REVIEW

over the documents for participation in the competition for occupation of the academic position "Associate Professor", field of higher education 4. Natural sciences, mathematics and informatics, Professional direction 4.4. Earth sciences, Scientific specialty "Ecology and conservation of ecosystems", in the discipline "Technologies for restoration of damaged soils and terrains", announced by the University of Forestry in SG No. 101 of 27.12.2019 / 29.11.2019, procedure code ELA-AsP-1119-29.

Applicants to participate in the competition:
1. Chief Assistant Professor, Dr. Peter Gospodinov Petrov, single candidate;

Reviewer: Dr. Rumyana Panayotova Mecheva, Professor of Professional direction 4.3. Biological Sciences – retired.

1. Brief CV of the applicant (s)
Petar Gospodinov Petrov was born on 13.01.1977 in Stara Zagora. In 2002 he completed his higher education at the Forestry University - Sofia and received a bachelor's degree in ecology and environmental protection, graduating in 2004 with a master's degree in ecological monitoring and eco-management. After graduation, he worked as a Fellow at Scientific research center at the University of Technology and Science, Balkan Science and Education Center for Ecology and Environmental Protection. Since 2006, he is Chief Assistant in the disciplines "Recultivation of Damaged Terrains" and "Recultivation of Technogenic Damaged Lands" at the University of Technology.
From 2002 to 2009 he is an Expert, Project Manager at Balkan Science and Education Center for Ecology and Environmental Protection, where is responsible for the implementation of EIA projects and rehabilitation of damaged terrains; Component Expertise: Soils, Waste and Vegetation in EIA Reports on Biodiversity. In 2009 he was decorated with the educational and scientific degree Doctor (PhD) in the field of "Technology for waste recovery and treatment" from the University of Chemical Technology and Metallurgy in Sofia. The PhD theses was entitled "Characterization of the waste from TPP Svilosa and their environmentally sound storage and treatment".

Since 2010 he is manager of a design, consulting, expert and research company in the field of ecology and environmental protection - P-United, Ltd., where is responsible for the development of the company and leads the implementation of projects in the EIA, EC and Waste Management.

2. Conformity of the submitted documents of the applicant (s) with the requirements in accordance with the Rules for Academic Staff Development at UF
Documents submitted by Dr. Petar Gospodinov Petrov, sole applicant, show that the

procedure for opening and announcing the competition has been followed and they are in accordance with the requirements under Article 60 of the Law on the Academic Staff Development of Republic of Bulgaria and the Rules for its implementation, as well as with the Rules on the conditions and procedure for acquiring scientific degrees and for occupying academic positions in the University of Forestry under professional directio 4.4 "Earth Sciences".

According to the sources of refereed and indexed periodicals and databases of scientific information, articles G7.1, G7.13 and G7.14 should refer to the section scientific publications in non-refereed editions, which changes the total score from 294.62 to 237.66.
Thus, the total number of points amounts to 474.66, whereby the applicant fulfills the scientometric requirements in accordance with his / her individual results for occupation of the academic position of "assistant professor" with the minimum required 400.

Indicator group	Number of minimum points for "Associate Professor"	Completed number of points
A	50	50
B	100	100
G	200	237.66
D	50	87
Total	**400**	**474.66**

3. Assessment of the applicant's educational activity
Since 2006, Dr. Petrov has been actively involved in the undergraduate education. As a full-time educator in the Department of Ecology and protection and Conservation of the environment, he is the holder of four compulsory courses with a total of 135 hours of lectures, 105 hours of practice and 9 hours of practice and two elective courses with a total of 60 hours hours of lectures and 45 hours of practice.
He has been the head of two successfully graduates Masters of Sci., currently managing one PhD student.
He has developed and updated 3 curriculas, 2 of which are for Bachelor's and 1 for Master of Sci.

4. Assessment of the applicant's scientific, applied and publication activities
As a part of the overall formation of the candidate as a professionalist, the main scientific interests of Dr. Peter Petrov should be mentioned. On the one hand, they relate to the study of damaged soils and terrains, as well as to the application of methods for their restoration with subsequent reclamation and tracing of succession processes, and on the other, to studies on biological and ecosystem diversity in different territories - by those with varying degrees of protection to those of economic importance.

4.1. Participation in scientific, applied and educational projects

Dr. Petar Petrov has developed a total of 13 scientific and scientific-applied projects in the field of current competition, implemented at UF and Scientific research centet at UF, of which 2 are international, 10 are national and 1 was funded by the National Research Fund. He was participationt in12 scientific conferences and forums related to topic of the competition.

He was project lieder of 3 scientific and applied projects, as well as 38 national, 40 consulting and applied projects. In summary - 81 projects were developed in partner organizations, also in the field of competition.

He is a manager of the Association of Environmental Impact Assessment Experts and a member of the Balkan Ecological Association (B.E.N.A.);

4.2. Characteristics of published scientific results

In this competition, Dr. Petrov participated with 22 scientific papers, incl. 1 habilitation work, After his PhD theses defense in 2009, 1 book was published based on the PhD theses.

Publications in Scientific Journals:

- publications in Journals with Impact factor and Impact rank - 5 issues.
- in Bulgarian refereed Journals - 3 pcs.
- in foreign refereed Journals - 1 pc.

- Publications in proceedings of scientific forums
- International, which are deposited in international electronic libraries database or included in Internet sites - 5 pcs.
- National - 4 pcs.

By importance

- In Impact Factor and Impact Rank Journals
- Journal of Environmental Protection and Ecology - 4 issues.
- Acta Zoologica Bulgariaca - 1 pc.
- International Conference on Innovations in Science and Education - 1 issue.
- IOP Conference. Sir. Materials Sci. and Engineering - 1 pc.
- CBU International Conference - 1 pc.

In two of the presented publications, Dr. Peter Petrov is a single author, in 4 he is first author and in 9 he is second.

Over the years of his professional career, Dr. Petrov has developed a clear research profile, and developed the necessary methods, and has accumulated significant experience as a researcher and leader in scientific projects, demonstrating professional maturity and organizational talent.

4.3. Candidate's scientific activity in the literature (citations)

To date, the candidate has submitted a list of 24 citations of his scientific works, most of them - 9 (D10) are in refereed in journals and those with impact factor or impact rank, 3 in

monograph works and 12 issues in peer-reviewed non-refereed issues (D11).
The indicated scientometric data characterize Dr. Petrov as a productive researcher with scientific achievements who have found resonance among the scientific community.

4.4. Contributions to the work of the applicant (s) (scientific, applied, applied)
Thematically, the main part of Dr. Peter Petrov's scientific activity can be classified in two directions related to:
- Investigation of damaged soils and damaged terrains, development of technologies for restoration of soil functions as a component of ecosystems and studies on succession processes after recultivation.
- Research on ecosystem restoration processes and study of biodiversity in territories with different conservation and use regimes, developing measures for their management and restoration.
The contributions relate to both - with fundamental importance and with scientifically applied activities.

1.1. Contributions in the field of processes and opportunities for recultivation of disturbed terrains, mining waste and restoration of ecosystems on them, as well as identification of limiting factors and assessment of soil formation processes. Technology has been developed using unconventional methods for reccultivation of damaged terrains, as well as waste utilization and soil condition improvement. Based on physical properties, mechanical composition, content of nutrients and heavy metals in substrates from the ore deposit, it makes subsequent comparisons with soils from natural terrains for the purpose of planning further recultivation activities. It finds that the stability and growth of grass species on such terrains are not clearly dependent on the accumulation of heavy metals and toxic elements. Important are the species composition, which should be close to that of the natural ecosystem, the acidity and granulometric composition of the root habitat. Suitable tree and shrub species specific to the area of the reclaimed site and physio-geographical conditions must be selected for successful biological reclamation (B3.1).
It was proved that neutralization of acidic soil-forming materials by liming, irrespective of the type of substrate and fertilization rates, has a positive effect on the soil-forming process, the growth and development of cereals and legumes. Based on the heavy metals contents and toxic elements in the substrates of reclaimed terrain, it determines their movement along the soil-plant chain. Scientifically based approach and methodology has been developed for the reclamation of ore-damaged areas. It identifies the main limiting factors in the reclamation of ore deposits and their impact on ecosystem restoration (B3.1; G7.12).
Investigates the effect of biological recultivation on the quality and speed of soil formation processes on recultivated lands, disturbed by mining and processing of minerals (G 7.4; G 7.5; G 7.10; G 7.12).
The speed of the soil-cultivation processes are determinated after non-humus cultivation for the purposes of agriculture and forestry. It was analysed the relation between the microclimate and the relief, the rate of flow of the soil-forming processes, the properties of the soil-forming materials and the species plant composition of the reclaimed terrains (G 7.10 and G 7.12).

When burning high-calorie coal, the landfilled ash and clogs contain a sufficient amount of non-toxic nutrients and can be successfully used for the reclamation of disturbed terrains (G6.1, G7.2).

It has be proven that the use of a by-product of biomass gasification is appropriate for the reclamation of high acidity and nutrient-poor terrains. This reduces the needs to bring in ameliorants (such as lime / limestone and mineral fertilizers) during the first year of recultivation and it is cost effective and environmentally friendly (G7.13).

Investigates the species composition and activity of the common microflora in accordance with the development of the soil-forming processes on the reclaimed terrains, with different reclamation, and the stages of soil cover formation have been established (G7.14);

Participates in the development of methodological guidance for the registration and reporting of potentially contaminated areas with contaminated soils. (G8.7).

1.2.Contributions to ecosystem restoration processes and biodiversity research in territories with different conservation regimes.

As a result of a faunistic study of a maintained reserve "Ibisha", for first time data on *Dolomedes plantarius* – species included in the Red Data Book of Bulgaria in the categoty "extinct" category, as well as a southern European leech (*Hirudo verband*), a rare species at European level, endangered oval mussel (*Unio crassus*) and spread (*Leuciscus aspius*) were published. Over 100 animal species have been described: 42 terrestrial and 16 aquatic invertebrates, 5 species of fish, 1 species of amphibians and 1 species of reptile, 30 species of birds of which 22 are breeding species, including species of worldwide importance such as small cormorant (*Phalacrocorax pygmeus*), sea eagle (*Haliaeetus albicilla*), Night heron (*Nycticorax nycticorax*), Spotted heron (*Ardeola ralloides*) and Spatula (*Platalea leucorodia*) and 16 mammal species, of which 8 species are bats (G.7.3).

By applying floristic and physiognomic approach to the classification of vegetation, the main types of plant communities and ecosystem diversity in the Upper Koria Reserve with the Samari Protected Site and the Chuprene Reserve and the Chuprenski Buki Protected Area are characterized and mapped. Eight types of natural habitats (9110, 9130, 9410, 91BA, 4070 *, 4060, 9180 * and 8110) and seven more (9110, 9130, 91BA, 9410, 4070 *, 4060 and 8110) are listed and to Dir. 92/43 / EEC. The results of the surveys are included in a developed geographical information system for the reserves and protected areas (G.7.6 and D.7.7).

In other protected areas, 6 types of natural habitats (9180 *, 91AA *, 91E0 * 91G0 *, 91M0 and 91S0 *) and 5 types in the Vitanovo, Tisovitsa, Sredok and Silkworm '(9180 *; 91E0 * 1 91G0 *, 91M0 and 91S0 *) Some indicators related to the structure and functioning of ecosystems were stated: communities composition, habitat-specific species, dominant and conservation - value species, invasive species, vertical and horizontal structure of plant communities, and indicators related to soil moisture and nutrition, succession changes and biological productivity of communities (G7.9).

In the field of the new environmental direction, "Ecosystem Services" it was demonstrated the role of small wetlands in their supporting role as interconnecting units between Bulgaria, Greece, Albania and the Republic of Northern Macedonia, using remote monitoring techniques (G7.11).

Another aspect of biodiversity research are monitoring studies in connection to determine the

species composition of ornithofauna and its ecological features in the area of Golo Burdo and Konyavska Mountains (G8.3, G8.4, G8.5, G8.6).

Preparation of expert assessments

Of great importance for Dr. Petrov's formation as a specialist are his coordination and organizational experience, including the management of scientific and applied projects and the collaboration with a wide range of experts. Proof of this is the impressive number of projects (67 in total) in which has participated as a manager or participant. 34 of them are EIA, EC, EIA and expert opinions. As a proof of their quality, 59 references from companies and contracting authorities were applied.

Very good impressions make that the applicant works with well-established teams of leading specialists, uses appropriate methods in his studies, which allow him to obtain reliable results and publish in peer-reviewed scientific publications.

I accept the reference for the scientific contributions presented by Dr. Petrov. The related scientific and applied contributions related to them are completely in line with the theme of the competition.

5. Assessment of the applicant's personal contribution

After careful study of the presented information on the scientometric indicators of Dr. Petar Petrov, it becomes clear that he fully answers, and by some indicators, even exceeds the minimum national requirements for occupying the position of Associate Professor.

6. Critical notes and recommendations

In reference the scientific input, the most relevant to the applicant should be emphasized, because not every publication or published report is of a contributory nature.

In the future, I recommend that more attention should be paid to the presentation of scientometric information, especially concerning periodicals in refereed and indexed sources, when preparing such a report.

My strong recommendation for future when publishing results they have to be directed to reputable Jurnals.

7. Personal impressions

My impressions of our collaboration with Dr. Petar Petrov are excellent. In addition to being an ecologist and phytocoenologist, he is a dedicated leader in numerous projects, expertise, environmental assessments, etc., which testifies to the continuity and support of the development of specialists and experts not only at UF, but also at P-United LTD. His approaches to successful teamwork, including internationally, have produced good results. I am impressed by the applicant's work on the individual projects as being very organized, efficient and purposeful.

He has considerable experience in attracting funding and in the management of scientific and applied projects. I consider this quality a strong argument in favor of eventual habilitation as an associate professor.

8. Conclusion

Based on the submissions of the competition from Ch. Assoc. Prof. Petar Gospodinov Petrov I am convinced that he is responsible, exceeding the national criteria for occupying the academic position of Associate Professor by individual indicators. He is a motivated and well-established scientist, with a clear scientific profile and proven scientific and applied contributions. The direction he works in is extremely promising.

In the light of the foregoing, I strongly recommend that the Honorable Scientific Jury support the selection and suggest the applicant Chief Assistant Dr. PETER GOSPODINOV PETROV to take the academic position of "Assistant Professor" in the discipline "Technologies for restoration of damaged soils and terrains" of professional direction 4.4. Earth sciences, scientific direction in Ecology and Ecosystem Conservation.

Reviewer's signature:

The review was submitted to: 8.4.2020 г.