

REVIEW

from Prof. Dr. Zdravko Hubenov – National Museum of Natural History, Bulgarian Academy of Sciences of the materials, presented for participation in a competition for the academic position of Professor in the field of higher education 4. Natural sciences, mathematics and informatics; professional direction 4.4. Earth sciences; scientific speciality **10804 – Biogeography and geography of the soils** for the needs of the Department of Landscape ecology and environmental protection at the Faculty of Geology and Geography of the Sofia University "St. Kliment Ohridski", published in the SG, issue 21, 13.03.2020

GENERAL PRESENTATION OF THE RECEIVED MATERIALS

By order № RD 38-177 of 30.04.2020 of the Rector of the Sofia University (SU) "St. Kl. Ohridski" I have been appointed a member of the scientific jury in a competition for the academic position of "professor" in the field of higher education 4. Natural sciences, mathematics and informatics, professional field 4.4. Earth Sciences (scientific speciality Biogeography and Geography of the Soils), announced for the needs of the Department of Landscape Ecology and Environmental Protection (LEEP) at the Faculty of Geology and Geography (GGF) of the Sofia University "St. Kl. Ohridski".

Assoc. Prof. Dr. Assen Ivanov Assenov from the Department of Landscape Ecology and Environmental Protection participates in the announced competition as a candidate.

The set of materials (on paper and electronically) presented by Assoc. Prof. Dr. Assen Assenov is in accordance with the Law on RASRB and the Regulations of the Sofia University "St. Kl. Ohridski" for application of the Law on RASRB. The set includes documents described in the application of the candidate (№ 1-16) to the Rector of the Sofia University (№ 57 from 08.07.2020) for admission to the announced competition for professor in the field 4.4. Earth sciences (scientific speciality Biogeography and soil geography). The documents are presented in 3 folders. They contain the necessary administrative documents for the competition; monograph, 12 referred scientific publications, 37 scientific publications in specialized unreviewed, reviewed and edited issues, 3 chapters from monographs and a textbook on "Biogeography and Natural Capital of Bulgaria". The documents for the competition have been prepared precisely and clearly reflect the activity of Assoc. Prof. A. Assenov.

BIOGRAPHICAL DATA

Assen Assenov graduated with a master's degree in Geography in 1985 at the Faculty of Geology and Geography at the Sofia University "St. Kl. Ohridski" (with the

qualification Geographer, Physical Geographer, Geomorphologist and Cartographer, teacher of geography with a second speciality in history). From 1986 to 2012 he was an assistant, senior assistant and chief assistant at the Department of Landscape Ecology and Environmental Protection (LEEP) of the GGF. In 2011, after defending his dissertation "Biodiversity of the Municipality of Satovcha" he acquired the educational and scientific degree "DOCTOR" in the professional field of Earth Sciences (Biogeography and Geography of Soils). Since 2012 he has been an associate professor at the Faculty of Philology at the Sofia University "St. Kl. Ohridski". He specialized at the Moscow State University - Moscow and the University of Saarbrücken - Germany. He has a qualification of a programmer. He is currently the head of the LEEP Department of GGF. He has an active editorial activity (member of 5 editorial boards) and participation in a number of scientific juries. He conducts lectures on General Biogeography, Biogeography of Bulgaria, Protected Natural Sites in Bulgaria, Environment and Natural Resources, Forest Resources Management in Bulgaria, Natural Geography of the Continents. For the last 10 years he has participated in 20 international and national scientific forums and has worked on 11 projects (international, national, NSF-SU and MES). He is an author of 98 scientific publications, monographs, textbooks and books.

The presented data show the qualification, teaching experience and research activity required for participation in the competition for a professor.

GENERAL CHARACTERISTICS OF THE ACTIVITY OF THE CANDIDATE

EDUCATIONAL AND PEDAGOGICAL ACTIVITY

THE TEACHING ACTIVITY of Assoc. Prof. Assen. Assenov (according to the presented information) includes developing and conducting lectures in 7 disciplines [1) Biogeography; 2) Natural geography of the continents; 3) Environment and natural resources; 4) Protected natural sites in Bulgaria; 5) Biogeography of Bulgaria; 6) Soil geography and general biogeography; 7) Management of the forest resources in Bulgaria] for students (bachelors and masters, full-time and part-time education) in the specialities: Geography; Geography and English; History and geography; Geography and biology; Regional development and policy. The study workload for the last 5 years is about 1100 hours per year, half of which are classroom. This classroom employment is above the normatively defined in the Sofia University "Kl. Ohridski".

TRAINING OF GRADUATED STUDENTS. Under the guidance of Assoc. Prof. Dr. Assen Assenov, for the period 2012-2019 seven students have successfully defended their diploma works which highly varied (faunal, landscape-ecological, conservation, landscape and habitat diversity, valuation of ecosystem services, etc.), original, interesting and rated with the highest marks.

TRAINING OF PHD STUDENTS. Under the guidance of Assoc. Prof. Assen Assenov, two PhD students have successfully defended [in the specialities Biogeography and Soil Geography (2017) and Thematic Geographic Mapping - Geographic Information Systems (2019)] and a third PhD students is working.

EDUCATIONAL AIDS. Assoc. Prof. Dr. A. Assenov participated in the competition with a textbook "Biogeography and Natural Capital of Bulgaria (2020), published by

the Sofia University" St. Cl. Ohridski ", 928 pp. (Paper and electronic edition), which is on the topic of the competition. It has the character of an encyclopedic edition of biogeography, in which the classical and the latest trends are skillfully balanced. It includes the development of biogeography, arealography, faunal and floral elements, vertical zonation, regions, conservation significance of biodiversity, ecosystem services and their assessment. The content of the book goes beyond the concept of a textbook. Outside the materials of the competition there are 2 textbooks: "General Biogeography" (2001), published by the Sofia University "St. Cl. Ohridski ", 297 pages and " Biogeography of Bulgaria" (2006), published by "AnDi", 543 pages. He has a noticeable participation in the edition of teaching aids in geography for eighth class, candidate student materials for the universities and a chrestomathy in physical geography of Bulgaria.

SCIENTIFIC AND SCIENTIFIC-APPLIED ACTIVITY

The research activity is well reflected in the competition documents. Assoc. Prof. Dr. A. Assenov has presented 53 publications, other than those with which he acquired the academic position of associate professor: one monograph, 3 chapters of monographs, 12 articles (referenced - with impact factor or equated to such), 29 articles in journals and series (without impact factor - unreferred, peer-reviewed) and 8 articles in collections. Thirty-eight articles and 3 chapters of monographs have been published in English. Forty of the publications are co-authored. The independent publications include 11 articles, one chapter of a monograph and the presented monograph. Assoc. Prof. Dr. A. Assenov has published in 12 foreign and international editions. He is an independent author of 11 of the articles in the Bulgarian editions. Of the abstracts of the scientific forums (20 for the last 10 years, all in English), sixteen are co-authored. The publishing activity of Assoc. Prof. Dr. A. Assenov exceeds the national requirements almost 3 times (Table 1).

Main directions and contributions. The scientific contributions are substantial, original and mostly fundamental-theoretical. Assoc. Prof. Dr. A. Assenov is not engaged in direct implementation and implementation activities due to the nature of the field in which he works. Nevertheless, the work on the Balkan plant database of communities, regionalization of the country, the identification of biomes, mapping of the local ecosystems and Natura 2000 sites, the evaluation of the natural capital and ecosystem services, the creation of digital landscape maps with indicators for assessing the anthropogenic impact and the correction of some traditional notions are essential in practice. The contributions represent a new direction in the Bulgarian biogeography and prove with new means significant countries from existing scientific fields. Some of them may be taken as the formulation of a new theory or hypothesis and may contribute to obtaining a number of confirmatory facts. The contributions from the investigations presented in the publications of Assoc. Prof. Dr. A. Assenov are in several areas.

BIOGEOGRAPHICAL REGIONALIZATION. A remarkable achievement is the book (monograph) "Biogeography" (B-3-1). Along with the traditional ideas, recent notions of arealography, community classification, land and ocean sharing are included. A

number of new concepts have been introduced and the adoption of a new independent biome is justified. The latest scientific concepts of hierarchical biodiversity systems are covered and the principles of regionalization are critically examined. A number of publications have used the accepted Braum-Blanquet method for community identification (G-7-12). The need for a regional approach in studying the biodiversity of the municipalities (G-8-3, G-8-4, G-8-8, G-8-9, G-8-16, G-8-18) is considered, its importance in the differentiation of the landscapes (G-8-22) and their formation (G-8-34).

METHODOLOGY AND EVALUATION OF ECOSYSTEM SERVICES. A new direction in ecology and biogeography, which is very relevant and related to the problem of degradation of natural communities. The potential of a number of the Bulgarian natural territorial units has been assessed (G-7-03, G-7-08, G-7-9, G-7-10, G-8-1, G-8-2, G-8-17, G-8-19, G-8-33). GIS, the CORINE system and mapping the economic values of ecosystem services in individual municipalities were used. The model for sustainable development (G-7-02, G-7-07, G-7-10, G-9-2) is also critically considered. The changes in the surface waters around Mala Planina (G-8-37) - the system of Aldomirovsko Marsh and Bistritsa Dam are considered as an ecosystem service.

LANDSCAPE STUDY AND MAPPING. The structure of the landscape of individual mountains and the degree of the anthropogenic impact are analyzed by means of a specific index (G-7-03). The changes of the environment over time for a period of 100 years in the Zlatitsa-Pirdop valley (G-8-5) are traced. Differences have been identified in different mountain plant communities (G-8-8). The formation of the valleys is considered and cartographic schemes of the Matnitsa River valley (G-8-10) are presented. Ecological and landscape research was done on 3 eco-trails (G-8-11, G-8-26). The natural habitats and the landscape biodiversity of Mala Planina (G-8-16, G-8-18, G-8-33, G-8-34) are analyzed and the necessity of their protection is proved despite their close location to Sofia.

INFLUENCE OF THE ADMINISTRATIVE DISTRICTS AND BORDER ZONES ON NATURA 2000. Possible gaps have been considered, proposals have been made for the expansion of the zones as cross-border and appropriate maps have been developed (G-7-04). The conservation significance of the border part of the Dospat River and the need to expand the protected area (G-8-4, G-8-10) have been proven. Studies of the Peritsa Mountain (G-8-6, G-8-9) clarify the role of the state and administrative borders as a limiting factor for the protected areas. Similar issues have been addressed for the border areas between Bulgaria, Macedonia and Serbia (G-8-7, G-8-10).

HIERARCHICAL ELEMENTS IN THE STRUCTURING OF THE BIODIVERSITY. The floristic elements in the Mesta River valley are considered (G-7-01). The relationships between the invasive and conservationally important taxa have been studied (G-7-08). The different habitats are considered as determinants of the landscape structure and biodiversity (G-8-22). They are also argued as criteria for landscape and anthropogenic impact. The implementation of the conventions and directives on the biodiversity in Bulgaria (G-8-23) and its hierarchical system of categories is considered. The vertical zonation of the communities on a syntaxonomic principle is

analyzed. The "inversion" of the coenoses of *Fagus* in the Strandzha Mountain (E-20-1) is critically considered.

OTHER CONTRIBUTIONS. The possibility of expanding the network of Natura 2000 sites in the Turkish waters of the Black Sea (G-8-25) is presented, taking into account the peculiarities of the shelf and the protection of species. The philogeography as a branch of the biogeography is presented (G-8-29) and the most important events in the history of this science are considered. The role of Acad. A. Ishirkov as the founder of the biogeography in Bulgaria is presented (G-8-35). The problem with 53 Lazarius taxa - rediscovery of "extinct" species (G-8-36) for the last 10 years is considered.

THE REFERENCE ON THE CONTRIBUTIONS correctly and accurately reflects the achievements of the participant in the competition. It contains the most significant results and conclusions from the research.

Table 1. Minimum number of points required for the scientific position "professor" and the indicators achieved by the candidate according to the presented documents

	Indicators	Number of points	Number of the candidate's points
A	1 – dissertation „Doctor“	50	50
B	3 – published monograph	100	100
C	7 – scientific publications in the referenced journals	40	152
	8 – scientific publications in the non-refereed journals	20	424
	9 – published chapter of a monograph	10	16
	Total required minimum	200	592
D	10 – citations in refereed journals and monographs	5	110
	11 – citations in unreferred and peer-reviewed monographs	3	48
	12 - citations in unreferred and peer-reviewed journals	2	84
	Total required minimum	100	242
E	14 – Leadership of a successfully defended PhD students	20	80
	15 - Participation in a national scientific or educational projects	10	20
	16 - Participation in an international scientific projects	20	40
	20 - Published university textbook	40	40
	Total required minimum	150	180
Total sum of the indicators		600	1164

SIGNIFICANCE OF THE OBTAINED RESULTS

The achievements of Assoc. Prof. Dr. A. Assenov are accepted with confidence by the specialists and are well quoted. His publications have been cited 80 times and 22 citations are in prestigious refereed publications (with impact factor or equivalent). There are 70 citations by Bulgarian authors. The most cited (with 14 citations) is the book "Biogeography of Bulgaria" The citations are by specialists who work in related fields and cover the main part of his publications. In the articles with citations of the works of Assoc. Prof. Dr. A. Assenov there are no ones with critical content. They are used to specify particular questions of the monitoring, conservation problems of the biology, arealography, regionalization of the fauna and flora, characteristics of the

territorial units and others. The number of citations exceeds the national requirements 2.5 times.

LEADERSHIP AND PARTICIPATION IN PROJECTS.

The materials of the competition reflect the participation of Assoc. Prof. Dr. A. Assenov in 4 projects. These projects are of a scientific and applied nature, international or national funding and concern the cross-border cooperation, management of the risk of unfavorable events, Natura 2000 and ecosystem services.

EVALUATION OF THE PERSONAL CONTRIBUTION

The geographical research often requires teamwork. At the same time, the permanent participation of many authors in a large number of cooperative publications and teaching aids makes it difficult to assess the individual participation of each one (whether it is methodical, experimental, expert, analytical and synthetic). It should be noted that in these cases it is not easy to establish the real personal contribution of the candidates. From the presented documents under the competition it is established a high personal contribution of Assoc. Prof. Dr. A. Assenov in the implementation of the research work, publication of the materials and pedagogical activities. At the same time, it is difficult to personalize this contribution in all publications and teaching aids.

MARKS AND RECOMMENDATIONS

It is desirable the prepared programs for the lecture courses to be presented in the competition documents. The great workload of Assoc. Prof. Dr. A. Assenov for hours is impressive. With a standard of 360 hours, the workload in some years exceeds 1000 hours. Such a workload (if real) needs to be reconsidered. Single critical remarks about the objects used and their modern scientific names in the textbooks are possible. It should be noted that in the textbooks the role of the invasive species (which became the occasion to establish a scientifically applied branch, known as invasive biology) is possible to develop in more detail. When discussing the network of Natura 2000 sites in the Turkish waters, it should be borne in mind that the monk seal has completely disappeared in the Black Sea.

IMPLEMENTATION OF THE REQUIREMENTS

The documents and materials presented by Assoc. Prof. Dr. A. Assenov correspond all the requirements of the Law for the Development of the Academic Staff of the Republic of Bulgaria and the Regulations for its implementation. In his works there are original scientific and applied contributions, which have received international recognition as a representative part of them are in journals and scientific series published by the international academic publishers. His theoretical developments have practical applicability, as some of them are oriented to the educational work. The scientific and teaching qualification of Assoc. Prof. Dr. A. Assenov is undoubted. The results achieved by him in the teaching and research

activities exceed the specific requirements of the Sofia University "KI. Ohridski ", adopted in connection with the Regulations for application of ZRASRB (Table 1).

C O N C L U S I O N. The candidate in the competition **Assoc. Prof. Dr. A. Assenov** has presented a sufficient number of scientific papers published after the materials used to acquire the academic position of associate professor. In the works of the candidate there are original scientific and applied contributions, which have received international recognition as a representative part of them are in journals and scientific series published by the international academic publishers. After getting acquainted with the materials and scientific papers presented in the competition, analysis of their significance and the scientific and applied contributions contained in them, **I find it reasonable to give my positive assessment and recommend to the Scientific Jury and the Academic Council to vote for the acquisition by Assoc. Dr. Assen Ivanov Assenov at the academic position "Professor" at the Sofia University "KI. Ohridski" by professional field 4.4. Earth sciences; scientific speciality Biogeography and soil geography.**

25.08.2020 r.

Reviewer:



/Prof. Dr. Zdravko Hubenov/