

REVIEW

on the materials submitted for participation in the competition for occupation of academic position of "Associate Professor" in scientific field 6. Agricultural sciences and veterinary medicine, in professional direction 6.5. Forestry, scientific specialty "Forest management and Forest mensuration", in the discipline "Forest management" announced by the University of Forestry in the State Gazette No 102 of December 8, 2023, procedure code: FOR-AsP-1123-115.

Applicant to participate in the competition: Dr. Toma Ivanov Tonchev, Senior Assistant Professor

Reviewer: Prof. Milko Hristov Milev, PhD, University of Forestry – Sofia, scientific field 6. Agricultural sciences and veterinary medicine, in professional direction 6.5. Forestry.

1. Short biography of the applicant

Sen. Ass. Prof. Dr. Toma Tonchev was born on 5 July 1973. He received his secondary education at the Forestry Technical School in his hometown Berkovitsa in 1992. In 1997 graduated at the University of Forestry (UF) with a degree in Forestry, achieving an overall grade of very good 5.19 from his course of study and an excellent 6.00 from his diploma thesis defense, earning a Master's degree with a professional qualification of "Forestry Engineer". From 20 October 1998 to 31 May 1999, he worked in "Agrolesproject" Ltd. He joined the UF staff in June 1999 as a Training Organizer in the Department of "Forest management", where until 29 January 2008, he was assigned to carry out practical exercises in the subject "Forest management" as a part-time assistant. During the period 2001–2005, he was a part-time PhD student in the Forest research Institute at the Bulgarian Academy of Sciences. In 2007, he defended his dissertation work "Studies on the structure and growth of coppice beech stands in the Balkan Mountains" and obtained a PhD degree in the scientific specialty 04.04.02 "Forest management and Forest mensuration" (Diploma issued by the Higher Attestation Commission No 31872/17.12.2007). After winning a competition, he has been a "Sen. Ass. Prof." from 29 January 2008 to the present. He conducts exercises and practical training in the subjects "Forest management", "Forest mensuration" and "Growth and increment of forests". By decisions of the Faculty Council of the Faculty of Forestry, he has been assigned lecturer in the same three subjects ("Forest management" from the 2016/2017 academic year, "Forest mensuration" from the 2021/2022 academic year, "Growth and increment of forests" from the 2022/2023 academic year) – all for the "Forestry" specialty.

The candidate has completed 7 courses at the UF and one at the New Bulgarian University (NBU) to enhance his qualifications: in 1999 – for the training of appraisers of forests and lands in the forest fund, acquiring the qualification "Expert-Appraiser" (Certificate by Center for Continuing Education-UF 1402/03.2000); June 13–30, 2010 – in English language for learning of professional terminology (Certificate by NBU, 2010); 2013 – Training for working with and maintaining the Blackboard learn electronic learning platform (Certificate by UF, July 2013); 2014 – training in Biostatistics with R (Certificate by UF 4275/2014); 2014 – Statistical software for processing and analysis of data from social, economic, bio- and medical research – SPSS (Certificate by UF, September 2014); 2014 – Methodology of research activity, preparation, participation, and

management of projects (Certificate by UF, October 2014); 2014 – Development of educational content, plans and programmes related to the System for Accumulation and Transfer of Credits (Certificate by UF, October 2014); November 22–25, 2022 – educational course by the European Space Agency project "Exploring the opportunities offered by SAR data in various application areas – training a new generation of professionals". Thematic focus – "Practical application of radar methods with SAR data in dual polarimetry of forests in mountainous territories – determining forest type and registering changes in it" (Certificate by UF, 11.25.2022).

2. Compliance of the submitted documents and materials of the applicant with those required under the Regulations for Development of Academic Staff at the University of Forestry (RDASUF)

The candidate has submitted all necessary documents and materials referred to in Art. 60, para. 4, incl. the requirements under para. 5 and para. 7 of the RDASUF. He is participating in the competition with a monograph, scientific output and established citations, which altogether amount to a total number of points that meet the minimum national requirements for the position of Associate Professor in the professional direction. The points for each group of indicators are as follows:

Group A: Defended dissertation for the scientific degree of PhD – 50 pts. (50 pts. required).

Group B: Habilitation work – monograph – 100 pts. (100 pts. required).

Group C: Published book based on the defended PhD dissertation (40 pts.); articles and reports published in scientific journals, referenced and indexed in world-famous databases with scientific information (10 items for 110 pts.); articles and reports published in non-referred journals with scientific peer review or published in edited collective volumes (18 items for 50.01 pts.); published chapters from a collective monograph (7 items for 66.68 pts.). Total 266.69 pts. (200 pts. required).

Group D: Citations in scientific publications, referenced and indexed in world-famous databases with scientific information or in monographs and collective volumes (15 items for 225 pts.); Citations in monographs and collective volumes with scientific peer review (7 items for 70 pts.); Citations in non-referred journals with scientific peer review (14 items for 70 pts.). In total, 11 publications of the candidate have been cited (5 more than once), 36 times for 365 pts. (50 pts. required).

The self-assessment report shows that the candidate exceeds the required points in all indicators, with a requirement for a total of 400 pts. while having a sum of 781.69 pts.

3. Assessment of the applicant's educational activities

Dr. Tonchev's teaching career started as a part-time Assistant Professor in 1999 and, from 2008 to the present, he is a "Sen. Ass. Prof.". He now has 16 years of experience as a lecturer in ordinary. He has conducted classes and practices in the subjects "Forest management", "Forest mensuration", and "Growth and increment of forests" – all within his competencies and in accordance with his scientific specialty. After obtaining a PhD, he was also tasked with leading the lecture courses for students in the "Forestry" specialty: "Forest management" (from the summer semester of the 2016/2017 academic year for Bachelor's degree, full-time education), "Forest mensuration" (from the winter semester of the 2021/2022 academic year, Bachelor's degree, part-time education) and "Growth and increment of forests" (from the winter semester of the 2022/2023 academic year, Master's degree, extramural education).

During the summer semester of the 2008/2009 academic year, he conducted training through the "Erasmus" programme on the subject of "Forest management" for three visiting students from Portugal. The classes were conducted in English through an individual curriculum of lectures,

exercises, consultations, and practical training.

In 2021, the candidate, together with Assoc. Prof. Dr. Ilko Dobrichov, developed updated curricula for the subjects "Forest mensuration" and "Forest management" – included as mandatory in the Curriculum of the "Forestry" specialty, Bachelor's degree. He updated the topics for the exercises in the subject "Forest management"; developed a lecture course and exercises on the Blackboard electronic platform for the same discipline; created tests for ongoing assessment and semester exams for the "Forest management" subject on the platforms Google Forms, Zoom, Microsoft Teams, and Blackboard; he also developed a test to assess the pre-graduation internship for students in the "Forestry" specialty.

Dr. Tonchev has published two textbooks: Poryazov Y., Tonchev T., Dobrichov I. 2004. Taxator's handbook (420 pages) and Tonchev T. 2013. Forest planning. Forestry plans and programs (22 pages). He has been included in the State Examination Commission for conducting the state exam in "Forest management" for the "Forestry" specialty, Bachelor's degree (Order No ZPS-272/17.06.2020 by the Rector of UF). He is a co-author of tasks for conducting two comprehensive practical trainings in the sections for the subjects "Forest management" and "Forest mensuration".

Dr. Toma Tonchev supervised a total of 5 graduate theses (two for Bachelor's degree and three for Master's degree). He has been a consultant to one graduate student for Master's degree. He has prepared a total of 61 reviews of student thesis works (27 for Bachelor's degree and 34 for Master's degree).

Dr. Tonchev has been a member of the Commission for updating the curricula for the specialty "Forestry" – Bachelor's and Master's degrees (2015-2023).

I consider his participation in training of specialists from practice (5 in total), a course for the qualification improvement of teachers from vocational high schools in Forestry, and as a lecturer at a seminar on a WWF project as significant positive activities.

Dr. Tonchev has been a member of the commission for admission to participation and for conducting a selection by competition for the position of "assistant" in the subject "Forest mensuration" at the "Forest management" department of Faculty of Forestry (FF) (Order 399/20.06.2016 by the Rector of UF).

The above information underlines the candidate's diverse teaching activity. He has acquired the necessary pedagogical maturity for successful further development as an Associate Professor. A very significant positive achievement is his ability to teach in English.

4. Assessment of the applicant's scientific, applied and publication activities

4.1. Participation in scientific, applied science, infrastructure and educational projects

The candidate's research activity can be assessed based on his participation in scientific and applied projects. During the period 2004-2013, he participated in working teams on 11 scientific research and applied projects, one of which he led (Official note provided). In the subsequent period until now, he has had 9 more participations in scientific and applied projects as follows:

- one international project (Models for Adaptive Forest Management (MOTIVE), 7th Framework Programme for Research and Technological Development, Project number 226544) 2013–2016;

- two projects funded by the UF (Influence of atmospheric depositions on the productivity of spruce plantations. – 2014-2016; Adaptive changes in beech forests (*Fagus sylvatica* L.) after harvesting or natural disturbance) 2019-2020;

- six projects funded by Bulgarian institutions through the Scientific research sector of the III – one by the Ministry of Environment and Waters (MoEW) and 5 by state enterprises during the period 2016-2021: 1/ Providing data for reporting critical loads for sulfur, nitrogen, acidity and heavy metals for major types of terrestrial ecosystems in Bulgaria – by the MoEW, 2016-2018; 2-3/ Concept and implementation of regional forest management systems for managing coppice oak forests in the territorial scope of Northwest State Forestry Directorate Vratsa and Northeast State Forestry Directorate Sliven, 2017-2018; 4/ Experimenting with regional forest management systems for managing coppice cerris oak forests in the territorial scope of the State Forestry Enterprise (SFE) Seslav – town of Kubrat, 2017-2018; 5/ Justification of differentiated forest management systems for coppice cerris oak stands in the territory of the SFE Shumen, 2019-2020; 6/ Concept for differentiated management of Scots pine plantations in the Southwest State Forestry Directorate – Blagoevgrad, 2019-2021.

The main focus of his participation in research projects is the management of coppice forests. Certificates of acceptance by the Expert Council of the Executive Forests Agency (EFA) have been obtained for three of the above-mentioned scientific-applied developments with such a focus (Nos 2–4).

The candidate is also involved in the scientific network COST Action FP0603 "Forest models for research and decision support in sustainable forest management".

Dr. Tonchev also has one participation in an infrastructure project funded by the Ministry of Education and Science – National Roadmap for Research Infrastructure (NRRF): Upgrading of the Distributed Research Infrastructure "Bulgarian Long-Term Ecosystem Research Network" (LTER-BG), with the coordinator being Institute of Biodiversity and Ecosystem Research at the Bulgarian Academy of Sciences (IBER-BAS) and the partner being UF, 2020-2027.

As a positive assessment and recognition of the candidate's scientific-and-applied competencies, I note his appointment, as a representative of the UF, in the Expert Council of the EFA, working groups and commissions (EFA, 2019; Ministry of Agriculture, Food and Forests, 2017, 2020; LTU, 2022; Ministry of Agriculture, 2023) (certified by the respective orders of the heads of the authorities). He has served as a consultant in the development of a module for "Determination of forest reserves through various methods of Forest mensuration" (part of the software product "Forest analysis and planning" by Ximaps Ltd.) and to the WWF Bulgaria association for Data Analysis related to the development of a report on the current and future utilization of forest biomass for energy needs (under the Bio Screen project).

I reckon that Dr. Tonchev is a well-known researcher, often involved in scientific teams, expert bodies, and as a consultant, covering the topics related to Forest management.

4.2. Characteristics of published scientific results

Dr. T. Tonchev's publication activity is in line with his scientific specialty and the scope of its constituent subjects "Forest management" and "Forest mensuration". He participated in the competition with 37 published materials, classified as follows:

- Monograph – 1 (B1.3): "Approaches to optimization of planning and utilization in forests" published in 2022 (ISBN: 971-619-7554-99-1), with two reviewers – experts in the field (Assoc. Prof. Dr. Ilko Dobrichov and Assoc. Prof. Dr. Angel Ferezliev), 146 pp.

- Published book based on the defended PhD thesis (G6.1): Tonchev T. 2023. Studies on the structure and growth of coppice beech stands in Stara Planina. Intel Entrance. ISBN 978-619-7703-27-6. 146 pp.

- Articles and reports published in scientific journals, referenced and indexed in world-renowned scientific information databases (G7): 10 pieces (G7.1 to G7.10).

- Articles and reports published in non-peer-reviewed journals or published in edited collective volumes (G8): 18 pieces (G8.1 to G8.18).

- Published chapters from collective monographs (G11): 7 pieces (G11.1 to G11.7).

The monograph and the book based on the defended doctoral thesis were published in Bulgaria. Of the articles, 1 is in a foreign scientific journal, 27 are in national scientific journals, 2 are in proceedings of scientific forums (1 international and 1 national), and there is 1 report in an anniversary collection of scientific reports at the UF.

Ten of the publications published between 2006 and 2023 are classified under indicator G7. Among them, one is in a foreign peer-reviewed journal with impact factor, and the remaining 9 are in peer-reviewed journals published in Bulgaria, including 6 indexed with SJR in Scopus and 3 referenced by CABI. Seven of the published articles in Bulgaria are in international scientific journals published in English.

Indicator G8 includes 18 articles, of which 2 are in proceeding of scientific conferences (one in 2000 in Bulgaria and one abroad), 1 is in the journal "Forestry Ideas" (Lesovadska misal) (2000), and the remaining 15 are in the journal "Management and Sustainable Development" (2008–2019).

The majority of publications – 28 (3/4) – are in Bulgarian, and 9 (1/4) are in English. Three of the publications (including the monograph and the book based on the defended PhD thesis) are standalone, 9 have one co-author, 9 have two co-authors, and 16 have multiple co-authors. In the joint publications, T. Tonchev is the first author in 6, the second author in 13, the third author in 9, and in 6, he is in a more subordinate position.

Abstracts of the scientific publications are provided according to the requirements of Art. 60, para. 7 of the RDASUF.

Dr. Tonchev has participated in three international scientific conferences held in Bulgaria, and in two of them, he was elected in the organizing committees ("Forestry: Bridge to the Future" – 2015 and 2021). At the last two forums, he gave presentations, and another one was presented at the XIV International Scientific Conference "Management and Sustainable Development" (2012) – all three were co-authored.

I consider that Dr. Tonchev consistently builds his authority as a researcher working in the field of Forest management. His scientific work is focused on significant topics, involving the application of both classical and modern research methods, demonstrating the ability to analyse results and draw well-founded conclusions from them.

4.3. Reflection of the applicant's scientific activity in the literature (citations)

Eleven publications classified to the three indicators are cited (D13 – 7 citations, D14 – 3 citations, D15 – 6 citations). For these, the candidate has provided a list of a total of 36 citations, of which 15 are in scientific journals (D13), 7 are in monographs and scientific works (D14), and 14 are in other journals with scientific review (D15). Two of the standalone works have been cited 3 times

(including the monograph), and 3 of the publications with T. Tonchev as first author have 9 citations. The candidate has the largest excess compared to the minimum requirements (50 points) precisely for this indicator – 365 points. Citations by foreign authors are 6, and 4 are in articles from mixed collectives (by Bulgarian and foreign authors).

In addition to the mentioned citations, an indication of Dr. Tonchev's recognition as a competent specialist are the 6 manuscripts he has reviewed for the journal "Forestry Ideas" (indexed in Scopus). He has served as a reviewer for "Bois et Forêts des Tropiques" – a journal with an Impact Factor, as well as for "Nauka za gorata" (Forest Science) – a journal included in the list of publications referenced and indexed in world-renowned scientific information databases. He has provided an opinion on the "System of normative-informational support for the assessment of forest productivity in Ukraine" – a competition for young scientists in Ukraine.

In summary, Dr. Tonchev's scientific work is important, visible and valued by the colleagues.

4.4. Contributions in the applicant's work (scientific, applied)

The contributions in Dr. Tonchev's scientific publications are summarized in 3 directions, which can be synthesized as follows: 1/ Forest management (management organization and optimization of forest management and utilization); 2/ Forest mensuration (construction, growth, increment and productivity of tree stands), and 3/ Ecology of forest stands. I acknowledge the contributions, their grouping, and their classification into scientific and scientifically-applied categories. I appreciate the candidate's efforts because the nature of most works is complex: they contain contributory elements from three directions and both categories. For example, 19 of the publications (excluding the monograph) contain both scientific and scientifically-applied contributions (Г7.1, Г7.3, Г7.8, Г7.9, Г7.10, Г8.1, Г8.2, Г8.3, Г8.4, Г8.6, Г8.7, Г8.8, Г8.9, Г8.10, Г8.12, Г8.14, Г8.18, Г11-2, Г11.7).

The contributions address fundamental issues in Forest management, such as: maximizing yields and optimizing the structure under various forms of management organization (B3.1); justifying cutting cycles in coppice oak stands for conversion and seed-coppice management (Г7.8); ages of quantitative maturity, production objectives, and rotation cycles for Scots pine plantations on the territory of Southwest State Forestry Directorate (Г11.4); preparation of volume-and-assortment tables (Г8.1, Г8.2); dynamics of forested and non-forested areas and changes in forests by ownership, species, origin, construction by completeness and other key indicators (Г8.8, Г11.1); analysis of the role of forestry planning for multifunctional management of forestry (Г8.9, Г8.17).

As more significant contributions in the field of Forest mensuration, the following can be pointed out: indicators for assessing the density of tree stands, including mixed stands and their dynamics (V3.1); utilization of mathematical-statistical methods in assessment and determination of the stock of uneven-aged stands, managed according to selection system (G8.18); application of the nomographic method to determine the volume of stems based on individual height curves (G7.1); establishment of linear models for the correlation between the diameter at breast height and other indicators such as age, height, tapering (including individual breast diameter class) and stem volume, as well as determination of stand stock considering the number of trees by diameter class and total density (G8.4, G8.10, G8.14); correlations have been identified and non-linear models have been proposed for current volume and periodic radial increment based on mean height and site indices for Scots pine (G8.11); a decrease in the percentage of current volume increment with decreasing site index and mean height has been established (G8.12); increment tables have been developed by site indices (G8.13, G8.15, G8.16); for the first time in Bulgaria, site index and absolute site index tables

have been developed for stands of Scots pine, Norway spruce, European silver fir, Balkan pine, European beech, Hungarian oak and sessile oak (G8.5, G8.7).

The publications in the ecological field (G7.4, G7.5, G7.7, G11.6) address important issues regarding the health status and sustainability of forest stands. They are complementary and very useful for shaping a comprehensive competence profile necessary for a forest management expert.

Dr. Tonchev's work are, methodologically diverse. They contain a significant variety of classical and modern methods, including modeling and digitization. Reflections on biodiversity and climate change are addressed, too. I find the candidate's scientific work relevant and beneficial to his mission as an academic lecturer.

5. Assessment of the applicant's personal contribution

Of the presented publications, 3 are single-authored, and 9 have one co-author. In the collaborative publications, Dr. Tonchev is the first author in 6 and the second co-author in 13. I consider the candidate's participation in joint publications as equal and I am convinced that he has a specific personal contribution to each of them, covering the fields of Forest management and Forest mensuration with his competencies.

To enhance his qualifications, Sen. Ass. Prof. Tonchev has participated in 8 specialized courses. He has attended 3 international scientific conferences in Bulgaria, and in 2 of them, conducted in English, he was a member of the organizing committee.

I assess the candidate's scientific abilities as sufficient, which are a prerequisite for conducting independent scientific work and supervising graduates, PhD students, and research projects in the field of Forest management and Forest mensuration.

6. Critical notes and recommendations

I find it essential to point out that in the presented monograph, Dr. Tonchev has not cited his own publications. There may be occasional critical remarks of a stylistic, editorial or technical nature regarding the candidate's work. Some inaccurate terms have been used in phrases such as "growth of regeneration" (in the Contributions section, page 3 bottom) and "good and bad site indexes" (in the Contributions section, page 5 top). When presenting contributions, it is not appropriate to write "presented are...", "given are...", etc., but rather "established are...", "proved are...", etc. I recommend paying more attention to stylistic precision in writing to avoid phrases with imperfect meanings like "Mass reforestations created in the past..." (in the Contributions section, page 6 bottom). Incorrect translation occurs in submitted summaries, e.g. "forested and afforested areas" instead "forested and non-forested areas" (page 20, line 2).

Participations in research projects is up to 2021. There is a lack of publication activity in 2015 and 2016. Information about popular articles is not provided.

I recommend greater consistency in future research and publication activities (avoiding years without publications) and more frequent leading roles of Dr. Tonchev. An important his task is maintaining the experimental plots in the two Training and Experimental Forest Range of the UF and presenting results from them.

7. Personal impressions

Dr. Tonchev's career as a specialist began with work as a designer, followed by fieldwork in forest management, which continued, accumulating practical experience that became an important prerequisite for his subsequent development as a lecturer and researcher. I have positive impressions of his teaching and research work. He readily undertakes additional responsibilities, such as evaluating the engineer internship of forestry students, supervising graduate students, and reviewing their theses. He has participated in the preparation of materials for programme accreditation for the doctoral programme (2018). Since 2017, he has regularly participated in working groups and commissions of the EFA, the Ministry of Agriculture, Food and Forests and the Ministry of Agriculture and Forests as a representative of the UF. He is proficient in English and Russian languages. He has skills in working with specialized computer programs as well as more universal ones used in teaching and research. My impressions of his communication regarding the publication and review of articles in Forestry Ideas are positive. His reviews are always critical and helpful.

He is a member and actively participates in the meetings of the collective bodies of the Faculty of Forestry and the UF: the General Assembly of the UF, the Academic Council and the Research Commission (2012–2020); the Faculty Council of FF and its Research Commission (2015–2024). At the same time, there are resources for more active involvement, and I believe that as a habilitated lecturer, he will contribute more to the fulfillment of common faculty and university tasks.

8. Conclusion

Based on the presented materials, it is evident that Sen. Ass. Prof. Dr. T. Tonchev meets the relevant scientometric requirements for the position of "Associate Professor" according to the Regulations for Development of Academic Staff at the University of Forestry, exceeding them, especially in the group of indicators D – citations.

Based on a comprehensive assessment of the candidate's qualities and the results presented, I **PROPOSE** the applicant Sen. Ass. Prof. Dr. Toma Ivanov Tonchev to take the academic position of "Associate Professor" in the subject "Forest management" in professional direction 6.5. Forestry, scientific specialty "Forest management and Forest mensuration".

Reviewer:


/Prof. Dr. Milko Milev/

The review was submitted on: **11 April 2024**