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DEGLI STUDI
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E TECNOLOGIE AGRARIE,
ALIMENTARI, AMBIENTALI E FORESTALI

Report of Professor Giovanni Argenti, Università di Firenze (University of Florence, Italy)

PhD Thesis title: Management of urban grasslands in the context of green infrastructure ecosystem services

Candidate name: Hassanali Mollashahi

The reviewed PhD thesis concerns a relevant topic in Agriculture and Horticulture science, *i.e.* the assessment of Urban Grasslands (UGs) which represent one of the most common types of green infrastructure occurring in urban and peri-urban areas and one of the most important and spread vegetal resources in these contexts. Thus, their study, monitoring and management is of a pivotal importance to maintain the ecosystem services they provide.

The overall structure of the thesis is well organized, analysing specific features of the urban grasslands, focusing on two specific topics: the assessment of the characteristics of connectivity of UGs, with important management issues, and the analysis of soil and vegetation types. In both cases, the urban grasslands system of the city of Wrocław (Poland) was used to obtain data to be analysed. Content of the PhD thesis is constituted basically by two articles that reflect main activities previously summarized. In both cases the journals hosting results of the candidate research activity are highly ranked, being classified in 1st and 2nd quartile. Inside the reported articles, the literature assessment was well performed, and we can consider it updated, exhaustive and highly consistent with overall aim of the work and with specific aims of the reported papers.

Methods used can be considered adequate and to some extents innovative, and able to perform great improvements within the scientific domains analysed and the discussion in both article seems adequate and useful to insert the research findings in the international scene concerning the analysed topic. Results of the present work can also produce important outcomes from a practical perspective for improvement of different ecosystem services provided by urban grasslands and to support decisions concerning management of UGs. Reported results can be useful to improve grassland quality utilising different techniques in terms of grassland establishment and/or cutting frequency, even if not in all grasslands types occurring in the studied area this will be possible, due to specific characteristics of a given grassland type and to citizens appreciation. Moreover, the thesis highlighted the importance of continuous monitoring of heavy metal in soils, especially in specific urban areas. Assessment of diversity in grasslands is based on floristic richness alone, and in this case a deeper investigation using different diversity and ecological indices would have been a more appropriate approach.

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For these reasons, in my opinion, the thesis presents important solutions under a scientific and practical points of view.
The importance of the work conducted inside the thesis is testified by quality of editorial collocation of published papers. The relevant role and the independence of the PhD candidate in the thesis development is considered very high, taking into account his position inside published papers (always first author), and this testify high involvement of candidate in the conducted researches.
For all these reasons, my judgment on the candidate is surely positive.

Based on the above reported considerations, I conclude that the doctoral dissertation meets the requirements specified in Article 187, paragraphs 1-4 of the Act of July 20, 2018, the Law on Higher Education and Science (Journal of Laws of 2018, item 1668, as amended). Therefore, I propose to the Discipline Council of Agriculture and Horticulture at the University of Life Sciences in Wrocław to admit the doctoral candidate to the next stages of the doctoral procedure.

Firenze, 8/8/2023

Prof. Giovanni Argenti