

EXPLORING GENDER EQUALITY TRENDS WITHIN THE QRA TO ESTABLISH OUR CURRENT BASELINE

Adrian P. Palmer, Laura Boyall, William J. Fletcher, Ed Garrett, Jane K. Hart, Holly N. Jenkins, Timothy P. Lane, Harold Lovell, David H. Roberts, Neil Roberts, Katherine H. Roucoux, Jenna L. Sutherland and Sophie Williams

Introduction

The QRA Executive has discussed equality, diversity and inclusion (EDI) issues regularly over the last 5-10 years, with a few notable milestones. The EDI committee was started in 2022, followed by the instigation of the new EDI Executive Officer role in 2024. The committee produced the QRA EDI statement (<https://www.qra.org.uk/equality-diversity-and-inclusion/>), incorporated “caring costs” into all QRA grants, and began a regular survey of Annual Discussion Meeting (ADM) participants. The EDI statement is an important step in continuing to co-ordinate and embed good practice within the activities that the QRA undertakes. Subsequently, QRA awards have been re-named after past members, with attention paid to gender balance, to reflect their achievements as positive role models. We have also initiated the opportunity for job-sharing of larger QRA roles to enable more people to participate and have assigned a member of the Journal of Quaternary Science (JQS) editorial board to have a watching brief on EDI issues in the journal. There have been very welcome moves to ensure ADMs are representative and respectful toward our broad membership by, for example, ensuring balance in the range of speakers presenting including different career stages, conducting panel discussions on EDI issues and collecting data on the composition of our meetings, amongst other activities. There will also be moves to generate data through questionnaires at ADMs to enable a more granular examination of the composition and needs of our membership and to help target ways to attract new members to the Association.

The purpose of this article is to examine recent trends in the organisation’s gender balance by exploring the available membership archives from the last 20-25 years. The article is broadly descriptive, explaining

how and why specific data have been targeted, and identifying some limitations that are inherent within the dataset. We then explore what these data tell us and how they might be used to establish future targets within the QRA under the EDI remit.

How were the data collected and how are they presented?

There were certain challenges in extracting representative information on gender balance throughout the 60 years of the QRA in its different guises. A recent attempt to explore how the membership has changed was difficult as specific questions about gender were not asked routinely when membership was organised via postal services, and paper membership lists were produced and distributed. Indeed, much of the older QRA archive has membership lists, but members’ forename initials were used, which are difficult to interpret in gender terms. Even with the advent of computers and electronic copies of membership lists, initials were still used. This issue should be rectified moving forwards with the new QRA website and, in conjunction with regular membership surveys, we can set benchmarks to enable more consistent comparisons and establish if interventions are having an impact on EDI within the QRA.

As a result, full membership lists that allow us to identify gender are not available. Consequently, we have pivoted to using data from awards rounds that extend back to 2002 for the Quaternary Research Small Grant (QRSG, formerly Quaternary Research Fund; Fig. 1), New Research Workers Grant (New Research Workers Award (NRWA); Fig. 2) and the Quaternary Conference Fund (QCF; Fig. 3), and back to 2003 for the INQUA awards rounds (Fig. 4). We have taken the data from the Awards Officer’s annual reports or

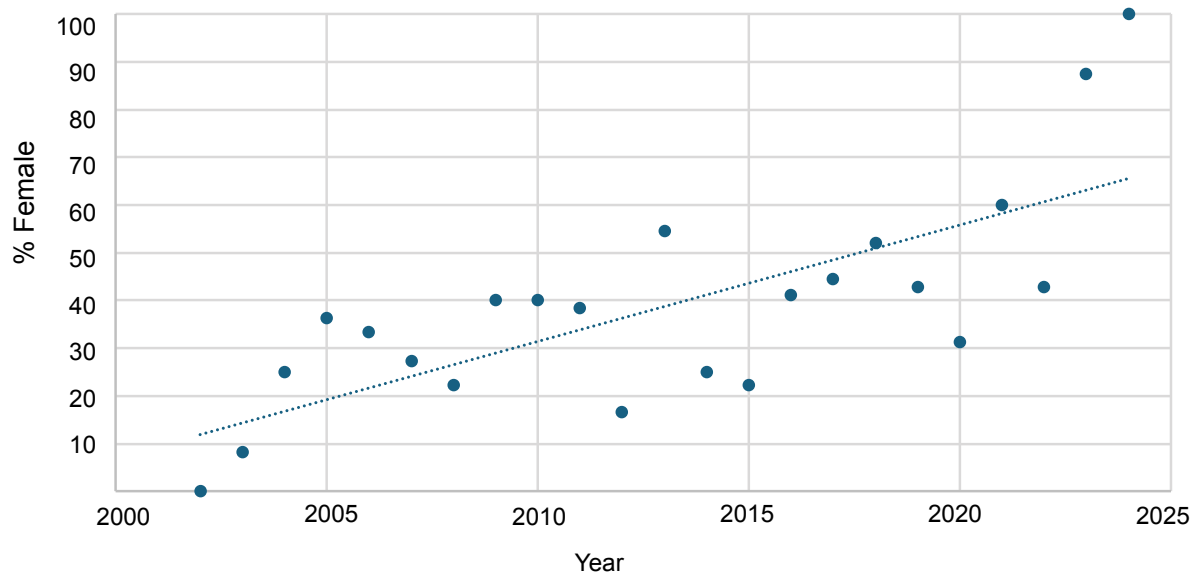


Figure 1. Gender balance of Quaternary Research Small Grant awardees from 2002 to 2024. (n = 256; mean awards per year = 12, st. dev = 5.). Blue dotted line is the linear trendline. The average for the whole period is 36% and the last 10 years sees this rise to 52% female representation.

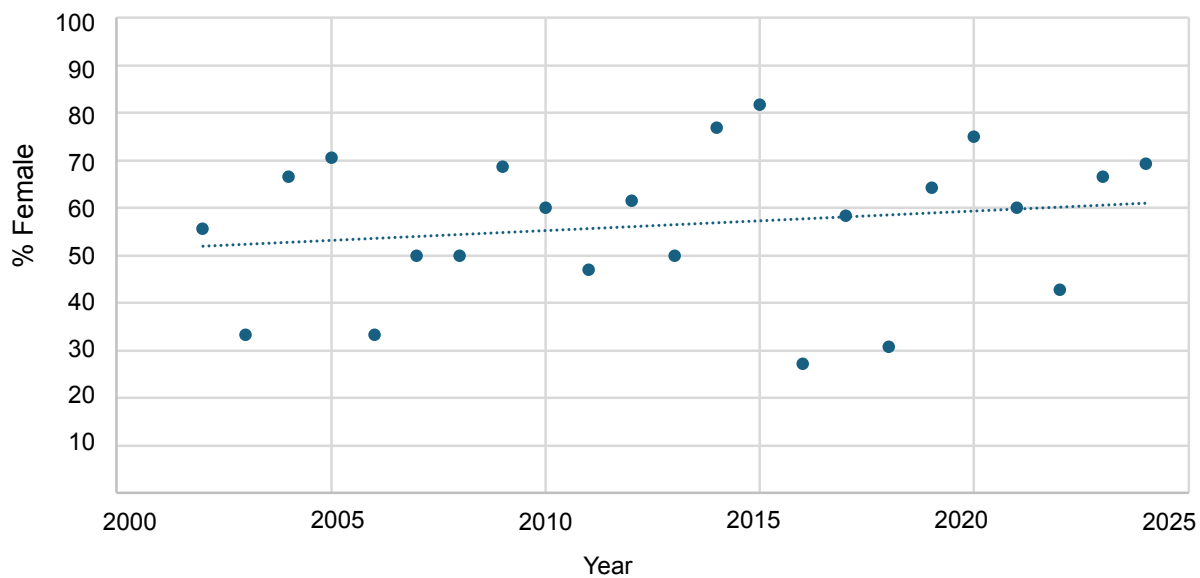


Figure 2. Gender balance of New Research Workers Grant awards from 2002 to 2024 (n = 275; mean awards per year = 13, st. dev = 4.) Blue dotted line is the linear trendline. The average for the whole period is 56% and the last 10 years sees this rise to 58% female representation.

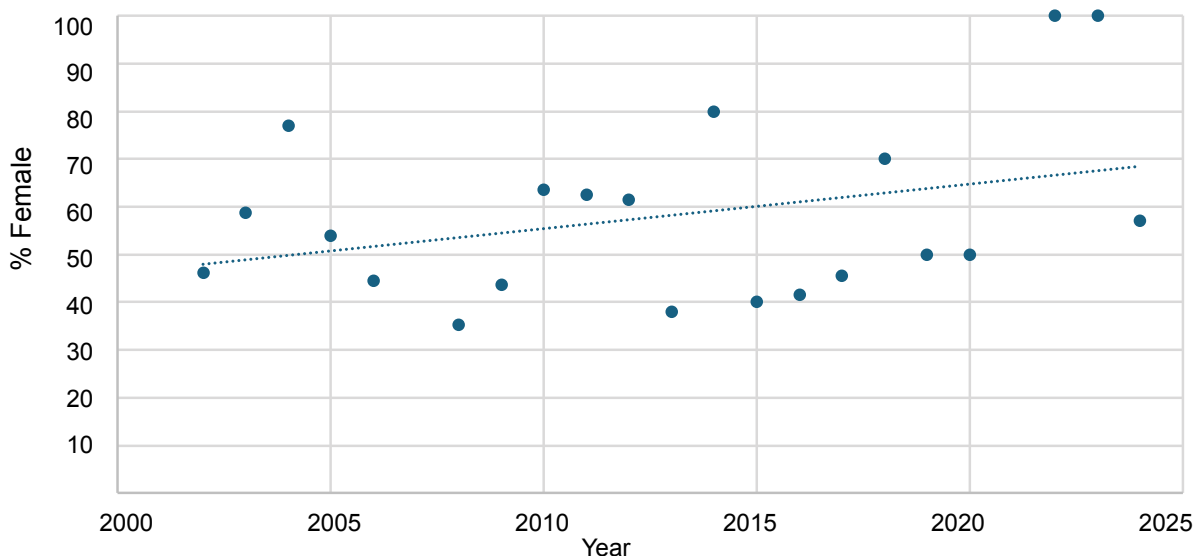


Figure 3. Gender balance of Quaternary Conference Fund awards from 2002 to 2024. (n = 247; mean awards per year = 11, st. dev = 7.). Blue dotted line is the linear trendline. The average for the whole period is 58% and the last 10 years sees this rise to 62% female representation.

explored the spreadsheets that were compiled for the awards panel to discuss applications. These data are effectively small samples of the active membership, but the largest sample size available that provides year-on-year data that were divided into groups of established researchers (QRSG; QCF), postgraduate students (NRWG), and the entire membership (INQUA fund). It is possible that the successful recipients of the INQUA funds could be skewed to early career researchers (ECRs) and postgraduates, as these groups were favoured in the decision-making process of the awards panel since they were less likely to be able to access funds from, for example, research council grants. The Postgraduate Meetings Award's data are not presented in this analysis as the sample size is very low and the total year-to-year applications vary greatly. Other assumptions include gender being based on traditional gender constructs for the first/given name, not distinguishing between overseas and home students, and only exploring successful grant applications.

In the presentation of the data (Figs. 1-6), the linear trendlines are used to guide the eye toward trends over the last 20 years in each of the categories. In the figure captions, we give the mean number of awards per year, but also provide a mean figure for the data since 2015 (10 years of awards rounds) to explore the change compared to the long-term mean with 10 years used, as this perhaps marks an arbitrary instigation point for engagement with EDI in the QRA's remit.

Gender balance in QRA awards

There are interesting trends that hint toward a healthy gender balance in the distribution of awards in the recent past. The QRSG for established academics was skewed towards male recipients in the earlier rounds of the award, but the trendline crossed 50% in 2018. There is still clearly work to do here because awards have only moved toward gender parity in the last few years, with the most recent 10-year mean at 52% female recipients (compared to a long-term mean of 36%).

The NRWG data shows that for the last two decades, the gender balance of awardees has varied considerably between years, but with an overall trend that started at around 50%, successful female applications have moved toward 60% in the last four years (Fig. 2). The long-term mean is 56% and the recent 10-year mean is 58% female awardees. A similar picture can be extracted from the QCF, with successful applicants

hovering around parity between males and females, a long-term mean of 58% female recipients, and a 10-year mean of 62% female successful applicants (Fig. 3). However, it is important to note that two recent awards rounds with 100% success for female applicants has drawn that trendline upward.

With reference to the INQUA dataset (Fig. 4), we note that these quadrennial rounds were open to the entire membership but with a positive selection process toward postgraduates and ECRs designed to support their attendance. The change in the trendline broadly mirrors that observed in the QRSG analysis with successful female applicants shifting from 30% to 70% since 2003. Whether this points to the strategy of supporting ECRs being successful or rather a shift in the gender balance of the association is not clear but should continue to be monitored. The recent increases of female applicants to the grant might reflect a wider parity of access across the discipline to funding in general that includes conference participation. Awards Officers have also noted recently that female QRA members generally applied for a smaller percentage of their total costs. The reasons merit further exploration but hint at deeper gendered differences around grant application strategies and perception of barriers.

The picture presented from these data suggests that currently the QRA has a good gender balance in the recipients of awards in the postgraduate community and in the awards for the more established researchers. There is a clear shift away from a male dominance of QRSG awardees two decades ago, whilst the number of successful awards for NRWGs and QCF have always shown a good gender balance. Gender data that were available from past student lists of the MSc Quaternary Science/Past Climate and Environmental Change course at Royal Holloway, University of London provides some insight into how its gender balance has evolved in a comparable period. These data show a similar trend to the NRWG and QCF (Fig. 5), perhaps indicating a shift to a greater number of female MSc students over the last three decades, which might be the key factor seen in the shift in the NRWG awards. However, this does complicate our understanding of the factors driving the historically greater uptake of QCF by female QRA members in comparison to the QRSG. Whether this was driven by perceived barriers that inhibited applications to the QRSG, an unconscious bias in the awarding of grants, or a transition in the gender balance of the organisation in the early part of this census period, is quite difficult to establish without testimony from those members

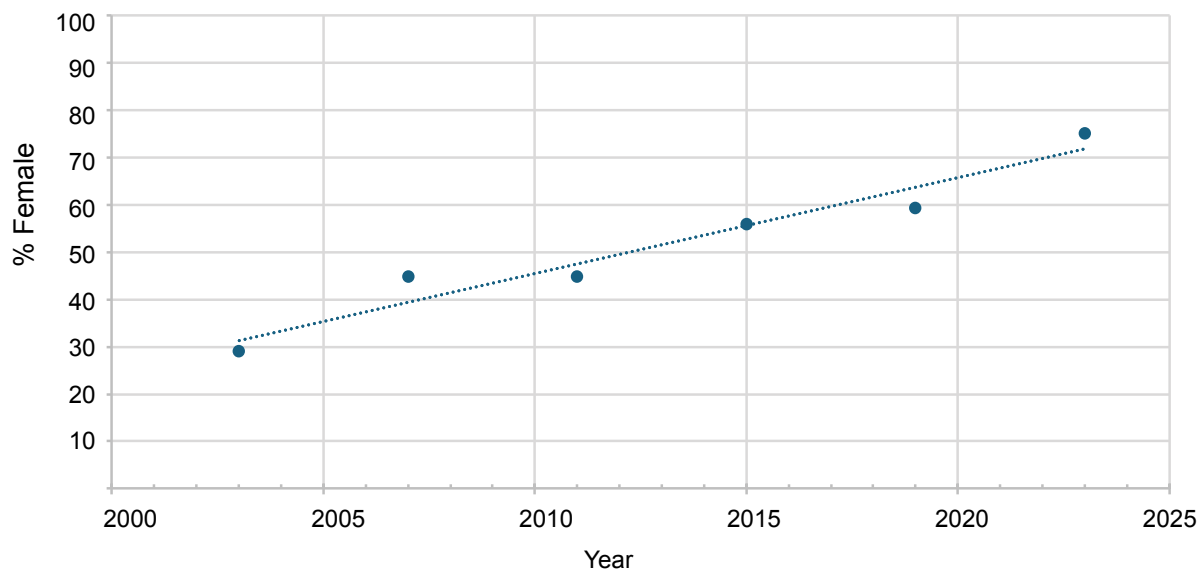


Figure 4. Changes in gender balance of INQUA awards from 2003 to 2023. (n = 259; mean = 43, st. dev = 20.)

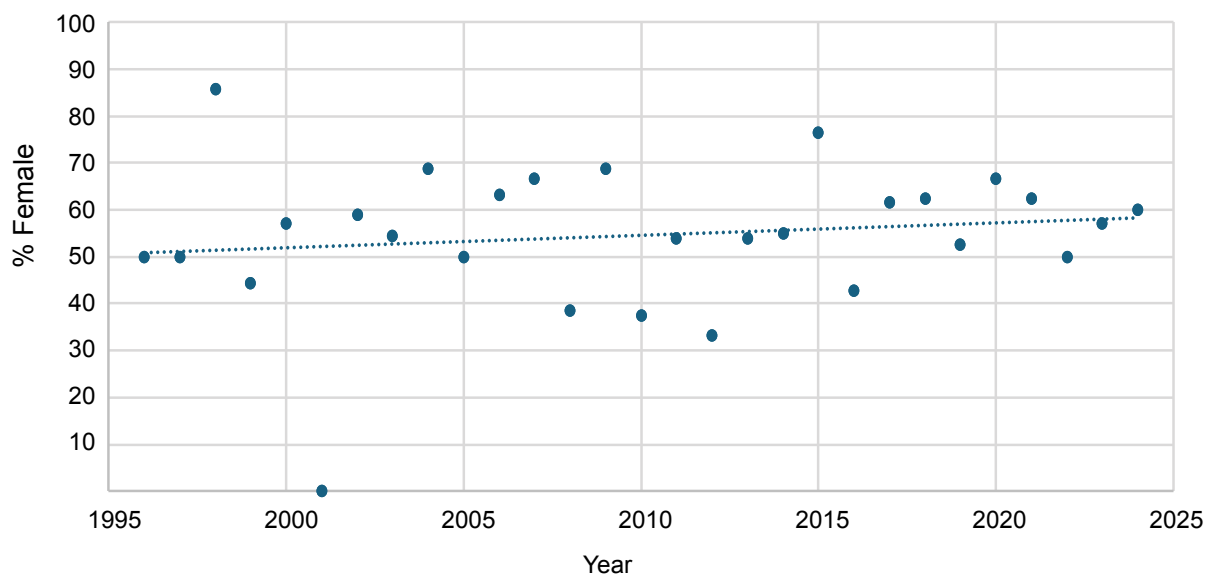


Figure 5. Gender balance of MSc Quaternary Science / Past Climate and Environmental Change students, Royal Holloway, University of London, since 1996 (% Female). Blue dotted line is the linear trendline. The average for the whole period is 54% female students and the last 10 years sees this rise to 58% female students.

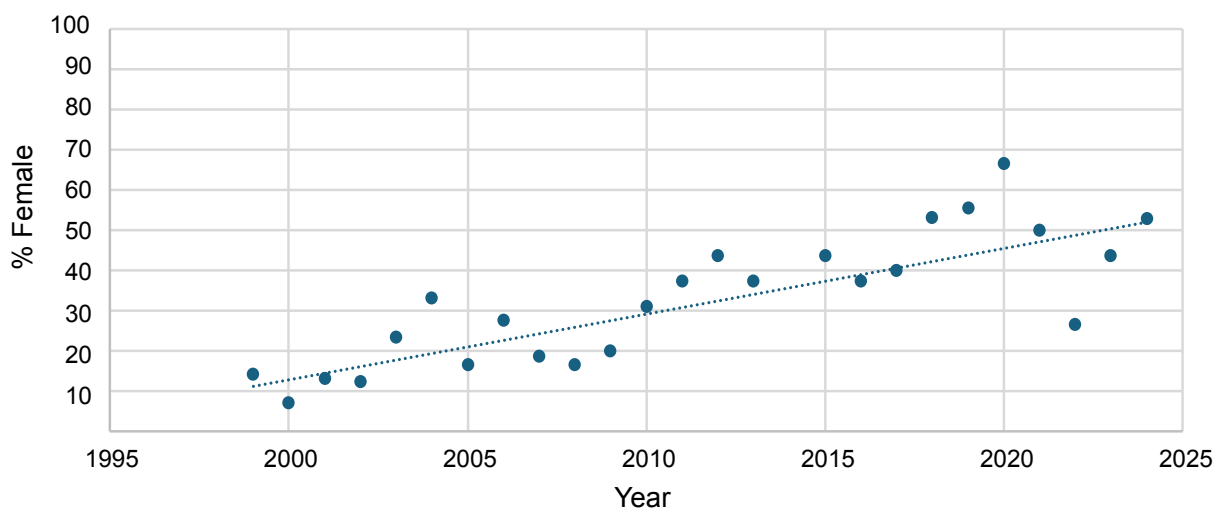


Figure 6. Gender balance of QRA Executive Committee since 1999. Blue dotted line is the linear trendline. The average for the whole period is 32% female committee members and the last 14 years sees this rise to 47% female representation.

at the time. However, the current distribution in the QRSB awards suggests that the pipeline does not have substantial leaks in it currently. Indeed, the QRA strategy of supporting postgraduate activities through the postgraduate symposium combined with research and conference grants over the last 20 years might be enablers to retaining people within the subject.

There are other indicators of gender balance within the sphere of the QRA awards schemes, although with lower sample sizes. These are i) the James Croll Medal, with 27% female winners (n = 15), ii) the

Lewis Penny Medal, with 25% female winners (n = 16), and iii) the Winnifred Pennington-Tutin Prize, with 55% female winners. There are many factors that contribute to this imbalance in the first two medals, driven by a male-dominated academy in the mid- to late- 20th century being recognised with the more senior awards, but there may also be a link to the gender of nominators and broader issues within academia associated with the transition from ECR to established academic.

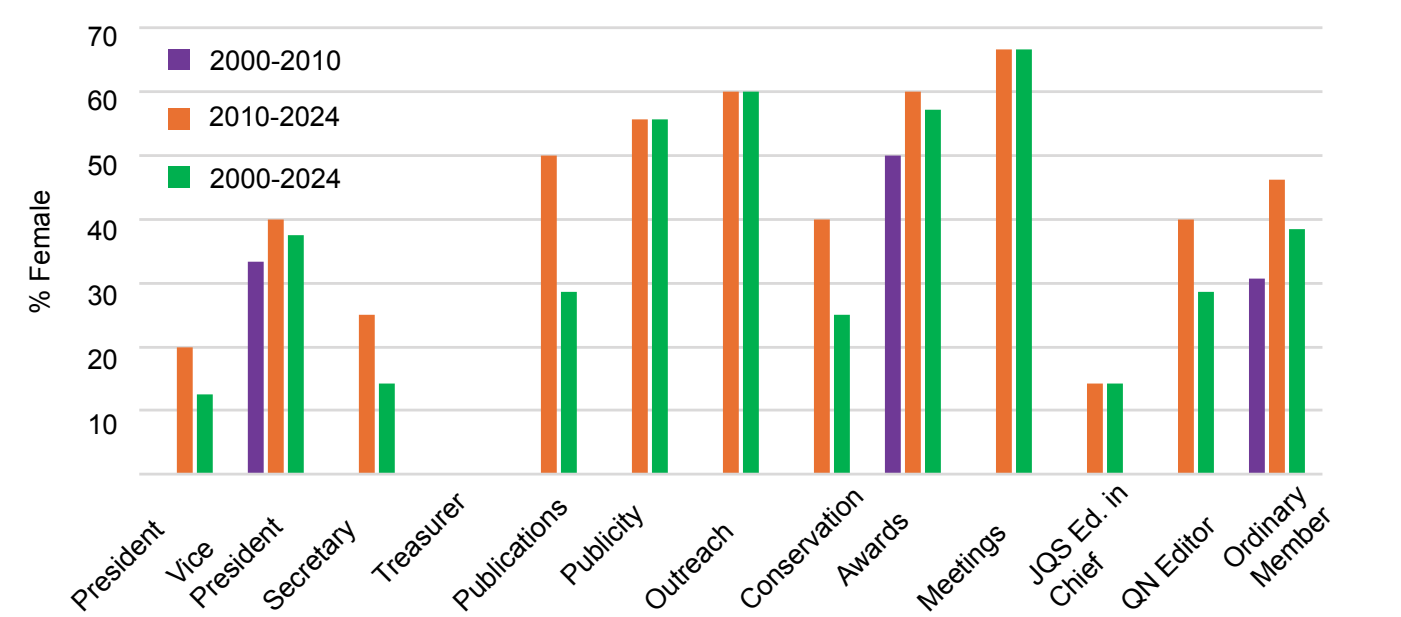


Figure 7. QRA Executive Committee gender balance by role (% Female) since 2000. Postgraduate and EDI Officer roles have not been included.

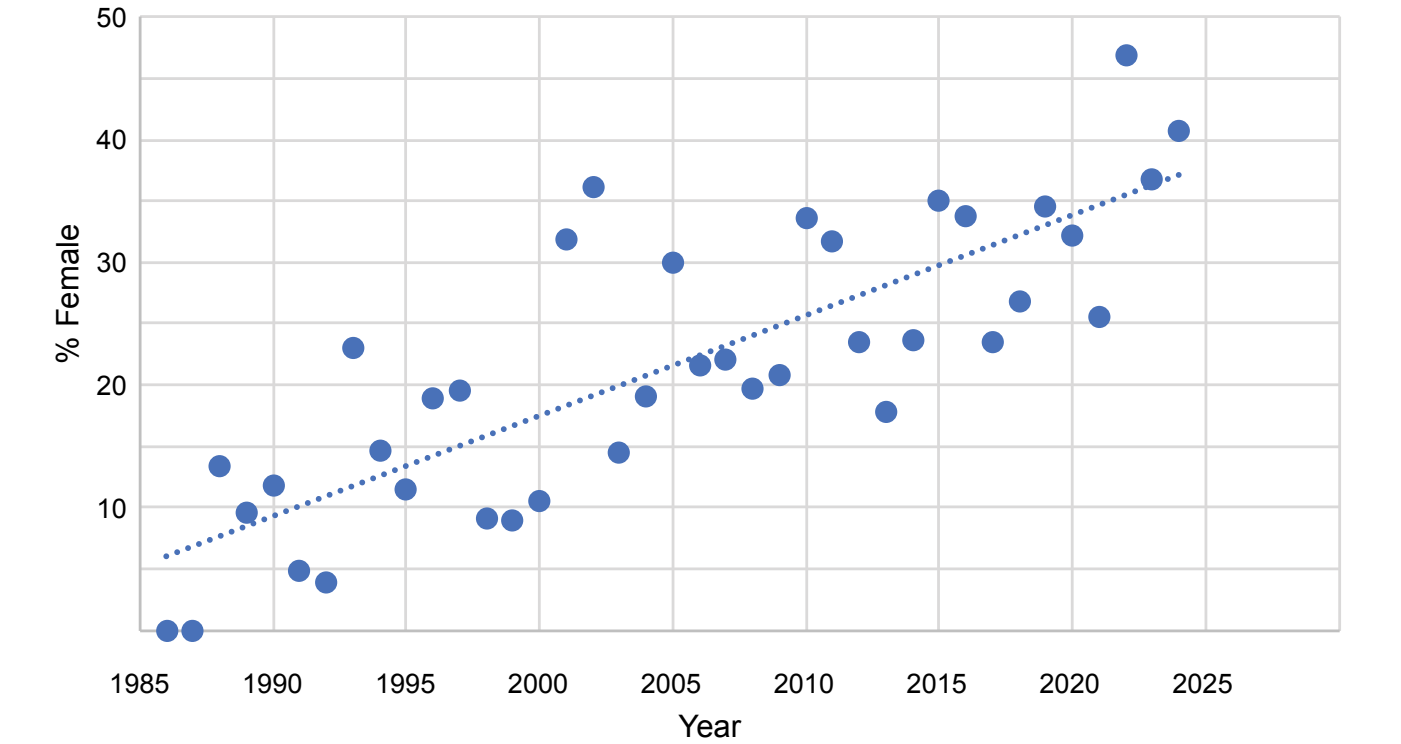


Figure 8. Annual proportion of Journal of Quaternary Science articles with female lead authors.

Gender Balance in the QRA Executive Officers

Other data about the gender balance of the QRA can be extracted from the composition of the Executive of the QRA since its inception. This analysis takes two forms: i) the gender balance since 1999 using minutes of Executive Meetings in the autumn of each year where available (Fig. 7). There are no data yet for 2014 and the specific time window was used to allow some comparison to the Awards rounds information presented above and uses first name to assign gender; ii) a breakdown of gender (% Female) in the Executive roles between 2000 and 2010, and then between 2010 and 2024 to explore recent changes (Fig. 8). In both instances, the terms of different roles range between 3-5 years and therefore examining year-to-year changes is a form of moving average.

The overall composition of the executive committee has evolved over the last 25 years in a similar trend to the QRSG, reaching parity in the last five years. There is clearly some work required to sustain this balance in the immediate future by ensuring that members feel that they can be nominated and contribute to the QRA's work. To help with this, it would be interesting for the EDI sub-committee to explore what the specific barriers are for QRA members when considering whether to volunteer for Executive Officer roles, e.g. workload, work-life balance, career stage and level of establishment etc.

Further work is required to move towards gender parity in certain Executive Officer roles (Fig. 7). Between 2000-2010 only the Vice-President, Awards and Ordinary Member roles had female representation; however, since 2010, there have been major changes in female representation in the Executive Officer positions, with Vice President, Publications, Publicity, Outreach, Awards, Meetings, QN Editor and Ordinary Members all being $\geq 40\%$. Whilst the President, Vice-President, and Secretary roles have had a high amount of male representation in the last 24 years, there is a recent shift to a higher percentage of females in these roles. There has been a single female Treasurer (Hillary Davies (1980-1984)) but none have served on the Executive in this sample period since 2000. The changes observed here might appear to lag the changes that are seen in the Awards data (Figs 1-4) and the composition of the MSc course at Royal Holloway (Fig. 5) and going forward it will be important to maintain a gender balance on the Executive across the portfolio of roles available.

JQS: historic trends in author gender

A longer time series of changing gender balance within QRA-related activities can be extracted from examining the first author gender of JQS articles. JQS began publication in 1986 as the "house journal" of the QRA. Initially, around a dozen papers were published each year, rising to ~90 by 2010. Data on author gender have not been collected as part of manuscript submission. The gender of lead authors has therefore been manually derived from the 2,275 articles published by JQS over the last 39 years based on traditional gender constructs for the first/given name.

The data do not include book reviews, correspondence or editorials. In around 11% of cases, it was not possible to obtain gender information easily, and thus lead author gender was classed as "unknown". This analysis, summarised in Figure 8, shows an upward trend from 0% female lead authorship in the first two volumes of the journal (with the lead author gender of two articles "unknown") to around 40% today. Because of the additional papers where gender was "unknown", the true proportion of female authors is likely to be slightly higher than this figure. This gradual rise reflects the increasing contribution of female researchers to Quaternary Science over recent decades, especially for ECRs, where there is now broad gender parity. At an editorial level, progress with gender parity has been slower, with the first female associate editor of JQS only being appointed in 2023, and the first female editor-in-chief appointed in 2025.

Summary

Overall, this paints a broadly positive picture of changes in gender balance across the range of activities in the QRA over recent decades. It is accepted that this is a quick and selective 'snapshot' of where the association is at this census point, with clear data limitations. However, it has proven to be an extremely effective exercise in highlighting the gaps in our data and identifying how we might want to collect data in a more targeted fashion in the future. Another level of analysis might explore in more granular detail the balance of funds awarded to established academics compared to ECRs. In terms of absolute numbers, successful awards slightly favour New Research Workers (ECRs), but not to a great extent. It is also important to recognise that whilst the composition or demographic balance has improved based on raw

figures, future work should explore more deeply the experience, perceptions and motivation of different genders in their interactions with different parts of the Association's activities.

As outlined at the start of this article, this should be seen as an essential starting point and will enable easier monitoring on a year-to-year basis to ensure there is no slippage in the positive trends that are displayed here. There might be scope to explore, if available, other related societies' gender datasets to examine if these trends are being experienced elsewhere, and equally if specific interventions enacted by the other societies have created a marked impact in outcomes. It will also be important to measure and monitor the impact of targeted practical measures that the QRA have introduced, such as the building in of funds for caring responsibilities into grants. Moving forward, EDI priorities should be focused on improving diversity within the Association more generally to help open the discipline to a wider talent pool. As always, we are very happy to discuss comments and ideas on these data with members; please pass these onto the EDI Officer or any Executive Officer.