STATEMENT

on the materials for participation in a competition for occupation of academic position "Associate Professor" in scientific field 6. Agricultural sciences and veterinary medicine, in professional direction 6.5. Forestry, scientific specialty „Forest Melioration, Forest Protection and Special Forest Uses", subject "Non-timber forest resources", announced by University of Forestry in Darzhaven vestnik № 102 of December 8, 2023, code of the procedure: **FOR-AsP-1123-114**.

Applicant to participate in the competition: Dr. Slavcho Asenov Savev, Senior Assistant Professor

Prepared the statement: Dr. Danail Dimitrov Doychev, Associate Professor, University of Forestry, Sofia

1. Short biography of the applicant

Slavcho Asenov Savev was born in 1969 in Pernik. He received his secondary education at the Technical School of Communications, Sofia (now the Professional High School of Telecommunications), majoring in Communication Technology. In the period 1989-1994, he was a student at the University of Forestry, Sofia (then Higher Forestry Institute), where he completed his higher education as a Master of Engineering in "Forestry", specialization "Environmental Protection". In the period 1995-1998, he was a full-time PhD student and part-time assistant in "Botany" at University of Forestry, and from 1998 to 2003 - assistant in the department of "Forestry". In 2003, he successfully defended PhD thesis with the topic "Study of non-wood forest-plant resources in the area of Petrohan - Western Stara Planina with a view to their rational use". From 2003 to the present, he is the Senior Assistant Professor at University of Forestry.

The numerous and varied professional and scientific interests of S. Savev are in the field of Applied Botany and Forest Mycology (Medicinal plants; Non-wood forest products and services in protected areas; Cultivation of medicinal plants and mushrooms; Medical botany and phytocenology; Phytocenological features and ecological coenotic strategies of medicinal plants; Mycorrhiza – ecological strategies of mycorrhizal fungi; Cultivation of medicinal plants and mushrooms; Propagation of forest fruits, medicinal and ornamental plants).

Dr. Savev is the author (individually and in a team) of 10 monographs (including chapters of monographs) and books, 20 scientific articles and printed reports from conferences, 6 study guides and lecture courses, including electronic editions. He participated in more than 20 scientific, scientific-applied and scientific-educational projects. He has 12 citations of his publications. Currently Dr. S. Savev is a member of the Bulgarian Botanical Society, and in the period 1993-2013 he was also a member of the International Plant Propagators Society.

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 materials submitted by the candidate ensure the fulfillment of the minimum national requirements for obtaining the academic position "associate professor". The points for the individual groups of indicators are as follows:

- Group of indicators A: According to this indicator, the minimum national requirements include only the presence of a successfully defended PhD thesis. The applicant fulfills this requirement as early as 2003.

- Group of indicators B: The requirement is for 100 points, which are fulfilled by the presented monograph (habilitation thesis) of S. Savev.
- Group of indicators C: 200 points are required, and the candidate reports 202.16 points obtained from publications in the following categories - a book based on a PhD thesis, articles and reports in scientific publications, referenced and indexed in world-renowned databases with scientific information, reports in proceedings of scientific forums published in edited collective volumes and chapters of monographs.
- Indicator group D: 50 points are required for this indicator, and the 18 citations presented by the candidate to eight of his publications carry a total of 170 points, i.e. minimum national requirements are exceeded more than three times.

3. Assessment of the applicant's educational activities

Dr. S. Savev has a significant teaching experience at University of Forestry - over 25 years. The data presented for the last ten years show full implementation (and over-implementation) of its annual academic employment. He conducted lectures, exercises or learning practices in the disciplines "Management of non-timber resources in protected sites", "Forest non-wood resources", "Cultivation of mushrooms and herbs" and "Multifunctional forest management".

Senior Assistant Professor S. Savev is an author or co-author in the development and updating of curricula in the following compulsory or optional disciplines: "Management of non-timber resources in protected sites", "Forest non-timber resources", "Cultivation of mushrooms and herbs", "Management of non-timber resources in protected sites", "Multifunctional forest management", "Ecosystem services in forest territories".

He has also developed electronic courses in the e-learning systems of the University of Forestry (elearn.ltu.bg and on the Microsoft Teams platform) in the disciplines "Forest non-wood resources", "Cultivation of mushrooms and herbs", "Farming of non-timber resources in protected sites" and "Multifunctional forest management" for the students of the "Forestry". A system for exam tests has been developed and electronic courses lectures in the form of presentations and electronic exercise guide.

Dr. Savev is also a co-author of the following teaching aids:

- Mirchev S., Savev S., Nedelin T. 2002. Cultivation of the Oyster Mushroom - a practical guide to cultivation. Ed. Antora, Sofia, 79 p.
- Mirchev S., Savev S., Nedelin T. 2009. Cultivation of the Oyster Mushroom. Practical guide, Second amended and revised edition, Sofia, ed. "Enyovche", ISBN: 978-954-9373-85-1, 88 pages.
- Savev S., Nedelin T. 2023. Manual for exercises on "Forest non-wood resources". University of Forestry, Sofia, electronic edition, ISBN: 978-619-7703-56-6, 400 pages.

The candidate's educational and teaching activities also include his work with graduates. Dr. S. Savev supervised 18 successfully defended diploma students and reviewed 16 diploma theses.

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

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

According to the Regulations for the Development of the Academic Staff of the University of Forestry, in which the minimum national requirements from the Regulations for the Implementation of the Law on the Development of the Academic Staff in the Republic of Bulgaria are applied without further amendments, for the occupation of the academic position "associate professor" in area 6. Agricultural Sciences and veterinary medicine does not require

explicit participation in scientific, scientific-applied or educational projects. Therefore, the applicant has not included data on such in table 2. (Correspondence of the applicant's points with the minimum national requirements, annex 8a) and in the list of his scientific and publication activity (annex 8b). However, additionally (in appendix 13), information is presented on the participation of Slavcho Savev in 21 scientific, scientific-applied and scientific-educational projects.

His expert activity is complemented by an opinion and assessment of the condition of individual trees from the lands of the town of Breznik and the village of Skrino. He also participated in a working group on the development of an Ordinance on the extraction and protection of truffles and other underground mushrooms.

4.2. Characteristics of published scientific results

The scientific works of Ch. assistant professor S. Savev are classified as follows:
As a habilitation work, a 174-page monograph on the cultivation of *Vaccinium corymbosum* in Bulgaria was presented.

The candidate also presents a book published on the basis of his PhD thesis.

Seven publications (articles) are in scientific journals referenced in Web of Science or Scopus, but without an impact factor, and four of them are in publications with SJR (SCimago Jounal Rank, impact rank) for the corresponding year.

Another seven articles and two international scientific conference papers were published in peer-reviewed journals that were not referenced or indexed in Web of Science, Scopus or CABI.

Two chapters of monographs where S. Savev is the author are also presented, but the structuring of the chapters in one of them (Stoyanov N., V.. Piralkov, M. Stoyanova, H. Stoykov, D. Grekov, P. Tsenov, N. . Shaban, S. Glushkov, S. Savev, V. Marinova, G. Tsankov. 2011. Entrepreneurship in the utilization of non-timber forest products. Intel Entrans, 152 p.) is such that the candidate must report co-authorship.

Among the S. Savev's twenty scientific publications, five are independent, in four he has one co-author, and in the remaining 11 his co-authors are two or more. Most of his publications (60%) are in English.

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

Dr. S. Savev participated in the competition with a total of 18 citations of 8 scientific publications. Eight citations were reported in scientific publications referenced in world-renowned databases of scientific information, with at least three in journals with an impact factor, although the applicant did not indicate one for the first of them - D13.1-1 (for 2019 MycoKeys magazine has an impact factor of 2.525).

The remaining eight citations presented are in peer-reviewed journals but not referenced in Web of Science, Scopus, or CABI. The last of these citations (D15.4-1), however, should be counted in the former category, as the journal Iife is referenced in Web of Science, and even has an impact factor not yet published for 2023.

For all cited citations, the applicant shall submit full-text copies of the relevant publications as evidence.

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

The **scientific contributions** from the publications of Dr. Slavcho Savev are formulated according to the following main directions, topics and results:

1. Studies related to non-timber forest resources.

1.1. Inventory surveys and resource assessment of non-timber forest resources.

• The species composition, productivity, biological and exploitation reserves of medicinal plants and forest fruit species in beech forests, open spaces and conifers in beech natural habitats, in the zone of the anthropogenically altered border between beech forests and the upper border of the forest in the Petrokhan region were established share of the Western Stara Planina and their ecological attachment to certain environmental conditions.
• An original methodology has been developed for the inventory and mapping of medicinal plants by types of areas in the forest territories.
• The phytocenotic features, productivity and stocks of *Asarum europaeum* in the beech forests of the Western Stara Planina, as well as of *Adonis vernalis* in Western Bulgaria, were established.

1.2. Horological studies related to flora and mycota.

• New data on the species diversity of underground macromycetes in Bulgaria are presented. For the first time, three species were registered in the country: *Tuber rufum*, *Gautieria graveolens* and *Lactarius stephensii*. New localities of *Tuber excavatum* and *Gautieria morchelliformis* are also reported.
• DNA sequencing was performed for most of the subterranean fungi studied and a detailed phylogenetic analysis was performed for *Tuber excavatum*. The results confirm that the representatives of the *T. excavatum* group have a very high intraspecific genetic variability.
• The species composition of the ectomycorrhizal mycota of the old oak-hornbeam forests in the plain belt was established. For the first time, two new species of the genus *Tuber* are indicated for the hypogean mycota of Bulgaria. The relationship of the regeneration of old forests with the hypogean mycota was studied.

1.3 Population and conservation status of medicinal highland plants.

• The population ecology of *Rhodiola rosea* and *Gentiana lutea* in Pirin National Park and of *R. rosea* in Rila National Park was studied. The population ecology of *Arctostaphylos uva-ursi* in Pirin National Park was studied. The size of the subpopulations (localities), their density, age structure and reproductive capacity were established.
• New horological data on the distribution of *Rhodiola rosea* in Pirin National Park have been established. With only three localities registered so far, seventeen larger or smaller localities of the species were found during the full survey of the territory. The horological data on the distribution of *Gentiana lutea* in the Pirin National Park have been supplemented, and six new and relatively large localities have been established, and the notion that the species is relatively rare for Pirin Mt. has been refuted.
• The horology of *Arctostaphylos uva-ursi* in Pirin National Park was also added.

1.4. Ecological studies related to subterranean ectomycorrhizal mycota.

• The influence of climatic and soil conditions on the symbiotic relationships between host plants and ectomycorrhizal fungi was monitored. Different soil properties of the most productive habitats of *Tuber aestivum* from the middle part of Western Bulgaria were studied.
• The most important soil factors for the formation of the fruit body in the common summer truffle have been determined.
• The taxonomic diversity of the symbiotrophic flora of the common summer truffle and the phytogeographic affiliation of the host species in the localities of the species have been established. Data on the phytocoenotic structures of the communities in the studied sample areas

are presented.
• The distribution of the common summer truffle has been found to be associated with a certain intrazonality in climate, soil conditions and vegetation. It is accepted that the conditions of the environment have a major role for its distribution in forest communities, and in the specific case, the edificatory species, and in particular the representatives of the genera *Carpinus* and *Quercus* in their natural habitats, have a determining role.

1.5. Modes of use and protection of resources.

• An overview of medicinal plants from the Bulgarian dendroflora was made in relation to their sustainable use and conservation. Regimes have been developed for the protection and sustainable use of the pastures in the high mountain area of the Belasitsa National Park.

1.6. Pharmacological features of medicinal plant species.

• In co-authorship, ten species of the genus *Astragalus* were studied for their mauritanine content. The amount of flavonoid in each extract was determined by a new high performance liquid chromatography with high resolution mass spectrometric method. Mauritianin was first reported in *Astragalus cicer*, *A. onobrychis*, *A. glycyphyllos*, *A. glycyphylloides*, *A. corniculatus* and *A. ponticus*. The compound was not found exclusively in *A. depressus*.

2. Cultivation, bonification and zoning, variety testing, introduction and methods of growing forest fruit species, medicinal plants and mushrooms.

• Regionalization of the *Vaccinium corymbosum* culture was carried out in nine growing regions in four climatic regions of Bulgaria, at altitudes from 400 to 1400 m above sea level.
• Models have been compiled for the evaluation of the main soil characteristics and bonification of the *V. corymbosum* and *Aronia melanocarpa* in nine regions of Bulgaria under different conditions. The assessments made give an idea of the suitability of the climate and soils in the growing areas of the two species. The evaluations were made for growing under extensive practices (extensive watering and fertilizing) and are the result of the ball formation of the physico-chemical indicators of the soils.
• The duration of the main phenological phases of the vegetation and dormancy for the conditions in nine regions of Bulgaria was established for twenty varieties from four groups of *Vaccinium corymbosum*. The interception and survival of different groups of cultivars were evaluated depending on the use of different cultivation techniques under different growing conditions.
• A complete technology for growing the *V. corymbosum* has been developed, including methodical and applied approaches to the cultivation of the various varieties.

3. Propagation and reintroduction of rare and protected plant species.

• The suitable methods for vegetative reproduction, the suitable substrates and the period of collection of vegetative propagating materials of the *Salix pentandra* L. and the *Galanthus elwesii* Hook. have been determined.
• It has been found that ex situ propagation and reintroduction into the wild can be a promising approach in the conservation of *Taxus baccata*. The appropriate age of the donor plants was established.

4. Biological diversity in the old forests of Strandzha Mt. and their management and conservation regimes.

• The area, distribution, biological diversity and habitat belonging of the old forests in Strandzha Nature Park have been established. The main management regimes for maintaining a favorable

environmental condition are also defined.

Scientific and applied contributions include:

1. Criteria for the establishment of medicinal plants with environmental and economic significance have been determined. Based on the biological characteristics and ecological requirements of individual species, the potentially productive areas of medicinal plants have been established.
2. The raw material productivity, biological and operational reserves of forest fruit species and medicinal plants were determined and recommendations were made for their sustainable use. Guidelines for the sustainable conservation of *Rhodiola rozea* in Rila and the *Arctostaphylos uva-ursi* in Pirin Mts. have been defined.
3. The conservation status of *R. rozea*, *Gentiana lutea* and *A. uva-ursi* on the territory of Pirin has been established.
4. The results of studies related to the ecological features of *Tuber aestivum* in its localities in the Western Stara Planina are presented. The influence of vegetation, climatic and orographic parameters, chemical characteristics and mechanical composition of soils on the productivity of the species were studied. It was established that the most productive habitats of *T. aestivum* in Western Bulgaria have high values of cation exchange capacity (CEC) and low CaCO3 content. It has been confirmed that Ca2+, total organic carbon and total nitrogen are among the most important factors for the formation of fruiting bodies in it.
5. An analysis was made of the medicinal dendroflora of Bulgaria, which includes 176 species that are used as industrial, medicinal and essential oil species. The structure of the medicinal dendroflora was established in terms of the raw materials used, the application in various medical fields and the type of biologically active substances. The economic importance of the most used medicinal plants from the dendroflora was evaluated.
6. An analysis of the grassland communities on the territory of Belasitsa was made. The grassland communities in the higher parts of this mountain have been found to be semi-natural and grazing can be used as a conservation tool. A regime has been set that could prevent them from becoming entirely juniper scrub, which would result in the loss of remaining natural habitats of conservation value.
7. It was found that *Astragalus onobrychis* var. *chlorocarpus* and *A. cicer* can be considered as a potential source of muartanin, replacing the rare *A. monspessulanus* subsp. *monspessulanus*.
8. The set of soil-climatic characteristics and agrochemical analyzes for the selection of areas for the cultivation of *Vaccinium corymbosum* and *Aronia melanocarpa* in forest territories was determined. The elements of the pre-planting preparation are also defined. The technological features of the cultivation of forest fruit species and medicinal plants in forest territories are presented from the point of view of entrepreneurship in forests.
9. According to a prepared monitoring methodology, the reintroduction of the produced new specimens of *Salix pentandra* and *Galanthus elwesii* in their natural habitats on Vitosha was followed, and a high degree of survival of the new individuals was established. The attempt to re-introduce yew in the Vitosha and Strandzha nature parks showed that young plants almost do not develop in the lower part of the steep slopes of thinned forest communities forming the natural habitat of mixed screes, on steep slopes and ravines, a xerophytic variant of the Tilio-Acerion union.
10. The main indicators of the old forests with regard to their management on the territory of Strandzha Nature Park have been determined. Sustainable forest management practices applied in old-growth forests are presented and their importance for biodiversity conservation is traced.

Applied contributions:

1. The influence of the structure of the tree stand and the intensity of different types of felling in beech forests on the distribution and productivity of medicinal plants and forest fruit species has been determined.
2. The ecological parameters of the regions in Bulgaria suitable for the creation of plantations of T.

aestivum have been established.
3. As a result of a floral analysis, two areas for grazing have been designated on a rotational basis in two areas of the Belasitsa National Park.
4. Depending on the altitude, the exposure, the slope and the possibilities for mechanization during tillage and the individual characteristics of the varieties used, planting schemes of *Vaccinium corymbosum* in different growing areas are determined. The methodological approaches in the creation of the collections of *V. corymbosum* varieties on the territories of the Petrokhan and Yundola are described.
5. The requirements regarding the microclimatic and edaphic factors during the reintroduction of yew in the territories of Strandzha and Vitosha Natute Parks and their introduction into natural conditions were determined.

5. Assessment of the applicant's personal contribution

I can have no doubts about the participation and personal contribution of Dr. Slavcho Savev in the development of the presented scientific production, which is the result of many years of diverse research in his specialty.

6. Critical notes and recommendations

• When reporting a chapter of a monograph (G11.1), the points are correctly indicated, but the other three co-authors of the chapter should also be included in the bibliographic description from the list of scientific and publication activities (appendix 8b).

7. Personal impressions

I know Dr. Slavcho Savev for over 25 years. In our many joint training practices, I have witnessed his broad knowledge on various topics related to special uses in forests, botany, the ecological network "NATURE 2000", the management of different categories of forest territories, etc. I believe that he is a teacher deeply respected and valued by his students and colleagues, not only for his professional, but also for his personal qualities and skills.

8. Conclusion

Based on a comprehensive assessment of the qualities and the results presented by the applicant I PROPOSE the applicant Dr. Slavcho Asenov Savev to take the academic position of "Associate Professor" in the subject "Non-timber forest resources" in professional direction 6.5. Forestry.

Author of the statement:
/Assoc. Prof. D. Doychev/

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