

Women are underrepresented on editorial boards

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Despite women earning similar numbers of graduate degrees as men in Science, Technology, Engineering, and Math (STEM) disciplines (National Science Foundation 2012), they are underrepresented in upper level positions in both academia and industry (National Science Foundation 2004). Several mechanisms have been put forward to explain this disparity, including bias against women in hiring and promotion, inflexible or even hostile work environments, and a lack of role models and mentors (Moss-Racusin *et al.* 2012). In response, universities and other institutions have implemented strategies to address these issues, including making opportunities for professional advancement more broadly available and actively seeking gender diversity in leadership roles (Fox 2008). While these efforts have some positive results, much remains to be done to ensure women in STEM are afforded the same opportunities as their male counterparts.

The editorial boards of scientific journals act as gatekeepers that help maintain the scientific integrity and standards of a journal as well as identify emerging and innovative areas of research (Addis and Villa 2003, Mauleon *et al.* 2013). An invitation to serve as a Subject Editor is recognition that a scholar is respected in his or her discipline; it is also the path towards editorial leadership because Associate Editors and Editors-in-Chief are typically selected from the editorial board. Serving on a board is also a means of advancing one's scholarship, both by becoming aware of the latest advances in the field and gaining insights into the writing and publication process. Finally, editorial boards are important professional networks – in serving on a board one is able to develop relationships with reviewers, authors, and other editors (Addis and Villa 2003). Serving on a board is therefore both an honor and a means of furthering one's research and career.

We surveyed 10 highly regarded journals in environmental biology, natural resource management, and plant sciences to quantify the number of women on their editorial boards and in positions of editorial leadership from 1985-2013 (Cho *et al.* 2014). We found that during this time period, only 16% of editorial board members were women (N = 332 of 2065). The disparity also extends to leadership positions. Since 1985 only 14% of Associate Editors (N = 18 of 125) and 12% (N = 7 of 59) of the Editors-in-Chief of our focal journals have been women (Online Materials Fig. 1). While there has generally been an increase in the representation of women on editorial boards over time, for most journals the percentage of women on the board rarely exceeds 20% (Fig. 1).

Nevertheless, there is notable variation among journals in the representation of gender on their editorial boards. Several had consistent increases in the representation of women over time, from no women in the mid-1980's to a current high of ~40% (e.g., *Biotropica*, *American Journal of Botany*, *Conservation Biology*). Others, however, consistently had few women on their boards throughout our survey period (e.g., *Agronomy Journal*, *North American Journal of Fisheries Management*, *Biological Conservation*). This pattern of underrepresentation is similarly observed in journal leadership. While most journals had female Associate Editors at some point during our survey period, only 5 of the 10 journals we reviewed ever had a woman as Editor-in-Chief (Online Materials Fig. 2). Of these, only one – *North American Journal of Fisheries Management* – has had more than one.

We recognize that determining the pervasiveness of gender bias in board composition requires considering more journals from different subfields of environmental biology. However, surveys

in economics (Addis and Villa 2003, Green 1998), medicine (Galley and Colvin 2013, Keiser *et al.* 2003), management (Metz and Harzing 2012), and anthropology (Stark *et al.* 1997) have found comparable disparities in the gender composition of editorial boards. Assuming the results for our focal journals are representative of other journals in the field, our observations beg two questions: first, why are women missing from these key positions, and second, what gender composition on editorial boards should journals strive for? While our study was not designed to elucidate the former question, we do propose an answer to the latter. Rather than reflecting the proportion of women active in a particular discipline or academic society – a number we found surprisingly difficult to determine – we argue journals should proactively seek gender parity on editorial boards. This would greatly increase the number of women afforded the opportunities and benefits that accompany editorial board membership, as well as increase the number of female role models and mentors for early-career scientists and students.

Note: All data used in these analyses are available at the Dryad Digital Repository under accession number ---- (deposition upon manuscript acceptance).

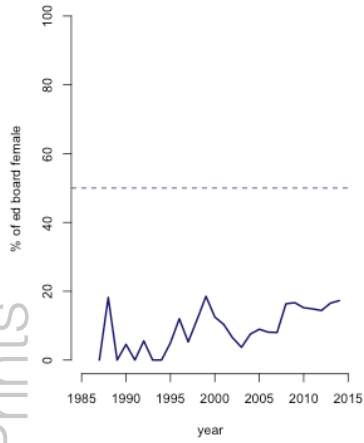
FIGURE LEGENDS

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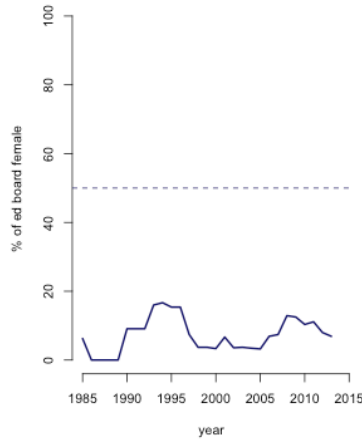
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78 **Fig. 1.** Change in the percentage of women on the Editorial Boards we surveyed from 1985-
79 2013. Editorial boards are defined as group composed of Editors-in-Chief, Associate Editors, and
80 Subject Editors.

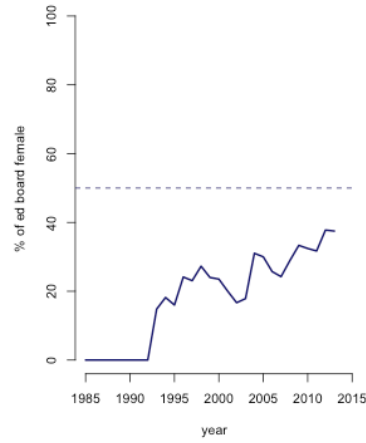
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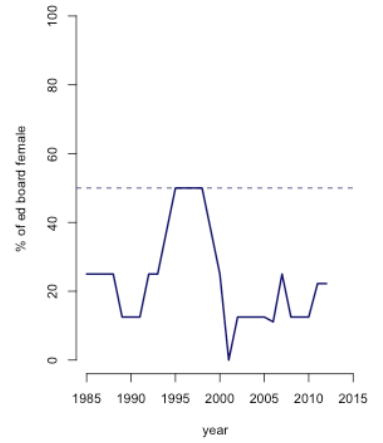
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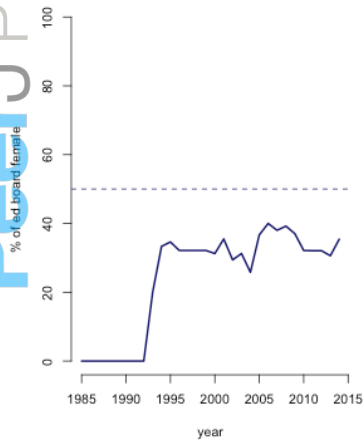
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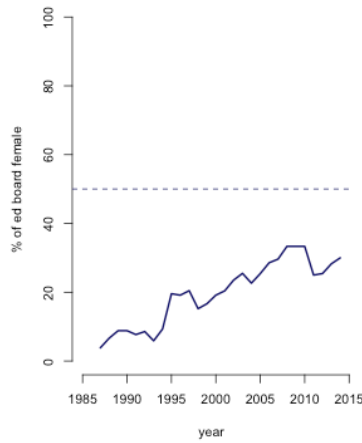
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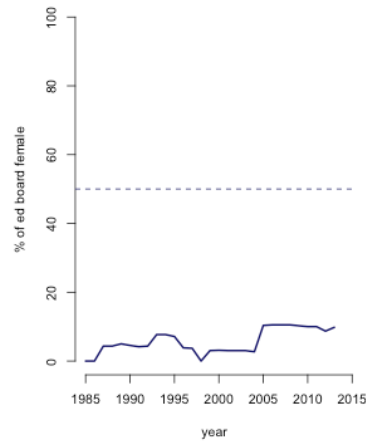
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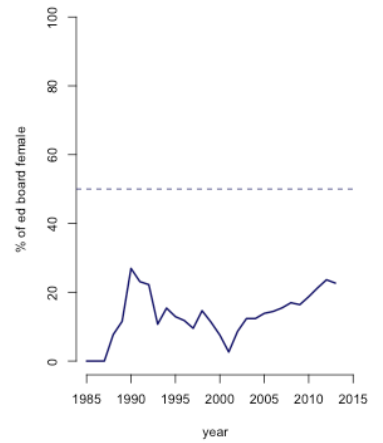
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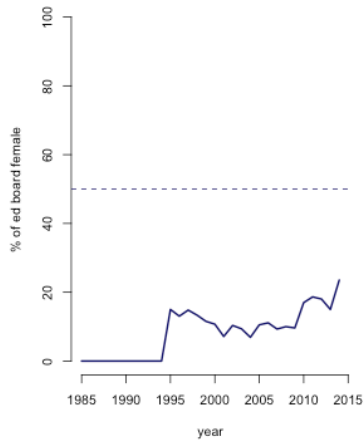
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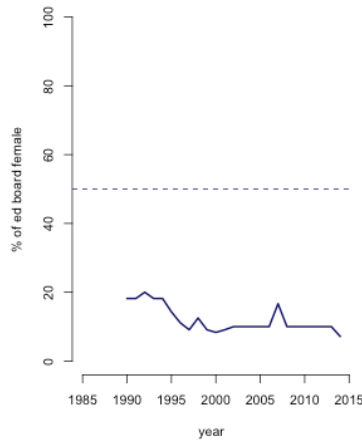
Ecology



J. Ecology



J. Trop. Ecology



LITERATURE CITED

- 89
- 90
- 91 Addis E and Villa P. 2003. The editorial boards of Italian economics journals: women, gender,
- 92 and social networking *Feminist Economics* **9**: 75-91.
- 93 Cho A, Johnson SA, Schuman CE, Adler JM, Gonzalez O, Graves SJ, Huebner JR, Marchant
- 94 DB, Rifai SW, Skinner I and Bruna EM. 2014. Methods for survey of gender and editorial
- 95 boards. <http://brunalab.org/methods-gendereditorial-boards/>.
- 96 Fox MF. 2008. Institutional transformation and the advancement of women faculty: the case of
- 97 academic science and engineering. In: Smart JC (Ed). Higher education: handbook of theory and
- 98 research. Amsterdam, The Netherlands: Springer.
- 99 Galley HF and Colvin LA. 2013. Next on the agenda: gender. *British Journal of Anaesthesia*
- 100 **111**: 139-142.
- 101 Green K. 1998. The gender composition of editorial boards in economics. *Royal Economic*
- 102 *Society Women's Committee*.
- 103 <http://www.res.org.uk/SpringboardWebApp/userfiles/res/file/Womens>
- 104 [Committee/Publications/editorialcomposition_Jan1999.pdf](http://www.res.org.uk/SpringboardWebApp/userfiles/res/file/Womens).
- 105 Keiser J, Utzinger J and Singer BH. 2003. Gender composition of editorial boards of general
- 106 medical journals. *Lancet* **362**: 1336-1336.
- 107 Mauleon E, Hillan L, Moreno L, Gomez I and Bordons M. 2013. Assessing gender balance
- 108 among journal authors and editorial board members. *Scientometrics* **95**: 87-114.

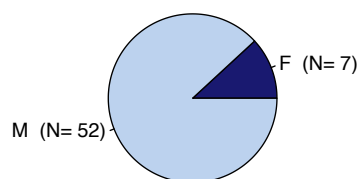
- 109 Metz I and Harzing A-W. 2012. An update of gender diversity in editorial boards: a longitudinal
- 110 study of management journals. *Personnel Review* **41**: 283-300.
- 111 Moss-Racusin CA, Dovidio JF, Brescoll VL, Graham MJ and Handelsman J. 2012. Science
- 112 faculty's subtle gender biases favor male students. *P Natl Acad Sci USA* **109**: 16474-16479.
- 113 National Science Foundation, Division of Science Resources Statistics (NSF/SRS). 2004. Gender
- 114 differences in the careers of academic scientists and engineers. Special Report NSF 04-323.
- 115 Arlington, VA.
- 116 National Science Foundation, National Center for Science and Engineering Statistics. 2012.
- 117 Doctorate recipients from U.S. universities: 2012. Special Report NSF 14-305. Arlington, VA.
- 118 Stark BL, Spielmann KA, Shears B and Ohnerson M. 1997. The gender effect on editorial
- 119 boards and in academia. *Bulletin of the Society for American Archeology* **15**.
- 120 <http://www.saa.org/Portals/0/SAA/publications/saabulletin/15-4/SAA6.html>.

ONLINE-ONLY MATERIAL

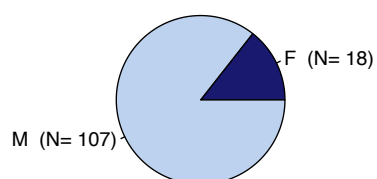
Online Fig.1. Proportion of men and women who served as (A) Editors-in-Chief (B) Associate Editors or (C) Subject Editors of our 10 focal journals from 1985-2013.

Online Fig. 2. Total number of men and women who served as (A) Editors-in-Chief (B) Associate Editors or (C) Subject Editors between 1985-2013 of the 10 environmental biology journals.

Editors-in-Chief (%)



Associate Editors (%)



Editorial Board (%)

