

PP-18-614/27.05.21

RECENSION

of the materials submitted for participation in competition for the academic position “**Associate Professor**” in professional field 6.5. Forestry, scientific speciality Forestry, incl. Dendrology, announced by the Forest Research Institute at the Bulgarian Academy of Sciences in State Gazette No. 12/12.04.2021

Candidate for participation in the competition: Senior Research Assistant Plamen Stankov Glogov, PhD

The recension has been prepared by: Prof. Dimitar Petkov Pavlov, D.Sc.

1. Brief biographical data.

Senior Research Assistant Plamen Stankov Glogov was born on May 25, 1975. He graduated from the University of Forestry in Sofia, speciality “Ecology and Environmental Protection” and received a master’s degree in “Environmental Engineering”. During the period 2001-2004 he studied at the Institute for Postgraduate Qualification at the University of National and World Economy, where he got a master’s degree in “Public Administration”. In 2018, at the Forest Research Institute - BAS, he defended a dissertation entitled “Study of the higher flora and analysis of the dendroflora of Lozenska Mountain” and received the educational and scientific degree “Doctor”.

From October 6, 1998 to May 12, 2006, he worked at the University of Forestry consecutively as an assistant, senior assistant and chief assistant professor and conducted training of students from different specialities in the disciplines “Botany”, “Phytocoenology”, “Medical Botany” and “Ornamental plants of the Bulgarian flora”.

From 01.06.2006 to 15.10.2015. he worked in the Ministry of Environment and Water as a chief expert, head of various departments and director of the PHARE Program Implementation Directorate. Since 16.11.2017 he works at the Forest Research Institute - BAS as an “assistant”, and after participating in a competition he takes the academic position “Senior Research Assistant” in the scientific speciality “Forestry”, incl. Dendrology

2. Compliance of the submitted documents and materials of the applicant with the minimum requirements, according to the Regulation for acquiring scientific degrees and holding academic positions at the Forestry Research Institute - BAS.

The documents submitted by Senior Research Assistant Plamen Glogov, PhD show that the procedure for opening and announcing the competition has been followed. The presented materials are in accordance with the requirements of Art. 60 of the Act on Development of the Academic Staff in the Republic of Bulgaria and the Regulations for its application. The documents are in accordance with the Regulation for acquiring scientific degrees and holding academic positions at the Forestry Research Institute - BAS.

The assessment of the compliance of the indicators presented in the reference with the national minimum requirements for obtaining the scientific degree “Associate Professor” shows:

Indicator A - Dissertation for awarding the educational and scientific degree “Doctor”. A copy of the diploma for the educational and scientific degree “Doctor” has been presented. *The requirement for 50 points has been met.*

Indicator B - The presented 10 scientific publications, are published in peer-review journals

and are indexed in world-famous databases with scientific information, following reduction based on the number of co-authors, *provide 117.9 points* with a minimum requirement of 100 points.

Indicator Γ - The articles and reports presented in group $\Gamma 7$, 14 articles and reports published in scientific peer-review journals and indexed in world-renowned databases with scientific information, following reduction based on the number of co-authors, *provide 166.0 points*. The 28 articles and reports presented in group $\Gamma 8$, published in non peer-review journals following scientific review or published in edited collective volumes, following reduction based on the number of co-authors, *provide 90.5 points*.

A total of 259.5 points are gathered from $\Gamma 7 + \Gamma 8$, at a minimum requirement of 200 points.

Copies of the publications and abstracts have been presented.

Indicator Δ - The presented in group $\Delta 13$, 8 citations or reviews in scientific peer-review journals and indexed in world-renowned databases with scientific information or in monographs and collective volumes, *provide 120 points*; In group $\Delta 14$, the presented 12 citations in monographs and collective volumes with scientific review *provide 120 points*; In group $\Delta 15$, citations or reviews in non peer-review journals following scientific review, the presented 1 citation provides 5 points.

In total, for indicator Δ , at a minimum requirement of 100 points, the candidate has stated citations that provide 245 points.

A list of the citations by the individual indicators has been presented.

Indicator E - In group $E 18$, the participation in 2 national scientific or educational projects provides 30 points. In group $E 19$, the participation in 2 international scientific or educational projects provides 40 points. In group $E 20$, the management of 1 national scientific or educational project provides 30 points.

In total, for indicator E, at a minimum requirement of 50 points, the candidate has gathered 100 points.

For the additional indicators of the Forestry Research Institute at BAS, the candidate has 74 points.

In total, for all indicators, the candidate has gathered 843.4 points at a minimum requirement of 500 points.

3. General description of the presented materials (by type; by importance; place of publication; language in which they are published; number of co-authors, etc.)

The general list of the scientific production of Senior Research Assistant Glogov, PhD includes 55 publications, 4 of which are related to the dissertation for obtaining the scientific and educational degree "Doctor" and 4 are related to the participation in the competition for the academic position "Senior Research Assistant". For participation in the competition for the academic position "Associate Professor", 47 publications have been presented, 24 of which are published in peer-review journals and are indexed in world-renowned databases of scientific information, 3 publications are published in non peer-review journals following scientific review and 24 reports are published in edited collective volumes.

The materials presented in category $B 4$ have been published in the following journals: *Hayka za ropata* (B 4.1, B 4.3, B 4.4, B 4.5, B 4.5, B 4.7), *Botanikai Kozlemenyek* (B 4.8); *Phytocoenologia* (B 4.2, B 4.10); *Ecologia Balcanica* (B 4.9).

The materials for the indicator $\Gamma 7$ have been published in the following editions: *Forest*

science (Nauka za gorata) (Г7.1, Г7.4, Г7.14); Phytologia Balcanica (Г7.2, Г7.3, Г7.14); Silva Balcanica (Г7.6, Г7.8, Г7.9, Г7.10, Г7.12); ZooNotes (Г7.7); Ecologia Balcanica (Г7.11); Forest science (Г7.13 - in press). 3 articles published in "Hayka za ropara" (Г8.1), "Engineering and Environment Protection" (Г8.9), "Ecological engineering and environmental protection" (Г8.10) and reports in edited collective volumes and supplements with scientific reports from conferences (Г8.2 - 8.7 and Г8.11 - Г8.23) are included in Г8.

The candidate has 2 publications in which he is a sole author that are related to obtaining the scientific and educational degree "Doctor" and taking the academic position "Senior Research Assistant". In the competition for the academic position "Associate Professor", from the 47 publications with co-authors, he is the first author in 27 of them, the second author in 11 of them and third and next author in 9 of them. 29 of the publications are in Bulgarian and 19 of the publications in English.

4. Main areas of the candidate's research work and the most important scientific contributions.

The main areas in the candidate's research work are related to:

- floristic studies of geographically distinct areas, natural habitats and areas with anthropogenic impact
- chorological studies related to the establishment of new localities of studied species
- ecological and biological studies on certain groups of plants
- dendrological and silvicultural studies
- study of invasive alien species and phytocoenological studies of plant communities of characteristic habitats.

Following a generalized analysis of the presented scientific production, I find the following scientific contributions of the candidate as most significant:

Section "Original scientific contributions"

- 19 associations and sub-associations have been established, of which 6 associations and 4 sub-associations are new to science, during the syntaxonomic analysis of the thermophilic oak forests in Bulgaria using the Floristic method of classification (**B.4.10**). In the general processing and analysis of the phytosociological descriptions, more than 100 phytosociological descriptions of the candidate in Turkey oak, Hungarian oak and White oak forests are included. In the created database for the vegetation of the Balkan Peninsula (BVD) 100 phytosociological descriptions made by the candidate are included (**B.4.2**).
- Specific plant community dominated by *Hordeum leporinum* Link and *Bituminaria bituminosa* (L.) Stirt has been found. (Class Stellarietea mediae R. Tx., Lohmeyer et Preising in R.Tx. 1950). Communities of this potentially new to science syntaxa are found in four localities in the Black Sea region between the town of Ravda and the town of Nessebar (D.7.12).

Section "Methodological contributions"

- The developed generalized methodology for the study of the dendroflora based on the methods and approaches used in previous studies of the composition of tree and shrub species in natural areas and parks. The methodology includes approaches for studying the dendroflora by taxonomic, eco-biological, phytogeographical, zoological and economic indicators. (**B.4.3**).

- The proposed new method of multivariate ecological and phytogeographic analysis, which will contribute to the faster and cost-effective assessment of the condition of natural and artificial plantations, based on the characteristics of their dendrofloral complex and making the right decisions for their sustainable management. This method was applied in the analysis of the dendroflora of Lozenska Mountain (**B 4.4, B 4.5, Г7.14, Г8.9, Г8.10**).
- The updating of the data from previous studies with a dominant approach for vegetation classification using the floristic approach for classification of plant communities in the gorge of Iskar River between Plana Mt. and Lozenska Mt. (G8.12, G8.13). As a result of the update made by the candidate in the classification method, significant changes in the distribution of syntaxa have been identified and new relationships between them have been revealed.
- The developed current methodology for monitoring the natural forests of the Danube Islands and the impact of invasive alien plant species upon them (D7.10). The methodology suggests unification in the cross-border monitoring of the forests along the Danube River and its islands and supports the decision-making processes related to the management of protected areas on the Danube Islands.

Section “Enrichment of scientific knowledge”:

- The results of the overall study of the higher flora of Lozenska Mt. (**Г7.1**), in which it has been found that 25.8% of the Bulgarian flora is found on the territory of this mountain. In the analysis performed on the relict (**Г7.6**), medicinal (**Г7.2**) and decorative flora (**Г8.11**) it has been found that the relicts are 7.4% of the mountain flora and 17.6% of all relict species in the Bulgarian flora. The variety of life forms and floristic elements has also been analysed. (**C 4.4, C 4.5**).
- The researches of the medicinal (**Г8.3**) and honey-bearing (**Г8.6**) dendroflora of Lozenska Mt. and the calculated honey-bearing potential of the major tree species. It has been established that on the territory of the mountain about 1/3 of the medicinal and honey-bearing Bulgarian dendroflora is found. A forecast has been made that 1620 beehives can be maintained from the tree plants on the territory of the mountain.
- Assessment of the degree of synanthropization of the flora on the territory of Lozenska Mt. (**B 4.9**), when performing analysis of the anthropophytic element by major taxonomic, ecological and phytogeographical indicators. It has been established that the anthropophytes are 33.3% of the higher flora of the mountain and their percentage exceeds twice the participation of this group of plants in the Bulgarian flora (14.0%). The reasons for the high degree of anthropophytization of the unmanaged anthropogenic pressure over the years - cutting, grazing, mining, the uncultivated agricultural lands in the last decade, which cover significant areas. Among the anthropophytes, four species with conservation status have been identified.
- The established invasive alien species (IAS) and potentially invasive alien species (PIAS), which represent 3.46% of the flora of the Lozenska Mt. and 45% of all IAS in Bulgaria. About 1/5 of them are highly aggressive species. The coordinates have been established and all populations of IAS and PIAS have been mapped in a comprehensive detailed study of the diversity, size and distribution of their populations. Primary database for conducting regular monitoring and control measures has been provided (**B4.8**).
- The analysis performed on the biological characteristics of the invasive alien species Himalayan balsam (*Impatiens glandulifera* Royle) and the recommended measures for limiting its spreading

(Г8.22, Г8.17, Г8.20.). The studies of biological control measures against *Impatiens glandulifera* are aimed at attempts to use the species for grazing (Г8.21) and looking for potential biological agents (pests and pathogens) for which it is a host (Г7.7., Г8.19). A trophic connection has been found for the first time - *Chrysolina herbacea* – *Impatiens glandulifera* and a trophic connection that is new for Bulgaria - *Priesterognatha fuligana*- *Impatiens glandulifera* has also been found.

- The identified natural habitats from NATURA2000 that are at risk for the spread of IAS: 3150 Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition*-type vegetation, 3270 Rivers with muddy banks with *Chenopodion rubri* and *Bidention* pp vegetation and 6210 Semi-natural Dry Grasslands and Scrubland Facies: on Calcareous Substrates (Festuco-Brometalia) (*important orchid habitats)
- The results from the conducted phytosociological and eco-morphological study of IAS *Opuntia humifusa* (Raf.) Raf. in the only locality established so far on the territory of Lozenska Mt. (B 4.6).
- The established new localities of 18 species, most of which are invasive and species with conservation status (Г7.5, Г7.13.)
- The identified 64 localities of 31 species with conservation status, with direct threats from off-road vehicles having been identified for 61.3% of the species and 42.2% of the localities (D8.5).

5. Scientific and applied achievements and implementation activity.

As scientific and applied contributions I recognize:

- The established dynamics of growth and dendrobiometric changes in plantations formed by Oriental hornbeam and South European flowering ash and their competitiveness on the territory of Lozenska Mt. (B4.7) and the demonstrated need for stricter implementation of thinnings in pine crops and plantations of Sessile oak, Austrian oak, Hungarian oak and White oak in order to limit the cover abundance of the undergrowth of Oriental hornbeam and South European flowering ash and increase the undergrowth of autochthonous species.
- The determined species composition and the quantitative participation of the lianas in the forest communities on the Danube islands Vetren and Chaika (Г7.11) and the identified impact of the invasive alien species *Sycius angulatus*, which has the strongest impact on the state of natural habitats and poses a real threat to their biodiversity.
- The studied plant diversity in the natural habitats of *Platanus orientalis* L. in Bulgaria as a stage towards the creation of a conservation strategy for the preservation of this species (Г8.8). An analysis of the influence of the flora and vegetation on the genetic diversity and distribution of the populations of the Oriental plane in nine natural habitats of the species.
- The conducted phytosociological studies in artificial stands of Austrian pine with undergrowth of South European flowering ash in part of the mountainous areas around the city of Sofia – Vitosha Mt., Plana Mt., Lozenska Mt. and Stara planina Mt. (G8.15). High similarity between the communities in the artificial stands of Austrian pine with undergrowth of South European flowering ash has been found in the four mountains – Lozenska Mt., Plana Mt., Vitosha Mt. and Stara Planina Mt.. At present, these are defined as serial and related to the autochthonic communities of the alliances *Quercion petraeae* (Zolyomi et Jakucs in Soo, 1963) and *Quercion confertae* Horvat 1958 with the association *Quercetum frainetto-cerridis* Rudski 1949.

- As a scientific and applied contribution I also recognize the mapped localities of the invasive alien species and the elaborated measures for limiting their distribution.

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

The candidate has identified 21 citations of his publications, 8 of which are citations in publications in the Web of science, 12 are citations in monographs and collective volumes with scientific review and 1 citation in a non peer-review journal following scientific editing.

7. Participation in scientific and applied projects.

The applicant has participated in the development of projects for the study of plant diversity funded by the Bulgarian-Swiss Forestry Program and for the inventorization of the habitats of Lozenska Mt. He participated in the development of the following projects: "Forestry concept for sustainable management of eastern hornbeam forests (*Carpinus orientalis* Mill.) on the territory of "Southwestern State Forestry Enterprise", "Environmental protection and risk reduction of adverse events and natural disasters", "Control and validation of the results from the performed analyses and studies of the species and natural habitats in Bulgaria, subject to reporting according to the Habitats and Birds Directive: Stage 2" and "Invasive alien plant species in protected areas on the Danube islands of Bulgaria and Romania"

The candidate is currently managing a project funded by the Bulgarian National Science Fund entitled "Study of the distribution and impact of the invasive alien species *Impatiens glandulifera* Royle on natural habitats in the gorge of Iskar River between Lozenska Mt. and Plana Mt."

During the period 2018-2020 he has participated in 7 scientific forums with 18 reports.

8. Teaching activities

During the period 1998-2006 the candidate has actively participated in the training of students at the University of Forestry in Sofia. He has conducted practical classes in the subject "Botany" for students in the specialities "Ecology and Environmental Protection", "Forestry" and "Agronomy", practical classes in "Phytocoenology" for students from the speciality "Forestry" and "Medical Botany" for students from the speciality "Veterinary Medicine". During the period 2000-2006 he has conducted practical classes in the discipline "Ornamental plants from the Bulgarian flora" for students from the speciality "Landscape Architecture".

9. Assessment of the candidate's personal contribution.

The personal contribution of Senior research assistant Glogov, PhD is clearly outlined with respect to the profile of his scientific specialization. In the 27 publications with co-authors, in which the candidate is the first author, I recognize his leading role. In the publications in which he is in second and next place, I believe that his participation is equivalent, including in the publications with more than 6 authors, as he participates with a significant number of his personal studies in the processed data sets.

10. Critical remarks and recommendations.

I acknowledge the contributions in the habilitation report of the 10 selected publications in

Indicator **B** and the report on the scientific contributions in the publications from Indicator **Г**. By combining the main directions in the research work, some repetitions could be avoided.

Considering the experience that Senior Research Assistant Glogov, PhD has gained so far in conducting research in various fields and his active expert work in solving problems related to environmental protection, including biodiversity, I recommend that in his future work he focuses more actively on independent scientific generalizations and training of doctoral students.

11. Personal impressions.

My personal impressions of the candidate are from his student years and as a lecturer at the University of Forestry during the period 1998-2006. With his wide interests in various fields, he stood out with his discipline and depth when studying, teaching students and doing research. When conducting joint research on a scientific project in the period 2020-2021, I become aware of his scientific growth related to the accumulation of knowledge and the acquisition of new methodological approaches to conducting research. The organization created for the implementation of the project managed by him in the period 2020-2021 with the participation of scientists from different fields of science shows that he has the qualities of a leader and potential for team work. This is a prerequisite for achieving significant scientific and applied research results.

12. Conclusion.

The presented scientific production in specialized scientific journals, the scientific and applied contributions he has made in the scientific fields of botany, phytosociology, dendrology, forestry, ecology and biodiversity conservation, which have resonated in the scientific community, his expert activities in the implementation of national and international projects, are the basis for high assessment of the results from the overall activity of the candidate. It exceeds the national minimum requirements set in the Act on Development of the Academic Staff in the Republic of Bulgaria, the Regulations for its application and the Regulations of the Forest Research Institute at the Bulgarian Academy of Science for taking the academic position "Associate Professor".

With respect to the above, I propose that Senior Research Assistant Plamen Stankov Glogov, PhD be elected "Associate Professor" in the professional field 6.5. Forestry, scientific speciality Forestry, incl. Dendrology.

May 25, 2021

The recension has been prepared by:
Prof. Dimitar Pavlov.