Publication journals of research on wasp spider, *Argiope bruennichi*: specialized or general?

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Abstract:

This original research article discusses the publication trends of research on the wasp spider, *Argiope bruennichi* (Scopoli, 1772), in specialized arachnological journals versus general scientific journals. Context on arachnological journals and their role in publishing spider-related research is introduced. It also introduces *A. bruennichi* as a widely recognized and easily identifiable spider species distributed across the Palearctic realm. The present study analyzed research articles published from 2019 to 2021 using Google Scholar, focusing on papers that included '*Argiope bruennichi*' in their content. The results showed that a total of 79 research articles were identified during this period. The majority of these articles were published in general scientific journals rather than specialized arachnological journals. In 2019, 79% of the articles were published in general journals, while in 2020 and 2021, the percentages were 86% and 81% respectively. Upon careful analysis, several unique and interesting insights emerge. First, this study highlights a shift in publication trends, with more spider-related research appearing in interdisciplinary journals rather than specialized arachnological publications. This suggests a growing interest in spider research across various scientific disciplines. Second, the choice of *A. bruennichi* as a focal species is noteworthy due to its wide distribution and accessibility, making it valuable for both expert and amateur studies. Lastly, the author points out the potential impact of new open-access online scientific journals on the relative prominence of traditional arachnological journals, indicating a changing landscape in scientific publishing within this field.

Keywords: *Academic Journals; Arachnology; Scholarly Publishing.*

1. Introduction

Arachnological journals are publishing original research articles with reviews on spiders

(Araneae) and other arachnids. Examples of such journals include *Serket - The Arachnological Bulletin of the Middle East and North Africa*, which is dedicated to arachnid research and serves as a key platform for publishing specialized scholarly work. Conversely, studies on spiders are also featured in scholarly journals covering the disciplines of science and technology. General academic journals frequently publish spider-related research, especially when the findings have broader implications for fields such as ethology, genetics, and toxicology. These publications appeal to ample readers, encompassing not only professional arachnologists but also citizen scientists (Foelix, 2011; Gopalakrishnakone et al., 2016; Nentwig et al., 2022; Viera & Gonzaga, 2017).

In comparison to previous periods, the relative prominence of arachnological journals may have decreased in recent years because of the growing number of new open-access online scientific journals and the increasing dispersion of research reports across a wide range of such journals around the world. Nevertheless, there is a lack of empirical research directly comparing the frequency of spider-related publications in the arachnological specialty journals with those in interdisciplinary general scientific journals (Palacino-Rodríguez et al., 2022).

Argiope bruennichi (Scopoli, 1772), shown in Fig. 1, is a species of wasp spider inhabiting the Palearctic realm, extending across North Eurasia of the Himalayan foothills, and reaching as far as Northern Africa (e.g., Ono & Ogata, 2018).

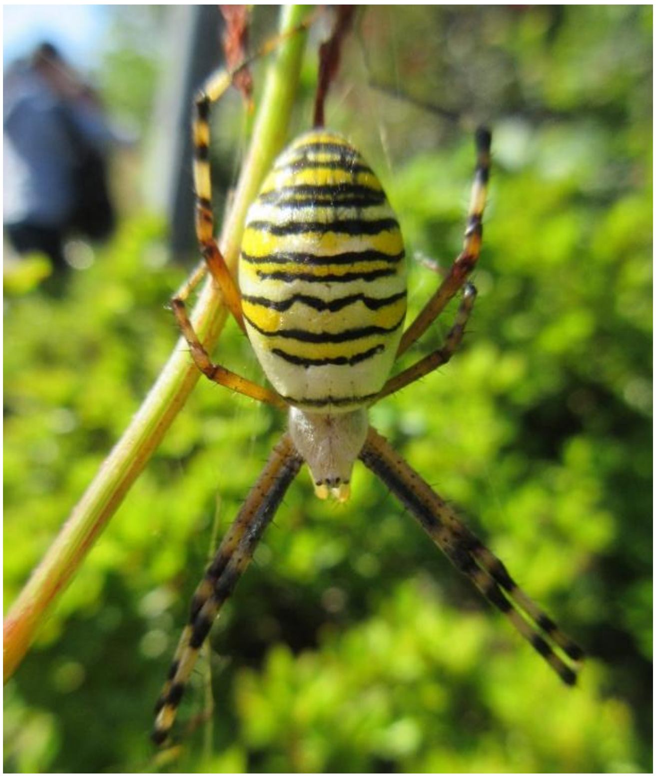

Fig. 1 A female wasp spider *Argiope bruennichi* (Scopoli, 1772) at Nagasaki city, Japan.

Argiope bruennichi should be widely recognized, partly due to its inclusion in the popular video game *Animal Crossing: New Horizons*, which has sold over 26.4 million units worldwide, where only *A. bruennichi* was depicted as 'the spider' (Fisher et al., 2021). This wasp spider is a representative species that is not so difficult to being found and studied for both experts and amateurs on arachnology. This is due to the fact that it is easily identifiable by its characteristic appearance, which is similar to that of yellowjackets and true hornets (Vespinae) with black and yellow striped warning colors (Noguchi, 2020a-b; 2021a-c; 2022; Noguchi & Ikeda, 2022).

Considering the above, selecting wasp spider *A. bruennichi* as the focal species is thus advantageous because of its wide distribution across the Trans-Palearctic region and its accessibility. And this would be expected to make it a valuable subject for research and developing purposes in the field of not only arachnology but also other applied sciences. Accordingly, the present study provides a comprehensive analysis of the research trends related to *A. bruennichi* by exploring its representation as a spider species and underlying patterns in studies accessible through online platforms.

2. Materials and Method

Research articles including reviews published from 2019 to 2021 were searched using Google Scholar (https://scholar.google.co.jp/) with the word '*Argiope bruennichi*'; i.e., the scientific name of the wasp spider commonly distributed in the Palearctic ecozone. Any literature written in languages other than English that did not include either a title or an abstract written in English, theses or dissertations, oral presentation abstracts, etc., were excluded from the searching results.

3. Results and Discussion

A total of 79 research articles were identified as having been published: 29 (2019 & 2020); 21 (2021), respectively (due to the considerable number of references, it has been necessary to omit each bibliography herein, which are available in the references section below). In Table 1, arachnological journals are listed. And the categorization of articles as either specialized or general journals is outlined in Table 2.

Table 1: Arachnological journals

Journal Name	Commencement	ISSN (Online)
Acta Arachnologica	1936	0001-5202
Acta Arachnologica Sinica	1992	1005-9628
Arachnologische Mitteilungen	1991	2199-7233
Arachnology*	1969	2050-9936
Atypus (ceased)	1952	0287-4075
Bulletin de l'Association Française d'Arachnologie	2018	2649-4841

Frontiers in Arachnid Science	2022	2813-5083
Indian Journal of Arachnology (ceased?)	2012	2278-1587
Kishidaia	1969	0915-9754
Korean Arachnology (ceased)	1985	1011-2014
Kumo-no-ito [Spider's Thread]	1982	No Data
Newsletter of the British Arachnological Society	1971	0959-2261
Peckhamia	1977	1944-8120
Revista Ibérica de Aracnología	2003	1576-9518
Revue Arachnologique	2014	0398-4346
Serket	1987	1110-502X
The Journal of Arachnology	1973	0160-8202

*previous the Bulletin of the British Arachnological Society

Table 2: Specialized arachnological journals vs. interdisciplinary general journals

	Specialized	General
2019	6 (21%)	23 (79%)
2020	4 (14%)	25 (86%)
2021	4 (19%)	17 (81%)

The findings indicate that a majority of articles on *A. bruennichi* have been published in general scientific journals rather than arachnology-specific outlets. This suggests that research on this species extends beyond traditional taxonomic and ecological studies, encompassing various disciplines such as genetics, behavior, and applied sciences.

One possible explanation for this trend is the increasing interdisciplinary nature of biological research, where studies on species like *A. bruennichi* contribute to broader fields, including evolutionary biology, neurobiology, and biomaterials science. Additionally, the accessibility of online databases and the rise of open-access publishing have facilitated the dissemination of research across diverse academic domains.

By recognizing these publication patterns, researchers can make informed decisions about where to publish their findings to maximize their impact and audience reach. The growing representation of *A. bruennichi* in interdisciplinary research underscores the species' significance as a model organism with relevance beyond classical arachnology.

A valuable avenue for future research should focus on analyzing citation metrics to determine the impact of articles published in specialized versus general journals. Understanding these citation patterns may help clarify the influence of publication venues on the visibility and academic reach of arachnological research. Furthermore, an assessment of the geographical distribution of research efforts could provide insights into regional variations in publication trends and research priorities related to *A. bruennichi*.

4. Conclusion

This study presents several key arguments and implications regarding the publication of research on the wasp spider, *Argiope bruennichi*:

1. Publication Trends: The study reveals that research on *A. bruennichi* is increasingly being published in general scientific journals rather than specialized arachnological journals. This trend suggests a growing interdisciplinary interest in spider research and its broader implications for fields beyond arachnology.
2. Accessibility and Recognition: *A. bruennichi* is described as a widely recognized and easily identifiable species, partly due to its inclusion in popular media like video games. This accessibility makes it an ideal subject for both expert and amateur research, potentially increasing public engagement with arachnology.
3. Research Value: The wide distribution of *A. bruennichi* across the Trans-Palearctic region enhances its value as a research subject, not only in arachnology but also in other applied sciences. This implies that the species could serve as a model organism for various scientific studies.
4. Methodological Approach: The study employs a comprehensive analysis of research trends related to *A. bruennichi* by exploring publications accessible through online platforms. This approach demonstrates the importance of digital resources in modern scientific research and meta-analysis.
5. Implications for Arachnology: The shift towards publishing in general scientific journals may indicate a decrease in the relative prominence of specialized arachnological journals. This trend could have implications for the field of arachnology, potentially affecting funding, research focus, and the dissemination of specialized knowledge.

These findings highlight the evolving nature of spider research, the importance of accessible model species, and the changing landscape of scientific publishing in the field of arachnology.

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Conflicts of Interest

The author has no conflicts of interest to declare.

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