REVIEW

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For the materials presented by **Dr. Neno Aleksandrov Alexandrov** from the University of Forestry-Sofia, for participation in a competition for the academic position of "Associate Professor" in the field of higher education 6. Agrarian Sciences and Veterinary Medicine, professional field 6.5. Forestry, scientific specialty "Forestry, incl. Dendrology", in the discipline "**Forestry**", for the needs of the Department of Forestry, FGS of the University of Forestry, announced in the State Gazette, No. 10 of 04.02.2025 and on the website of the University of Forestry on 23.01.2025.

1. Brief biographical information about the candidate.

Neno Aleksandrov Alexandrov was born on 08.03.1979 in Sofia. In the period 1994 – 1998 he studied at the Technical School of Forestry "Hristo Botev" – Velingrad, where he received the qualification of a forestry technician. In 2004 he graduated (EQD of Master) from the University of Forestry - Sofia with a degree in Forestry, specialization "Forest Management". The topic of his master's thesis is "Study of the dendrological diversity in VAT "Alabak" and the opportunities for selective management of forests".

Since 2006 he has been working as an assistant, senior and chief assistant at the University of Forestry - Sofia as a lecturer at the Department of Forestry, Faculty of Forestry.

In the period from 2005 to 2009 he was a PhD student at the Department of Forestry with the topic of his doctoral dissertation "Studies on the natural dynamics of the structure of alpine spruce forests in the Rhodopes".

2. General description of the submitted materials.

The candidate **Neno Alexandrov Alexandrov** has submitted a total of 27 scientific publications **for his participation in the competition**. Of these:

Abstract of a dissertation for obtaining the educational and scientific degree of "Doctor" – 1 pc.

Monographs – 1 pc.;

Published book on the basis of a defended dissertation for awarding the educational and scientific degree of "Doctor" – 1 pc.;

Articles and reports published in scientific journals, refereed and indexed in world-famous databases with scientific information – 6 pcs.

Articles and reports published in non-refereed journals with scientific peer review or published in edited collective volumes – 5 pcs.;

Studies published in scientific journals, refereed and indexed in world-famous databases with scientific information – 2 pcs.;

Published chapter of a collective monograph – 11 pcs.;

Citations in scientific journals, refereed and indexed in world-famous databases with scientific information or in monographs and collective volumes – 33 pcs.; Citations in monographs and collective volumes with scientific review, 7 pcs.

According to the "Regulations on the Terms and Conditions for Acquiring Scientific Degrees and for Occupying Academic Positions at the University of Forestry", there are 27 publications. The 27 posts scored can be classified as follows:

for indicator A – **1 piece** – **50** points;
for indicator B 3 – **1 piece** – **100** points;
for indicator D 6 – **1 issue** – **40** points;
for indicator G 7 – **6** – **57.50** points;
for indicator G 8 – **5 pieces** – **10.83** points;
for indicator G 9 – **2** – **21.43** points;
under indicator D 11 – **11** – **136.68** points;
for indicator D 13 – **33 citations** – **495** points;
for indicator D 14 – **10 citations** – **70** points.

Total: **981.44** points with a required minimum number of **400** points, which exceeds the requirements more than twice!

6 of the publications are in English and 21 are in Bulgarian. This is completely logical, due to the regional nature of forestry, the methods of which depend, among other things, on local climatic, orographic and edaphic factors. His solo publications are 6, five are with one co-author, and in the rest there are from two to 7 co-authors. In 12 of the submitted publications the candidate is the first author, in 8 publications he is the second author, etc.

The candidate has taken part in 12 scientific forums where posters or presentations have been presented. He has been the head of 4 applied research projects and has participated in 10 research and 3 applied projects as a member of the working team.

Ch. ass. Dr. N. Alexandrov holds a Certificate of Registration in the Public Register of Individuals for Private Forestry Practice from 2010, a Certificate of Appraisal Capacity for Valuation of Land in Forest Areas from 2012, a Certificate for Auditor under FSC – Chain-of-Custody and Controlled Wood assessor and FSC – Forest Management assessor.

3. Reflection of the candidate's scientific publications in the literature.

So far, the candidate has submitted 40 citations of 12 of his publications, which are counted according to the "Regulations". Of these citations, only four are in Bulgarian and the rest are in English. Thirty-three are citations in scientific journals, refereed and indexed in world-famous databases with scientific information or in monographs and collective volumes, and 7 are citations in monographs and collective volumes with scientific review. the candidate's publications.

4. General characteristics of the applicant's activity:
4.1. Educational and pedagogical activities.

The educational and pedagogical activity of Chief Assistant Dr. **Neno Alexandrov** is significant in volume and includes lectures on the disciplines "Forest Management", "Forestry" and "Forest Certification". He conducts exercises, consultations and training practices for students in the disciplines: "General Forestry", "Forestry", "Forest Management", "World Forestry" and "Forest Certification".

In the period from 2017 to 2020, Chief Assistant Dr. **Neno Alexandrov** has supervised 5 successfully defended graduate students and has been a consultant in the development of 3 diploma theses for the Master's degree, and from 2009 to 2023 he has reviewed 25 diploma theses - 10 of them for the Bachelor's degree and 15 for the Master's degree of students in Forestry.

4.2. Scientific, applied and methodological contributions.

The scientific contributions submitted for the competition in the works of the candidate can be attributed in the following several directions:

1. Study of the dynamics of natural disturbances in coniferous forests
2. Methods for assessment and control of forest structure
3. Study on the growth and productivity of plantations
4. Transformation of forest plantations
5. Adaptive forest management
6. Multifunctional forest management

4.2.1. Contributions of a scientific nature.

4.2.1.1. Studies related to the dynamics of natural disturbances in alpine spruce forests:

✓ The regime of natural disturbances in high-mountain spruce forests in the Rhodope Mountains has been established, which are characterized by a "gap-model" – often repeated small-area natural disturbances with dimensions of 100-150 m2;

✓ It has been shown that the established size and frequency of natural disturbances are essential for the natural regeneration, stability and structural diversity of the forest types studied;

✓ Forestry systems for nature management based on uneven-gradual or group-selective felling are recommended.

4.2.1.2. Studies related to methods for assessment and control of forest structure:

✓ It has been established that the STVI, Gini, Shannon *and* Pielou *indices can be used to quantify the structure of plantations*, and the Gini *and* STVI *indices can be used to characterize the distribution of trees by degrees of thickness.* The vertical structure can be successfully assessed by the *Shannon* and *STVI indices, and the spatial distribution of trees by the Cox index;*

✓ Two groups of plantations have been formed according to their structure, and it is recommended to use the STVI index to control the structure in managed forests.

4.2.1.3. Studies related to the growth and productivity of plantations involving Common Sycamore (*Acer pseudoplatanus* L.):

✓ The growth features and productivity of natural and artificial sycamore plantations under different habitat conditions in Bulgaria have been established;

✓ Specific features in the natural regeneration of the common sycamore have been identified, on the basis of which recommendations have been proposed for the creation and cultivation of forest crops with the participation of the species.

✓ Forestry systems are recommended for the production of high-quality wood from common sycamore.

4.2.1.4. Studies related to the transformation of Scots pine (*Pinus sylvestris* L.) crops:

✓ A complex methodology for assessment of plant habitats has been proposed, which includes indicators and their scoring assessment, through which three indices have been calculated – Habitat Index (*Mest_Index*), Relief Index (*RK_Index*) and Total Index (*ALL_Index*);

✓ A classification of white pine crops according to their level of ecosystem compliance is proposed based on the values of the calculated indices for assessment of plant habitats;

✓ The factors that affect the health and sustainability of white pine crops in our country are analyzed. It has been shown that altitude, mechanical stability coefficient (H/d) and fullness of plantations are the main factors that determine the degree of abiotic damage in crops.

4.2.1.5. Studies related to the transformation of shoot oak forests into seed forests.

✓ A detailed ecological characteristic of the oak forests in Western Bulgaria is presented;

✓ The information on forest types has been updated and each type of forest has been compared with the classifications applied in practice by type of habitat, habitat according to Natura 2000 and EUNIS 2021;

✓ The regularities in the growth and dynamics of renewal in the shoot oak forests of Western Bulgaria have been established;

✓ A methodology for classifying shoot plantations into three management groups is proposed – *for conversion, for mixed seed-shoot management and for restoration*;

✓ Differentiated optimal densities are proposed when carrying out cultivation felling in shoot plantations of gorun, blagun, cer and hairy oak depending on the average height and the target diameter of the plantations.

4.2.1.6. Studies related to adaptive forest management:

✓ The key elements of adaptive management are presented, examining the impact of climate change on the services provided by forests, the vulnerability of plantations and the response of tree species;

✓ The concept of ecosystem correspondence for Scots pine crops is applied, using the *De Martonne* Dryness Index and relief and soil condition characteristic indices;

✓ The reaction of the common spruce (*Picea abies* (L.) H. Karst.) to the warming of the climate at the southernmost point of the species' distribution in the Western Rhodopes has been studied. Through the methods of dendrochronology and calculated stability indices, a high degree of tolerance of the species to drier and warmer summers has been proven;

✓ It has been established that the designation of forests with high conservation values (HCV) and the planning of forestry systems at landscape level in them leads to the successful conservation of biodiversity in them.

4.2.2. Scientific, applied and methodological contributions.

4.2.2.1. Studies related to the methods for assessment and control of the structure in plantations managed selectively:

✓ A modified version of the combined method, developed by Prof. I. Mihov, for determining the stock in mixed coniferous plantations of different ages, which provides a sufficiently high accuracy of the results at significantly reduced labor and time costs;

✓ New ratios for the number of trees and the stock by thickness classes are proposed using the method of Prof. Krastanov for determining the use in the electoral forests;

✓ It is recommended to apply the BDq method to *control the selection structure and determine the amount of use in the forest,* which provides much higher information content and facilitates making the right decisions when choosing trees for felling.

4.2.2.2. Studies related to the adaptive management of Scots pine crops:

✓ Differentiated forestry systems are proposed according to the classification of white pine crops in 4 groups – with good ecosystem compliance, with relatively good ecosystem compliance, with weak ecosystem compliance and with complete absence of ecosystem compliance;

✓ Forestry approaches are recommended, including general rules related to the planning of felling for transformation and measures to improve the health status of crops, the creation of conditions for successful natural renewal or recommendations for afforestation;

✓ An economic assessment of proposed management alternatives has been made. The net financial contribution is maximized between 25-35 years of age of crops, with the best financial results observed in afforestation schemes of 2x1 m and 2x1.5 m.

4.2.2.3. Studies related to the management of shoot oak forests in Western Bulgaria:

✓ The objectives of production for two groups of management of shoot oak plantations are formulated – *for mandatory conversion into seed and for mixed seed-shoot management*;

✓ Quantitative and technical maturity ages have been defined and differentiated felling turnuses have been proposed for these forests;

✓ The results of applied forestry systems for transformation of shoot oak forests into high-stemmed forests are analyzed;

✓ Proposals have been made for the application of differentiated forestry systems in shoot oak forests on the basis of the established regularities in their growth and renewal.

4.2.2.4. Studies related to multifunctional forest management:

✓ The problems in the management of forest territories at the municipal level for three representative municipalities – Teteven, Velingrad and Sarnitsa – have been studied and analyzed;

✓ In order to balance the conflicts in the "*forest-society*" system, the ecological, economic and social potential of the forest territories have been studied with the aim of sustainable development of municipalities in modern conditions;

✓ The public opinion and attitudes for environmentally friendly forest management are studied by the method of in-depth structured interviews to collect the opinions of stakeholders;

✓ 4 possible scenarios for forest management have been developed to ensure their multifunctional use, and they have been discussed and adopted by consensus by stakeholders;

✓ Positive examples of the role of forest certification as a tool for periodic monitoring by an independent third party to ensure the sustainable management of forest areas and their conservation are indicated.

5. Assessment of the candidate's personal contribution.

From the materials submitted by the candidate, it can be seen that his independent publications are 6, five are with one co-author, and in the rest there are from two to 7 co-authors. In 12 of the submitted publications the candidate is the first author, in 8 publications he is the second author, etc. These data show the ability **of Dr. Alexandrov** to work independently in the areas of his scientific research – to successfully formulate and solve the set scientific and practical tasks. At the same time, The rest of the publications demonstrate teamwork abilities – teamwork is a natural phenomenon in modern science and is highly valued everywhere in the world.

6. Critical remarks.

The following critical remark can be made on the materials presented:

6.1. The reference for contributions can be shortened and refined in order to better highlight the achievements of their author.

7. Personal impressions.

I have known Dr. Neno Alexandrov as a junior lecturer for many years, during which we have communicated as colleagues in our professional field. My colleague Alexandrov has shown himself to be a competent connoisseur of forestry science and the ecological and forestry features of tree species. He has always

shown collegiality in our mutual contacts. I hope our professional cooperation will continue in the future.

8. Conclusion.

The documents and materials presented by Dr. **Neno Aleksandrov Alexandrov, Chief Assist., meet all the requirements of the Law on the Protection of Persons with Disabilities**, the Regulations for its Implementation and the Regulations of the University of Forestry – Sofia and meet and even exceed the requirements for the academic position of Associate Professor. It is obvious that Dr. N. Alexandrov is an experienced and highly erudite scientific researcher with a clearly defined scientific topic. All this gives me grounds to announce my positive assessment and recommend to the esteemed members of the Scientific Jury to vote to be awarded the academic position of "Associate Professor" in the professional field 6.5. Forestry, scientific specialty "Forestry, incl. Dendrology".

27.04.2025

Jury Member:.............................

/Prof. Dr. A. Tashev/