of the vegetation. Phytocenological research includes both revisions and analyzes of vegetation on a European scale, as well as studies on the vegetation of Bulgaria. This is the reason that his habilitation report is based on such publications. He is co-author in wide international teams who have analyzed different types of vegetation. A revision of the beech forests in Europe has been made; revision of all coastal psammophytic syntaxons in Europe; thermophilic oak forests in Bulgaria have been studied. To the larger vegetation studies I will add the complete syntaxonomic revision of the European marsh vegetation of the class *Phragmito-Magnocaricetea* and the complete revision and first formalized classification of floodplain forests and alder communities in Europe. Recent publications, although not a part of the habilitation reference, are a contribution to the knowledge of the vegetation at European scale. One accent in the studies of the candidate are serpentine areas of the Balkans and their specific flora and vegetation.

The diverse interests of Dr. Tsonev are illustrated by the inclusion of publications in the reference of this competition, which are not in the field of phytocenology and plant ecology. Such are the publications related to the avifauna in Bulgaria, ecological features of the snake lizard in some model populations and the establishment of new data for conservation-significant macromycetes. Since these publications are beyond the theme of phytoecology, I will not comment on them.

The publications are a natural product of the project workload of Dr. Tsonev. Out of a total of 28 projects presented in a list attached to the documents, 27 are national and one is international. He has presented results of the research activities at 29 scientific conferences.

I believe that an active attitude and participation in various scientific and applied research projects and in scientific forums evidence motivation and is an indicator of the professional commitment.

### *3.3. Reflection of scientific publications in the literature.*

I believe that the citation of scientific papers is an important criterion for assessing their quality and the large number of citations testifies to the high appreciation of the scientific community. The indicated number of citations is a sure sign of wide reflection of the results included in the scientific publications. The check I did in the Web of Science showed that as of January 28 Tsonev has 251 citations of his papers (without auto-citations) in indexed journals or with an impact factor, which is more than the ones he mentioned in Appendix 15.

## 4. Analysis of the scientific achievements and contributions of the candidate

### 4.1. Scientific fundamental contributions

As it was emphasized, the syntaxonomic revisions of different types of vegetation are the main scientific contribution, in the realization of which Dr. Tsonev participated. The analysis of data on beech forests in Europe has led to a proposal for two main alliances with sub-alliances formed on the basis of biogeographical differences (B4.1). A fundamental contribution is made by the analysis of coastal grasslands in Europe (B4.2, B4.3 ). A new alliance *Centaureo cuneifoliae-Verbascion pinnatifidi* from the North Aegean region is described (B4.3 ).

The first comprehensive syntaxonomic analysis of thermophilic oak forests in Bulgaria was made. The analysis includes 6 new associations and 3 new sub-associations for the science (B4.4). As a result of the long-term activity of Dr. Tsonev in the field of phytocenology, a number of other new syntaxa have been established both for science and for the territory of our country. Among them should be emphasized the importance of the new alliance *Genistion lydiae* (Г7.17), as well as new for our country class *Oryzetea sativae* , along with his order, alliance and association (Г7.15) and new alliances for Bulgaria *Archangelicion litoralis* (Г0.7), *Trachystemono orientalis-Carpinion betuli* (B4.4) and *Alyssion heldreichii* (B4.5) .

Two of the publications in which Assoc. Prof. Tsonev has contributed are related to studies in the field of theoretical ecology, such as studies of patterns between alpha diversity and climatic and biogeographical factors (Г7.7), as well as studies of patterns between general species richness and the productivity of selected dry grassland communities from 8 regions of Eurasia (Г7. 12 ). The obtained results have an important scientific contribution to the knowledge of the ecological regulations in nature.

The phytocenological studies are closely linked to floristics. As a result of his research, Tsonev has contributed to the establishment of 4 new species for the flora of Bulgaria (Г7.15, G0.11) , as well as to the collection and publication of new chorological data for 11 species of our flora (Г0.8, 9.10). The population of *Circaea alpin* was reestablished after 70 years (Г0.13).

### 4.2. Scientific applied contributions

In the past decade, Assoc. Tsonev worked very actively for environmental protection in the country. His developments are mainly related to natural habitats of the Natura 2000 network, as well as to the characteristic of natural habitats that require in-depth knowledge about plant communities. In summary I emphasize as applied contributions the habitats mapping of protected areas Ponor (G7.4) and Besaparski Hills (Г7.5) and the marble alpine part of National Park Pirin (Г0.4). The in-depth studies of the natural habitats are related to the identification of two new natural habitats (8150 Central European silicate screes of the foothills and 8160 \* Central European limestone screes of the hilly plains and foothills) on the territory of Bulgaria (Г0.14).

I find as very important for the purposes of environmental protection the published textbook for determination and effective management of grassland (Г8.3). It provides information for the

managers of meadows and pastures in the country related to the sustainable use of natural resources. The analysis of the implementation of the sub-measure "Pastoralism " of the Rural Development Program (D0.6) is also related to this topic . Similar publications are a necessary and important source of information for the purposes of agricultural practices. To this topic should be added the particularly topical issue related to ecosystem services. Dr Tsonev is in a co-author of the first study in our country assessment of the supporting ecosystem services provided by agricultural ecosystems (Г7.9). Data from whole country were analyzed and it was found that agroecosystems have a moderate to very high capacity to provide supporting ecosystem services.

A natural product of the candidate's work is the accumulation of phytocenological descriptions, which are the basis of his participation in the creation and maintenance of three international databases - WetVegEurope, the Balkan Vegetation Database and the European Database of Mediterranean and Sub-Mediterranean Pine Forests: CircumMed Pine Forest.

Protection and enhancement of natural values in our country are reflected in publications on selected Botanical important places (Г8.4) and data conservation status of natural habitat conservation and significance in Priroden park Strandja (Г8.2) .

One of the most significant contributions of Assoc. Prof. Tsonev is related to the development and publication for the first time of the European Red List of Habitats (Г0.20) . In it he participated in the development of the section on terrestrial and freshwater habitats. Assessment of the extent of insurance y Enos based on standardized criteria system will enable management decisions for the conservation and opportunities for restoration of natural habitats covered by Directive 92/43 in Bulgaria and other European countries.

## **5 . Assessment of the candidate's personal contribution a**

Bearing in mind the number of publications in which the candidate is seen to be the first author, his contribution to research is sufficiently remarkable. Dr. Tsonev is distinguished by active publishing and participation in national and international scientific forums, which makes him recognizable in the scientific community. This is also related to the contribution to the popularization of Bulgarian science and nature protection among a wide range of stakeholders. The graduates and doctoral students, to whom Tsonev was a consultant, expressed their gratitude for the care and assistance in their work, which also contributes to the positive assessment of the personal contribution to the work of the candidate.

## **6 . Critical remarks and recommendations**

In the presented materials I found some inaccuracies and technical errors:

- In the Report for the total number of points related to indicator B4, 110 points are recorded, while their sum is actually 130.

- Publications Г7.11 and Г7.16, which are in a journal with SJR but without IF ( Hacquetia ) should have 10 points, not 15. The same applies to Г1.15 and Г7.18, where 12 points are considered,

but in fact should be considered 10. With these adjustments, the total amount of the criterion will drop to 263.

- In the reference for scientific contributions there is a shift of cited numbers of publications, for example publication Г7.11 for the analysis of the relationship between species richness and productivity of 694 dry grass communities is incorrectly cited. The article that examines this pattern is Г7.12.

These technical inaccuracies do not substantially change the overall picture of the candidate's research and teaching activities.

### **7 . Personal impressions**

I know Assoc. Prof. Tsonev since many years and believe that he is an ambitious and productive specialist. I appreciate the opportunities that he grants to the students for training and development. I retain the impression that he exercised profound knowledge which affects his connectivity to the work of international groups. I think that it will be especially useful if in his future work Tsonev takes advantage more often of the opportunity to work in teams composed of Bulgarian phytocenologists.

### **CONCLUSION**

The information presented by Assoc. Prof. Dr. Rosen Tsonev for participation in this competition testifies to a university lecturer and researcher with a well-defined scientific profile, consistent in his research and overall career development. The reference for the fulfillment of the minimum national requirements under art. 2b of ZRASRB for scientific field 4. Natural sciences, mathematics and informatics, professional field 4.3. Biological sciences testify that his scores exceed the required points in all groups of indicators.

In accordance with the Implementation Rules of the Law for the Development of the Academic Staff in the Republic of Bulgaria, the Rules for the Terms and Conditions for Acquisition of Academic Degrees and Occupation of Academic Positions in Sofia University and the recommendations of the Faculty of Biology as well as in accordance of above mentioned opinions, I find it reasonable to give my **positive assessment** and support the election of Assoc. Prof. Dr. Rosen Tsonev to the academic position 'Professor' in professional direction 4.3. "Ecology and protection of ecosystems" in the competition announced by the Faculty of Biology of Sofia University "St. Kl. Ohridski".

01.02.2021

Reviewer:

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