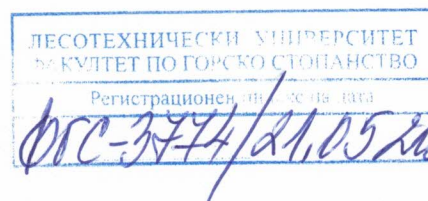


## OPINION



on the materials submitted for participation in a competition for the academic position of "Associate Professor" in the field of 6. Agrarian Sciences and Veterinary Medicine, Professional field 6.5. Forestry, scientific specialty "Forestry, incl. Dendrology" in the discipline "Forestry"

In the competition for an associate professor, published in the State Gazette, issue 10 of 04.02.2025 and on the website of the University of Forestry with procedure code FOR-AsP-0125-159 for the needs of the Department of Forestry at the Faculty of Forestry, as a candidate Chief Assistant Professor Dr. Neno Aleksandrov Aleksandrov, Faculty of Forestry, Department of Forestry.

**Prepared the opinion:** Prof. Dr. Georgi Hinkov Ivanov, Associate Professor, in the professional field 6.5. Forestry, scientific specialty "Silviculture, incl. Dendrology" from the Forest Research Institute – BAS

### 1. Brief biographical data for the candidate

Neno Aleksandrov Aleksandrov graduated from secondary education in 1998 as a forester technician at the Technical School of Forestry "Hristo Botev" – Velingrad. In 2002, he graduated from the University of Forestry (UF), Sofia as a forestry engineer, educational and qualification degree (EQS) "Bachelor", and as a Master's degree in "Forest Management" specialization in 2004. Since 2006, he has been working at the UF, Department of Forestry, Faculty of Forestry as an assistant in 2009, as a senior assistant and from 2012 to the present as a chief assistant. In 2015, he defended his educational and scientific degree "PhD" in the scientific specialty "Forestry, incl. Dendrology" at the UF, on the topic: "Study of the dynamics of natural disturbances and the structure of alpine spruce forests".

### 2. Correspondence of the submitted documents and materials of the applicant to the Rules of the Development of the academic staff at the University of Forestry

All documents and materials required for application under the Regulations for the Growth of the Academic Staff at UF have been submitted.

### 3. Assessment of the candidate's educational and pedagogical activities (work with students and PhD students)

Chief Assistant Professor Neno Aleksandrov has participated in conducting lectures on the disciplines "Forest Management", "Silviculture" and "Forest Certification". He has conducted seminars, consultations and teaching practices for students in the disciplines: "General Silviculture", "Silviculture", "Forest Management", "World Silviculture" and "Forest Certification". He has reported classroom and extracurricular employment for the last 10 years between 360 and 540 hours of total teaching employment per year. He is the first or individual author of 3 and co-author of another 4 published teaching manuals in the field of forestry. Under the leadership of Chief Assistant Professor Dr. Neno Aleksandrov, a total of 5 graduates have defended their theses, of which 1 for the Bachelor's Degree and 4 for the Master's Degree, and he is a consultant in the development of 3 theses for the Master's Degree.

### 4. Assessment of the candidate's scientific, scientific-applied and publishing activities

#### General description of the presented materials

- Candidate, Chief Assistant Professor Dr. Neno Aleksandrov, participated in the competition with:
- Monographs – 5 numbers, including 11 chapters from monographs;
- Learning materials – 7 numbers;
- Books – 1 numbers;
- Publications – 13 numbers, in refereed or indexed journals, of which 4 with an impact factor/impact rank;
- Projects – 17 numbers.

#### 4.1 Participation in scientific, scientific-applied and educational projects

Chief Assistant Professor Dr. Neno Aleksandrov has been a member of the working group of 3 international and 7 national scientific projects. He has led 4 applied scientific projects of national importance.

#### 4.2 Characteristics of the published scientific results

The candidate participated in the competition with 26 scientific publications. Under indicator B3, the scientific monograph “Oak forests in Western Bulgaria” was presented as a habilitation work, which contributed 100 points. Under indicators G6, G7, G8, G9, G11, a total of 266.4 points were achieved out of the required 200. Specifically, under indicator G6, the monograph “Natural dynamics and structure of alpine spruce forests in the Rhodope Mountains” was indicated. Under indicator G7, 4 scientific publications were presented, which are in publications with an impact factor or impact rank. These are the journals Canadian Journal of Forest Research, Baltic Forestry, Forestry ideas, Ecologia Balkanica. Two other articles are in refereed Bulgarian journals – Silva Balcanica and Forest Science. Under indicator G8, 5 scientific publications in the journal Management and Sustainable Development were included. Under indicator G9, two scientific studies. Indicator D11 lists 11 chapters from collective scientific monographs. Out of 26 scientific papers included in the competition, Dr. Aleksandrov is the lead author in 6, and in another 5 of these publications he is an individual author.

#### 4.3 Reflection of the Candidate's Scientific Publications in the Literature (known citations)

– Total – 40 citations.

By type of citations:

– In refereed journals and proceedings of scientific forums – 33 citations;

– In teaching manuals, monographs, dissertations, etc. – 7 citations in monographs.

#### 4.4 Contribution of the candidate's works (scientific, scientific-applicable, applied)

The candidate has indicated 6 main areas in which he has made scientific and applied science contributions, the most important of which are:

##### **1. Study of the dynamics of natural disturbances in coniferous forests**

It has been confirmed that over the past centuries the natural structure of Norway spruce (*Picea abies* (L.) Karst.) forests in Bulgaria has been formed mainly under the influence of various magnitude disturbances caused by fires, wind and/or bark beetles.

The established frequency of these disturbances is of essential importance for the natural regeneration, stability and structural diversity of these forests. The natural recovery of disturbances is a slow process that lasts more than 40 years. These conclusions provide



grounds for recommending silvicultural systems based on uneven-gradual or group-selective felling for the close to nature management of spruce forests in the alpine mountain belt.

## ***2. Methods for assessing and controlling forest structure***

The structure of the high-altitude spruce forests in the Rhodope Mountains, statistically assessed through the reliability of individual indices, shows that the Gini and STVI indices can be used to characterize the DBH distribution. The vertical structure can be successfully assessed through the Shannon and STVI indices, and the spatial distribution of trees through the Cox index.

## ***3. Study on the growth and productivity of cultures***

Specific features in the natural regeneration of the common sycamore, the establishment and cultivation of forest cultures with the participation of this species have been studied. Silvicultural systems for the production of high-quality sycamore trees have been recommended.

## ***4. Transformation of forest stands***

### ***4.1. Transformation of the age structure of stands from single-aged to mixed-aged***

To control the selection structure and determine the amount of use when applying silvicultural systems for selective management, the BDq method is recommended, which is characterized by much higher informativeness, which facilitates making reasonable decisions when choosing trees for felling.

### ***4.2. Transformation of Scots pine cultures***

For the purpose of adaptive management of Scots pine cultures, a classification has been proposed according to their level of ecosystem compliance. A complex methodology for assessing habitats has been used, which includes indicators and their score, through which three indices have been calculated – habitat index (Site\_Index), relief index (RK\_Index) and total index (ALL\_Index). A statistical check has been made for the adequacy and suitability of the individual indices and their threshold values have been determined, at which the individual groups are formed. The applicability of the criteria for distinguishing the groups was tested through field inspection.

Various silvicultural approaches are recommended, which include general rules related to the planning of transformation fellings and measures to improve the health status, as well as activities to create optimal conditions for regeneration growth, and in its absence or in the absence of undergrowth desired from a silvicultural point of view, afforestation is recommended.

An economic assessment of proposed management alternatives in Scots pine plantations has been made. The main conclusions from the analysis are: (1) Dense and sparse schemes for creating cultures lead to poor financial results. (2) Omission of early maintenance fellings not only worsens financial results, but also causes silvicultural problems.

### ***4.3. Conversion of coppice oak forests into seed forests***

An analysis of the dynamics in the area, composition and origin of oak forests under different management regimes has been carried out.

A detailed ecological characteristic of oak forests in Western Bulgaria has been presented. Information on forest types has been updated, and each forest type has been compared

with the classification by type of vegetation, habitats according to Natura 2000 and EUNIS 2021 applied in practice. A methodology has been proposed for classifying coppice stands into three management groups – for conversion, for mixed seed-coppice management and for restoration.

The dynamics of regeneration processes has been studied. The main factors influencing the process of natural seed and coppice regeneration have been statistically proven. It has been established that the majority of coppice oak stands in Western Bulgaria are characterized by a relatively high regeneration potential from seed regeneration, dominated by oaks in varying proportions, with the common oak tending to displace the Hungarian oak and the Sessile oak.

### **5. Adaptive forest management**

Based on the De Martonne dryness index and used indices for the characteristics of the relief and soil conditions, a classification of Scots pine cultures according to their level of ecosystem compliance has been proposed. The majority (55.8%) of Scots pine cultures in the territory of Southwestern Bulgaria grow in a highly drought-vulnerable zone, and 35.5% in a lack of ecosystem compliance.

The response of Norway spruce in the Western Rhodopes has been studied using dendrochronology methods and calculated resilience indices. The impact of extreme summer events on the width of the annual tree rings has been analyzed. The conclusions drawn provide valuable information for the sustainable and adaptive management of Norway spruce in the conditions of a changing environment.

### **5. Assessment of the applicant's personal contribution**

I can confidently state that the scientific publications of Chief Assistant Professor Neno Aleksandrov are his own work, especially those in which he is the individual or lead author. In the co-authored publications, his personal contribution is clearly distinguished.

### **6. Critical remarks**

I can strongly recommend that Chief Assistant Professor Neno Aleksandrov continue to publish scientific articles in journals with an impact factor or impact rank. This would allow his scientific contributions to be read by a larger audience abroad, which in turn would lead to wide citation of his scientific works. In this way, there are greater chances of inclusion in international projects and exchange of scientific knowledge outside Bulgaria.

### **7. Personal impressions**

I have personally known Chief Assistant Professor Neno Aleksandrov since he joined the University of Forestry as an assistant professor in 2006. He is ambitious and dedicated to the forestry academic profession. As a lecturer, he is attentive to students, responsible for the preparation of lectures and exercises. He brilliantly defended his doctoral thesis in the field of applied and theoretical forestry. He has participated in a number of applied and scientific-applied projects since the beginning of his scientific and lecturer career. In 2022, we developed together a national methodology for assessing the renewal and development of undergrowth in forest areas. I recognize his leadership qualities and abilities to offer innovative solutions, supported by mathematical knowledge and modeling. I was a reviewer of his co-authored monograph with Assoc. Prof. Toma Tonchev "Oak Forests in Western



Bulgaria", for which I would like to reaffirm the high assessment that I expressed in this in-depth and useful scientific work.

### 8. Conclusion

Based on the comprehensive assessment of the qualities of the candidate, Chief Assistant Professor Dr. Neno Aleksandrov, his scientific work and activity, as well as on the basis of my personal impressions, it gives me the reason to conclude that Chief Assistant Professor Aleksandrov meets the scientometric requirements for the academic position of "Associate Professor" stipulated in the Law and in the Regulations for the Development of the Academic Staff at the University of Forestry.

With conviction, I allow myself to propose that Chief Assistant Professor Dr. Neno Aleksandrov Aleksandrov be elected as an "Associate Professor" in the discipline "Silviculture" in Professional Direction 6.5. Forestry, scientific specialty "Silviculture, incl. Dendrology".

Prepared the opinion: .....  
(Prof. Dr. Georgi Hinkov Ivanov)

Opinion delivered in:  
20.05.2025