

Trends, impact, and future considerations of shared authorship in a zoological journal

Scientific publishing is undergoing a profound transformation, driven by research that increasingly depends on multidisciplinary expertise, large-scale datasets, and coordinated contributions across institutions. A prominent marker of this shift is the growing prevalence of shared authorship, particularly co-first and co-corresponding author designations (da Silva, 2021; Hu et al., 2025; Huang & Xue, 2025). There are also some concerns in recent reports regarding the high counts of corresponding authors and first authors in China (Hu et al., 2025; Chawla, 2026). As a leading journal in zoology, *Zoological Research* (ZR) offers a useful case for evaluating how these broader changes in collaborative authorship are reflected within a specialized scientific field.

To assess recent changes in authorship practice, 457 research articles and reviews published in ZR between January 2021 and March 2026 were examined. During this period, annual publication output increased steadily, reaching 113 articles in 2025, the highest annual total recorded (Figure 1A). Shared authorship was a common practice, with 51.9% of articles including co-first authors, 66.1% including co-corresponding authors, and 78.6% including at least one shared authorship designation, defined as co-first and/or co-corresponding authorship. This proportion is broadly consistent with the trend detected in recent studies of Chinese scientific journals (Hu et al., 2025; Chawla, 2026). The frequency of shared first authorship increased from 43% in 2021 to 64% in January–March 2026, whereas shared corresponding authorship increased from 66% to 75% over the same interval. Across the study period, the number of shared authors per paper remained consistently high, averaging 2.57 co-first authors among articles with shared first authorship and 2.28 co-corresponding authors among articles with shared corresponding authorship (Figure 1B).

The assumption that larger collaborative teams necessarily produce greater scientific impact was not supported uniformly by the citation data. Citation data retrieved from Semantic Scholar indicated that articles with one first author received more citations than articles with co-first authors (mean: 11.7 vs. 7.6; median: 6 vs. 4; $P < 0.01$) (Figure 1C). A similar pattern was observed for corresponding authorship. Articles with one corresponding author averaged 10.9 citations, compared with 8.9 citations for articles with co-corresponding authors, although this difference was not statistically significant. The

same pattern persisted after reviews were excluded and the analysis was restricted to research articles, indicating that the citation advantage associated with single first authorship was not explained by the generally higher citation frequency of reviews. Notably, highly cited papers occurred across diverse authorship structures, suggesting that influential research can emerge from both large collaborative groups and more conventionally organized teams.

Citation patterns also differed among the ZR subject categories (Figure 1D). Articles classified under Animal Models & Biomedical, Cell & Molecular Biology, and Biodiversity & Taxonomy generally showed higher citation counts, consistent with the broad visibility and sustained interest in these rapidly developing fields. In contrast, articles in Neuroscience & Physiology and Genetics & Genomics tended to receive fewer citations on average. Interestingly, the citation advantage associated with single first authorship was concentrated in particular disciplines, most notably Animal Models & Biomedical, in which articles with one first author received substantially more citations than articles with shared first authorship (mean: 23.5 vs. 7.7; median: 16.5 vs. 3.0; $P < 0.001$). In Genetics & Genomics, the largest subject category, citation performance was nearly indistinguishable between articles with one first author and those with co-first authors (mean: 7.7 vs. 7.1; median: 5.0 vs. 5.0) (Figure 1E). These results indicate that citation outcomes in zoological research are shaped not only by authorship structure but also by disciplinary characteristics, collaboration practices, and publication cultures.

The observed differences may reflect factors associated with research organization, project scale, or team composition rather than authorship designation itself. They may also reflect differences in how research projects are initiated and developed across fields, although this possibility warrants further investigation. Large-scale collaboration nevertheless remains essential for research questions that require multidisciplinary expertise, extensive datasets, specialized technologies, or global sampling networks. Taken together, the present results indicate that collaboration has become central to modern zoological research, but authorship structure alone does not reliably predict citation count. Continued progress in zoological sciences will require support for both large collaborative projects and original investigator-driven studies.

As noted previously in ZR, China is entering a golden era of scientific publishing (Yao & Zheng, 2025), characterized by increases in research output and quality as well as evolving modes of scientific collaboration (Yao & Zheng, 2023). The high frequency of co-first and co-corresponding authorship observed in ZR reflects the collaborative nature of contemporary research. However, as author groups become larger and contribution patterns become more complex, transparent and meaningful attribution becomes increasingly

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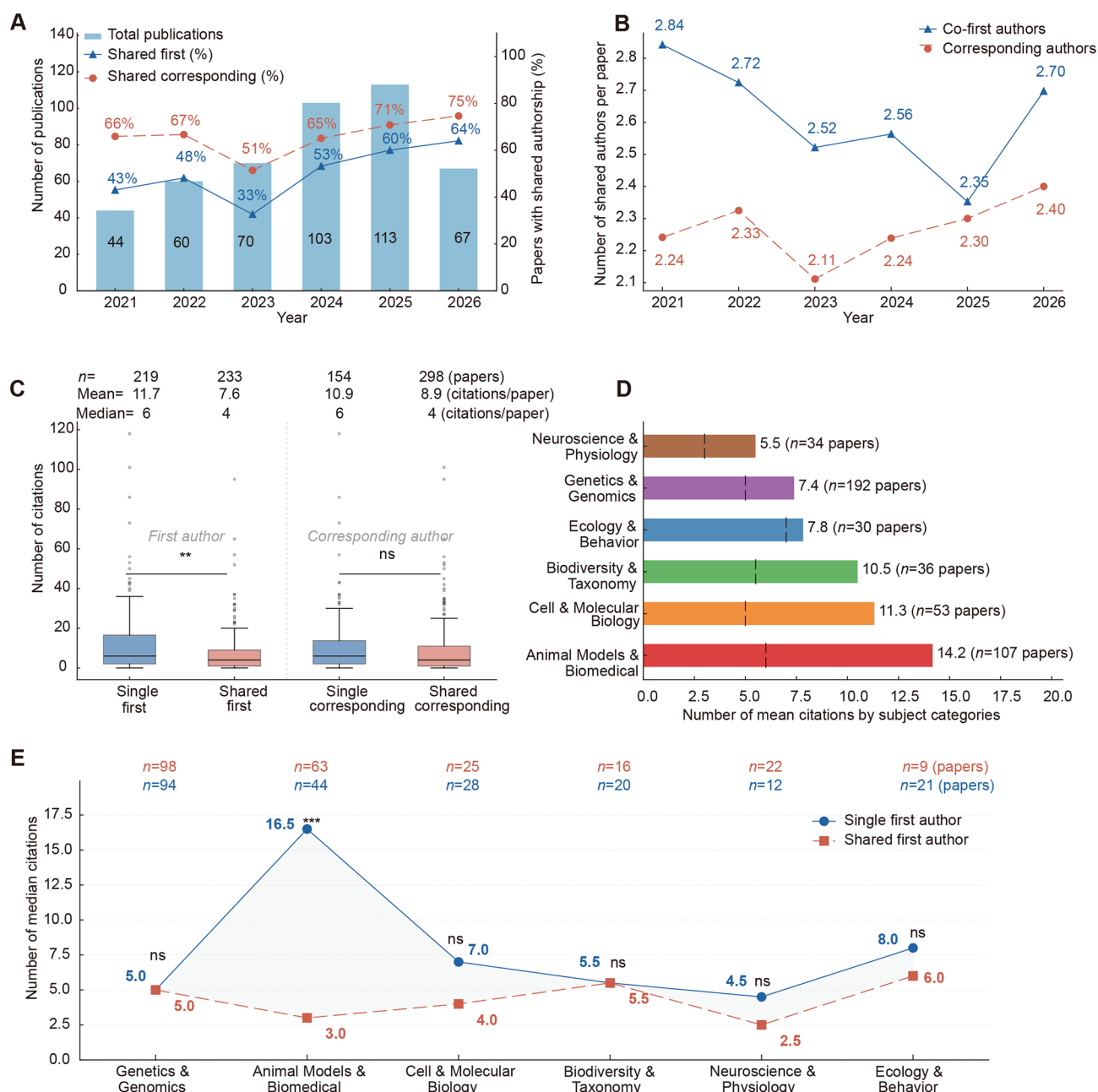


Figure 1 Publication output and citation patterns associated with shared authorship in Zoological Research (2021–2026)

A: Annual publication output (bars) and proportions of papers with co-first (blue) or co-corresponding (red) authors (lines, right axis). B: Mean number of co-first (solid) and co-corresponding (dashed) authors per paper by year. C: Citation distributions for papers with single versus shared first authorship (blue) and single versus shared corresponding authorship (pink). D: Mean citation counts by subject category, dashed lines indicate the median citation counts. E: Median citation counts by subject category for papers with single versus shared first authorship. Numbers above each subject category indicate sample sizes (blue: Single; red: Shared). Statistical significance was assessed using the Mann–Whitney U test. **: $P < 0.01$; ***: $P < 0.001$; ns: not significant.

important. Therefore, ZR reiterates its policy that the total number of co-first authors and co-corresponding authors in a single article should not exceed six. This limit is intended to preserve clear recognition of individual contributions while continuing to support legitimate collaborative research.

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