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Opinion about the habilitation proposition of Dr Kamil Bartoń

General remarks

Since 2014 Dr Kamil Bartoń is based at the Institute of Nature Conservation of the Polish Academy of Science. Before he studied at the Jagiellonian University (master 2002) and obtained his PhD in 2010 at the Mammal Research Institute of the Polish Academy of Science.

To date he authored or co-authored 25 publications in international journals (19 after his PhD). These received 1711 citations (Scopus: retrieved 27.06.2021; without auto-citations) resulting in a Hirsch index of 16. Additionally his MuMIn R-package that is not indexed in Scopus received 9436 web mentions. Compared to other recent habilitations in the field of ecology these bibliometric values are high. The increase in publication output and bibliometric performance after his PhD is apparent and does not raise concerns. His Google Scholar citations achieved a value of 12360, without MuMIn 2924 (retrieved 27.06.2021). Therefore, the Google Scholar to Scopus quotient is 1.71, a comparatively high outreach outside of the strict academic community. This is also a positive aspect of the present application.

Apart from the R-package on multi model inference, most cited (> 100 citations) are five papers on animal dispersal. Particularly the many author Bonte et al. 2012 review on 'The

costs of dispersal' to date received more than 600 citation. Highly cited is also the Travis et al. 2013 Oikos paper on 'Dispersal and species responses to climate change. In these papers Dr Bartoń served as co-author.

In only six of the international publications (three after his PhD) Dr Bartoń served as main author. These appeared during the last nine years and received 71 citations. This output is not impressive compared to his activity as co-author. As a member of a conservation orientated institute I missed publications that popularize science devoted to a broader non-specialist audience.

Dr Bartoń was a postdoc 2009-2012 in Wuerzburg, Germany, and 2012-2014 in Aberdeen, UK. Additionally, he attended several international workshops mainly in Germany and the UK. Worth of mentioning here are two sDiv workshops in Leipzig. In general, Dr Bartoń appears to be well connected to the international scientific community, a strong aspect of his application.

Dr Bartoń served as PI in three external scientific grants, most notably a FUGA 4 NCN (2015-2018) grant and a Marie Curie fellowship (2012-2014) grant. These grant activities are well within what is currently expected for a successful habilitation.

I have to say that I do not know Dr Bartoń personally. I did not contact the authorities of his Institute for additional background information. Therefore, my opinion is solely based on the material sent to me and on common scientific data bases.

Publications linked to the application

This proposition is titled 'Przemieszania się i dyspersja na poziomie osobniczym i konsekwencje populacyjne'. The title tells all about the major scientific interests of Dr Bartoń. He studies the ecology of dispersal, particularly long-term dispersal and range extension from an eco-evolutionary perspective. The importance of dispersal as an ecological and evolutionary driver has long been acknowledged in biogeography and macroecological modelling. Particularly, long-term dispersal has come into the focus of interest during the last two decades. To this, Dr Barton added advanced modelling skills and a sound vertebrate background.

Five papers are linked to the present proposition. In three of them Dr Bartoń served as lead author, in the two others he was one of several co-authors. Statements of author contributions

are provided to each of the publications. Such a series of papers is typical and does not raise concerns.

The publications appeared in higher (Proc. R. Soc. Lond. B, Meth. Ecol. Evol.) and middle (J. Theor. Ecol., Gl. Ecol. Cons.) ranking journals. Their joint impact factor is 21.5 and they received 214 citations (without self-citations, retrieved 27.06.2021). I was surprised to see that four of these papers were already published in 2012 to 2014 during the stay in Aberdeen. Apparently, Dr Bartoń had to wait for another first author paper after he left the Travis lab.

A habilitation should be centered around a common theme, a scientific problem, that the candidate brings closer to solving. As already said, Dr Bartoń's topic is dispersal. In four of the papers he and his co-authors developed models of dispersal while the fifth paper describes long-distance dispersal in bears. The first paper in the Proc. R Soc. B. on risky movement deal with spatial sorting of dispersal propensity using a mechanistic model approach. The results are interesting from a population and community dynamic perspective showing how dispersal prone individuals gain higher proportions at range margins. The second paper in Meth. Ecol. Evol. is rather methodological presenting a general framework for models of dispersal. The third paper again in the Proc. R Soc. B. on informed dispersal links individual decisions to dispersal strategies. In my view this paper is particularly interesting as it shown how individuality acts on ecological patterns. Individual based ecology is currently an increasingly topic research direction. The fourth paper in the J. Theor. Biol. links resource values to dispersal and searching strategies. This paper is in the tradition of Holling's handling time approach to population dynamics. Contrary to the previous ones, the third paper uses empirical data and describes long-distance dispersal in European brown bears, where dispersing bears were found to travel more than 300 km in comparison to less than 50 km in resident bears. This paper diverges also in publishing year (2019), while the four previous ones were published between 2012 and 2014. Apparently, the last paper was added to obtain the necessary 'series' of papers. The quality of all five papers and the international reception are undisputed and therefore fulfill the requirements for a successful scientific achievement.

Other scientific and popular activities

Science needs appropriate toolboxes. In his work Dr Bartoń applies up-to-date modelling and statistical approaches. He attended several international workshops and courses on data and statistical analyses. He was also engaged in numerous field projects were standard ecological

techniques were used. The role of Dr Bartoń in these projects was to analyze and to present the obtained data. As a consequence, Dr Bartoń has published a number of scientific publications not included in the achievement. This part of scientific activity does not raise concerns and is well within the standards for a Polish habilitation.

Science also needs contact to the general audience. Increasingly important is the popularization of science and communication with authorities and interested laymen. I was surprised that the self-description of Dr Bartoń was completely silent about this part of scientific activity, even more as Dr Bartoń works in an institute of nature conservation. This is surely a weak aspect of this application.

Didactic and other activities

Dr Barton is based in an institute of the Polish Academy of Sciences. Therefore, he does not have daily contact with students and academic teaching. Nevertheless, I was surprised that the application does not mention any courses for students. Typically, Academy employees provide bachelor and master student classes or try to teach at Universities. Importantly, a habilitation includes the *venia legendi*. I'm not sure whether Dr Bartoń has achieved this level of teaching.

After his PhD Dr Barton was engaged in the organization of an international conference. The self-description is silent about any other organizational activities. This is surprising and a weak aspect of this application.

Conclusion

In my assessment I have to weigh the scientific, educational, and organizational activities of Dr Bartoń. The habilitation is a scientific degree and thus the scientific quality has priority. Dr Bartoń is merely a scientist and this application is based on strong science. Notable is the highly cited MMuln R-package. The didactic and organizational activities are comparably weak. Particularly, I missed a bit science popularization and ongoing activities in nature conservation. However, the stronger scientific performance is decisive here. In the light of my evaluation, I think that this is an intermediate application based on five widely cited papers in international journals and a manifold of additional international publications. Dr Bartoń is well connected to the international scientific community. He received external grants and

acquired additional experience during abroad post doc stays. In my view, Dr Bartoń fulfills the requirements defined by art. 18 and 18a on scientific degrees and titles of the Polish law on higher education from 2003 (changed by Dz. U. 2017, poz. 1789 and Dz. U. 2018, poz. 1669) and from 2018 (art. 179). I support his application to obtain the habilitation degree in the field of Biology.

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