



EDITORIAL NOTE

Development of Biological Sciences at the AABC

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The submission rate of manuscripts to the Annals of the Brazilian Academy of Sciences (AABC) has increased continuously over the last decade, albeit more in some areas than in others (Kellner 2017). The Impact Factor (IF) of the journal has fluctuated, reaching the highest value ever (1.280) in the 2019 Journal Citation Reports (JCR). In order to get a general sense on how papers of different scientific fields published by the AABC – the only broad multidisciplinary periodical edited in Brazil – are contributing to the bibliometric indexes of the journal, I have decided to perform some brief analyses looking mainly at citations. In a pilot project, I started with Agrarian Sciences, the area showing the fastest submission growth rate, using one volume published in 2018 as a proxy (Kellner 2020). Here I am expanding my survey, addressing primarily all articles published by the AABC during 2018 in the field of Biological Sciences. In order to allow more uniform comparisons between scientific fields, I have complemented the present analysis with the citations of all papers in Agrarian Sciences published by the AABC during 2018.

In my previous survey (Kellner 2020), I was surprised to find out that 15 articles of the issue AABC-90.4, dedicated to Agrarian Sciences were missing from JCR and WoS, and therefore not considered in the AABC 2019-IF. This led me to introduce the Missing Article Index (MAI). Originally defined as the number of articles published in one issue (or year) not found in WoS, divided by the total number of articles published in that issue (or year), MAI is one way to get a sense on how the lack of registration of published papers might influence the IF of a particular journal in a determinate timeframe (Kellner 2020). On some occasions, however, articles might reappear on WoS. As a consequence, the deleterious effects for authors whose articles were missing regarding their metrics of productivity and impact are mitigated. It remains to be established if these metrics (e.g., citations) start to be calculated only from the time when the paper is incorporated in WoS or if the numbers are corrected retroactively. Unlike WoS, once missing, papers tend not to be incorporated in the JCR platform at a later time, permanently affecting the performance of the journal where these articles were published (e.g., Kellner & Azevedo 2013). In fact, all other journals are also negatively affected by this omission, since the articles they have published and that were cited by papers not included in the JCR are not counted in their bibliometric indexes as well. Everyone loses.

Perhaps one reason for not promoting the inclusion of missed articles in the JCR at a latter stage is the problematic involved in recalculating the IF of that particular journal. But even more complicated is the fact that the IF of all other journals whose papers were cited by the “new” included

articles would have to be recalculated *ex post facto* as well. While this recalculation should be done for the sake of credibility of the whole citation industry, which appear to be somehow ruling the scientific world (e.g., graduate programs, promotions, funding of periodicals, decisions on where to submit manuscripts), one can imagine the fear of a cascade effect triggering unforeseen chain of events with potentially negative effects to the serious attempts to somehow evaluate scientific contributions. Anyhow, regarding MAI, it might be more interesting to use as denominator the number of articles that are missing in the JCR platform. MAI is here redefined as the number of articles (of a particular field or of a particular issue) published in the journal during a year (or other period of time) not found in JCR, divided by the total number of articles (of a particular field or of a particular issue) published in the journal during that year (or other period of time). Further adaptations of MAI might be suitable if the use of this index becomes more widespread and applied in different contexts.

Concerning Biological Sciences, this area has traditionally been the one with most submissions in the AABC. In 2008, from the 179 manuscripts received, 39 were classified in this scientific field. In 2010 this number doubled (83 of 202 submissions) and last year reached 482 from a total of 1512 received manuscripts (Fig. 1).

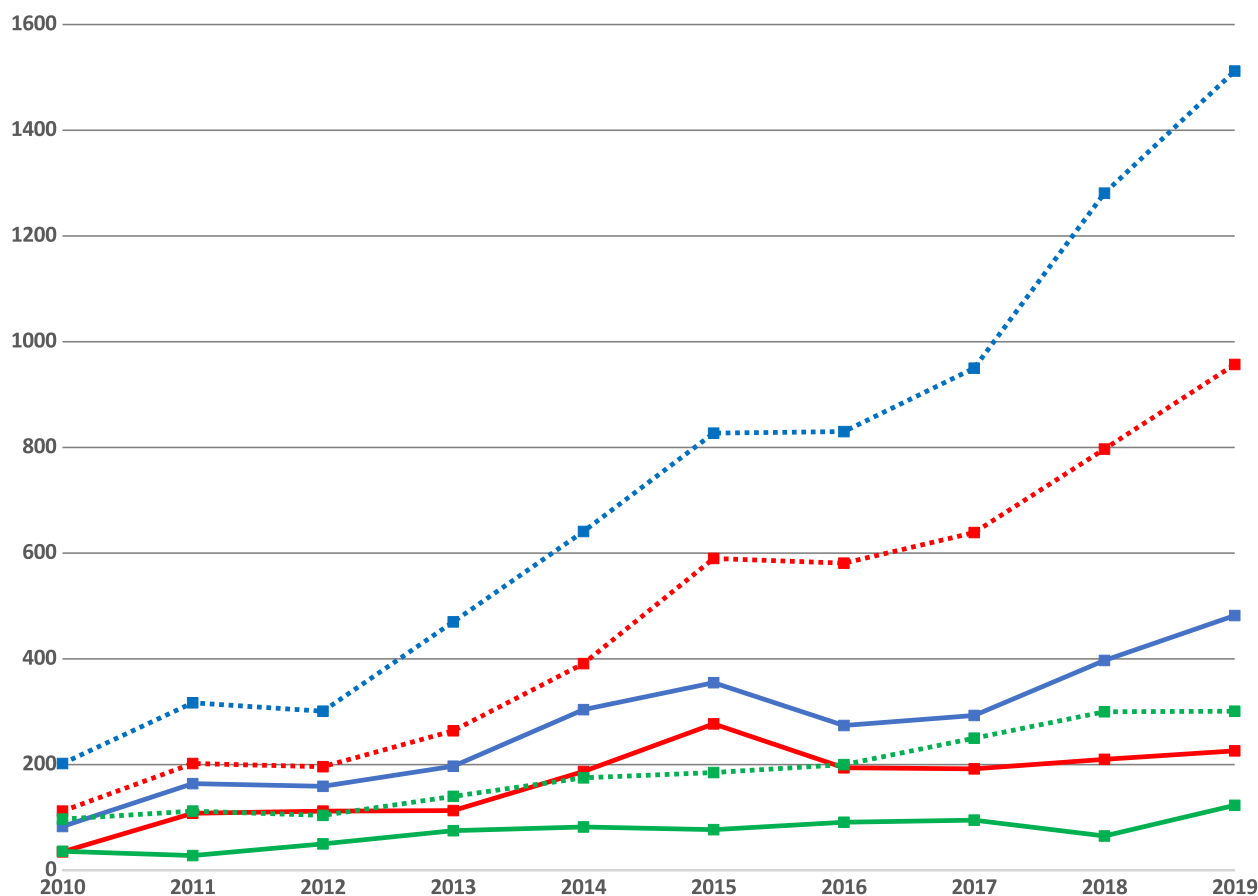


Figure 1. The following graphs show the manuscripts received (in blue), rejected (in red), and published (in green) by the Annals of the Brazilian Academy of Sciences (AABC) between 2010 and 2019. The dotted lines represent published articles from all areas (including Biological Sciences), while solid lines represent Biological Sciences only.

In 2018, 65 articles and one editorial (Alves et al. 2018) were published by the AABC that apply to Biological Sciences. Since only articles appear in the 2019-JCR, I have restricted the present analysis to those. As expected, the scope of the published articles vary tremendously, from extractive potentials regarding the biota of mangroves (e.g., Pinheiro et al. 2018) and studies on the influence of rainfall on vegetation dynamics (e.g., Salimon & Anderson 2018), to new information of extinct reptiles (e.g., Chavarría-Arellano et al. 2018). A total of 27 articles were cited at least once during 2019, resulting in an Article Citation Factor for Biological Sciences (ACF, see Kellner 2020) of 0.4154. This means that about 6 out of 10 published articles by the AABC during 2018 in this field did not receive any citation and therefore did not contribute to the 2019-IF of the journal. If only publications of Biological Sciences are considered, the AABC 2019-IF would have been 0.662 – little over half of the present value (1.280).

The most cited paper in Biological Sciences had 6 citations and clearly stands out from the rest. Three articles were cited three times, five two and 18 one. The Reescalated Article Impact Factor (RAIF, see Kellner 2020) was 1.593, about 24.5% higher than the 2019-IF of the AABC (1.280). A total of 9 (~13.8%) of all articles of Biological Sciences published by the AABC during 2018 were cited at least two times.

In the previous analysis of Agrarian Sciences where I focused only on the issue 90.4, I have inadvertently included some citations of 2020 that produced minor variations in the published values, albeit not changing the conclusions. Here I have considered all articles published by the AABC concerning Agrarian Sciences during 2018 and limited their citation to the year 2019. From the 122 articles, 15 did not appear on the JCR platform (all from issue 90.4, see Kellner 2020) and therefore had to be excluded from the present analysis. Considering the remaining 107 papers, 43 received at least one citation during 2019, resulting in an Article Citation Factor (ACF, see Kellner 2020) of 0.4019. If only the papers of Agrarian Sciences that appear in the 2019-JCR are considered, the AABC 2019-IF would have been 0.654.

Considering only cited articles of Agrarian Sciences, one had four citations, followed by six with three and twelve that had two citations, respectively. A total of 24 were cited once during this year. The Reescalated Article Impact Factor (RAIF, see Kellner 2020) of Agrarian Sciences was 1.628, much higher than the 1.280, with 19 (~17.8% of all articles) cited at least two times in 2019.

From the analysis above, it is clear that a better selection of articles in both, Biological and Agrarian Sciences, can contribute to improve bibliometric indexes of the AABC. While RAIF of Agrarian Sciences is higher than the RAIF of Biological Sciences, the latter area has a proportionally higher ACF resulting in a higher contribution to the 2019-IF of the AABC. But both areas could do much better, particularly having in mind that in 2018 they corresponded for about 62% of all published papers in the journal.

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