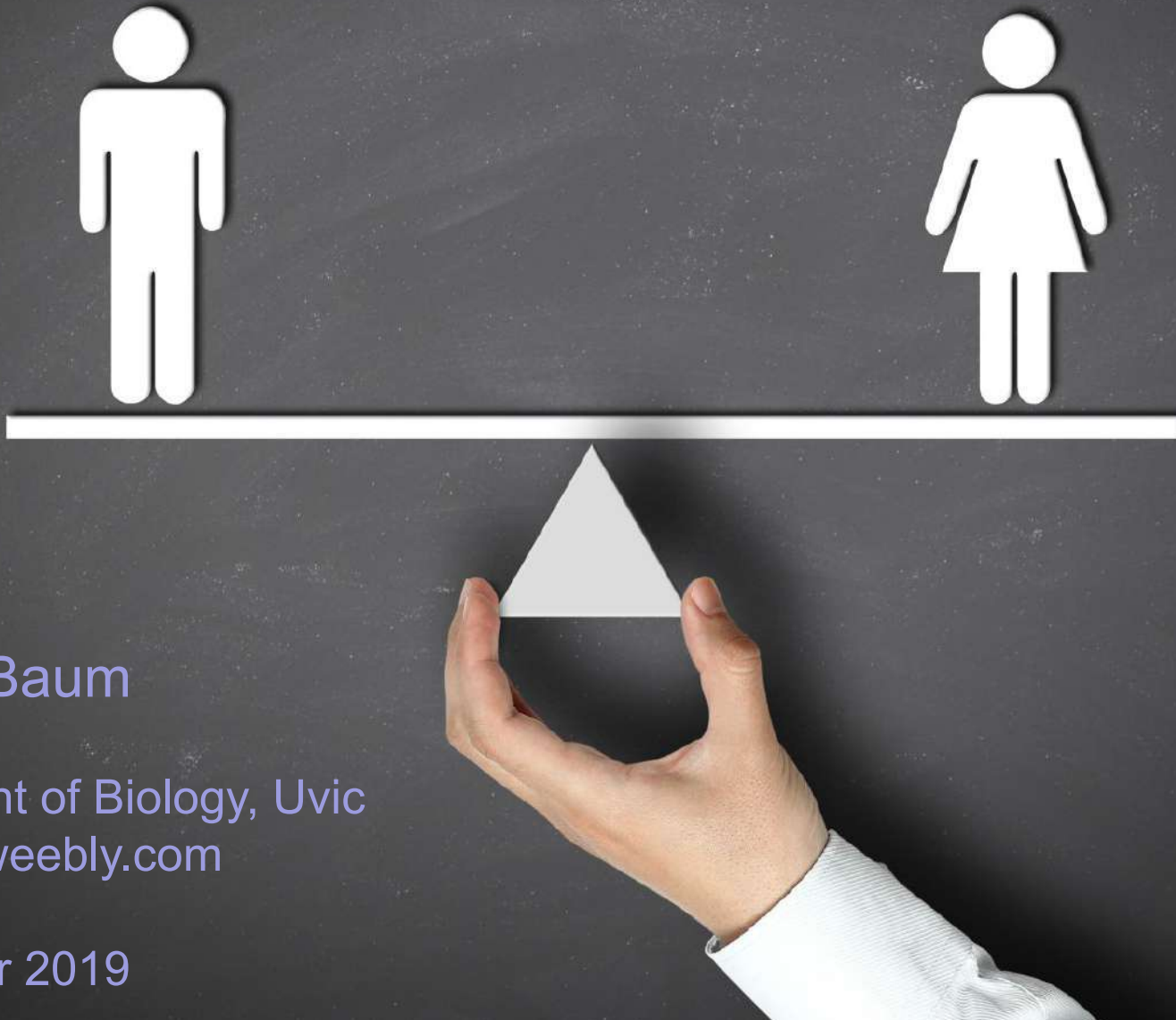


Overcoming Academia's Demons and Levelling the Playing Field for Women in Science



Julia K. Baum

Professor

Department of Biology, Uvic

baumlab.weebly.com

September 2019

Meritocracy:

a system in which progress is based on ability and talent rather than on class privilege or wealth

1. Gender bias / Unconscious bias
2. Bullying
3. Sexual Harassment & Assault

1. On a scale of 1 to 10, to what extent do you think that gender bias, bullying, and/or sexual harassment & assault hinder the advancement of women in science? (1 = not at all, 5 = moderately, 10 = massively)
2. Why do you think this? (i.e. What evidence are you basing this on?)
3. When did you become aware of this problem?
4. Only if you feel comfortable answering this question: Do you personally feel that you have experienced any of these issues in your own education or career?

Outline for today's class:

Current State of Women in Science, timeliness, and my involvement

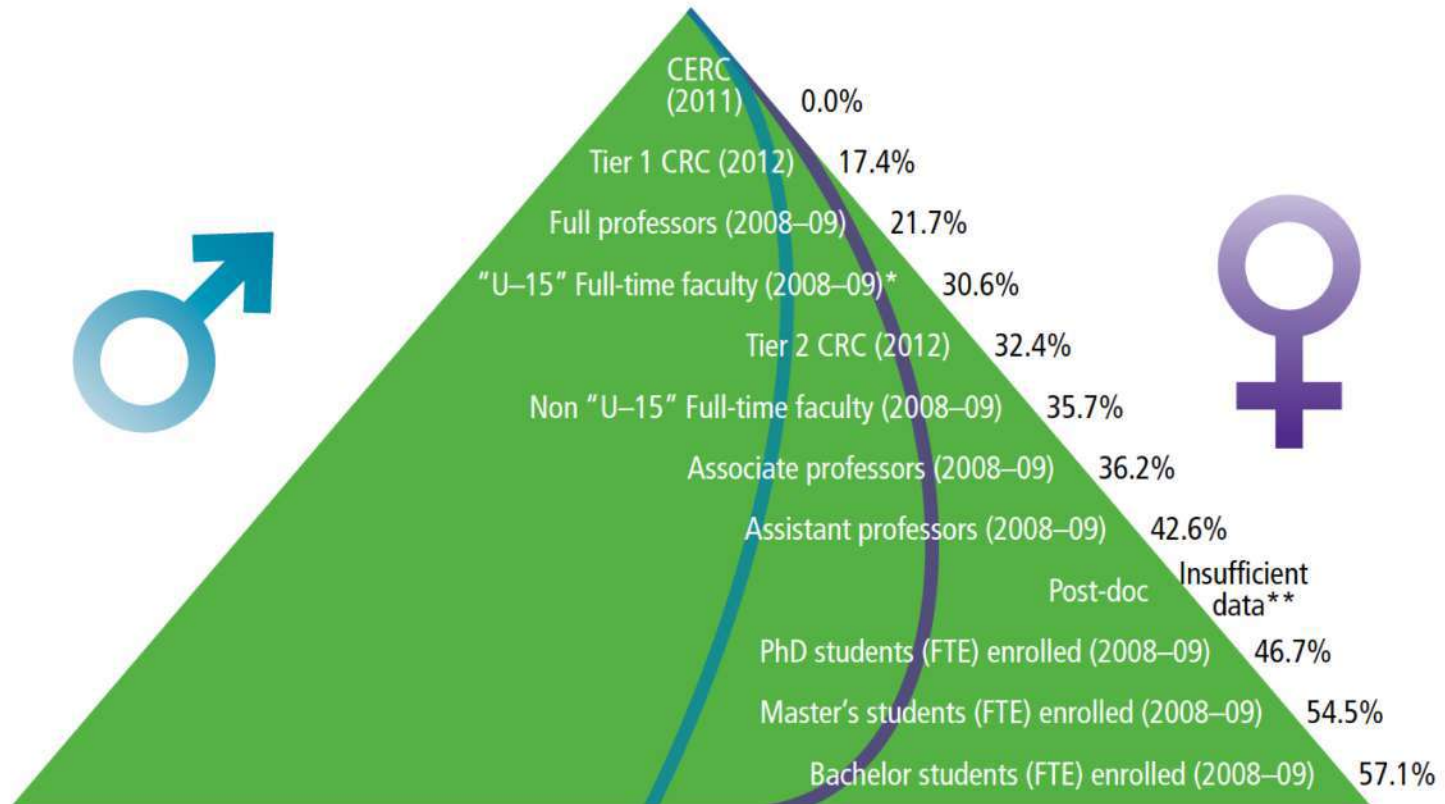
1. Gender bias / Unconscious bias
 - Discussion of '100 articles every ecologist should read' and 'It is time to overcome unconscious bias in ecology'
2. Bullying in academia
3. Sexual harassment and assault

Two fallacies...

Progress



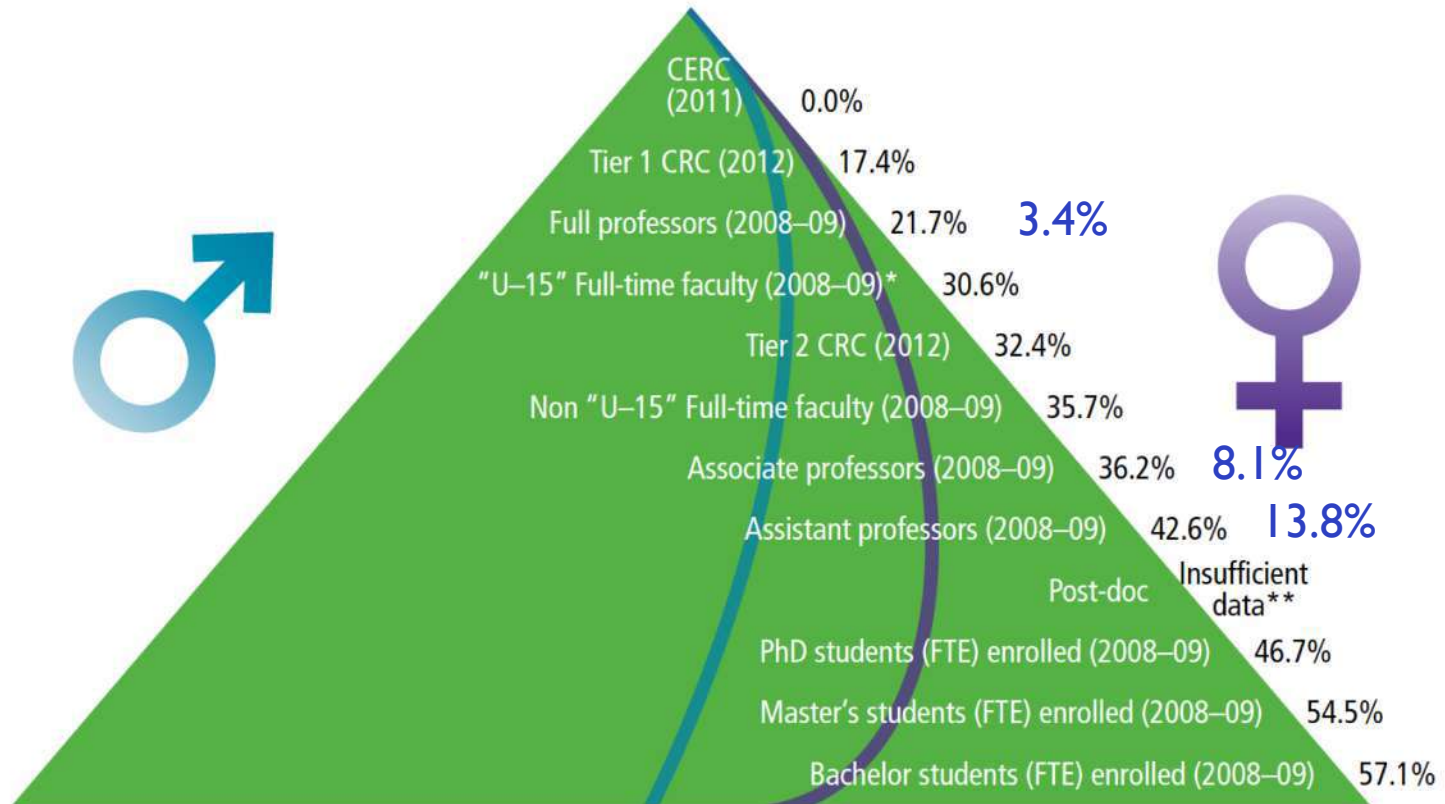
Proportion of Women in University Research Positions (2008-2012)



(Data Source: Adapted with the permission of Wendy Robbins and Bill Schipper. Statistics Canada, n.d.d., n.d.b.; CRC, 2012b; CERC, 2012; CAUT, 2012)

Proportion of Women in University Research Positions (2008-2012)

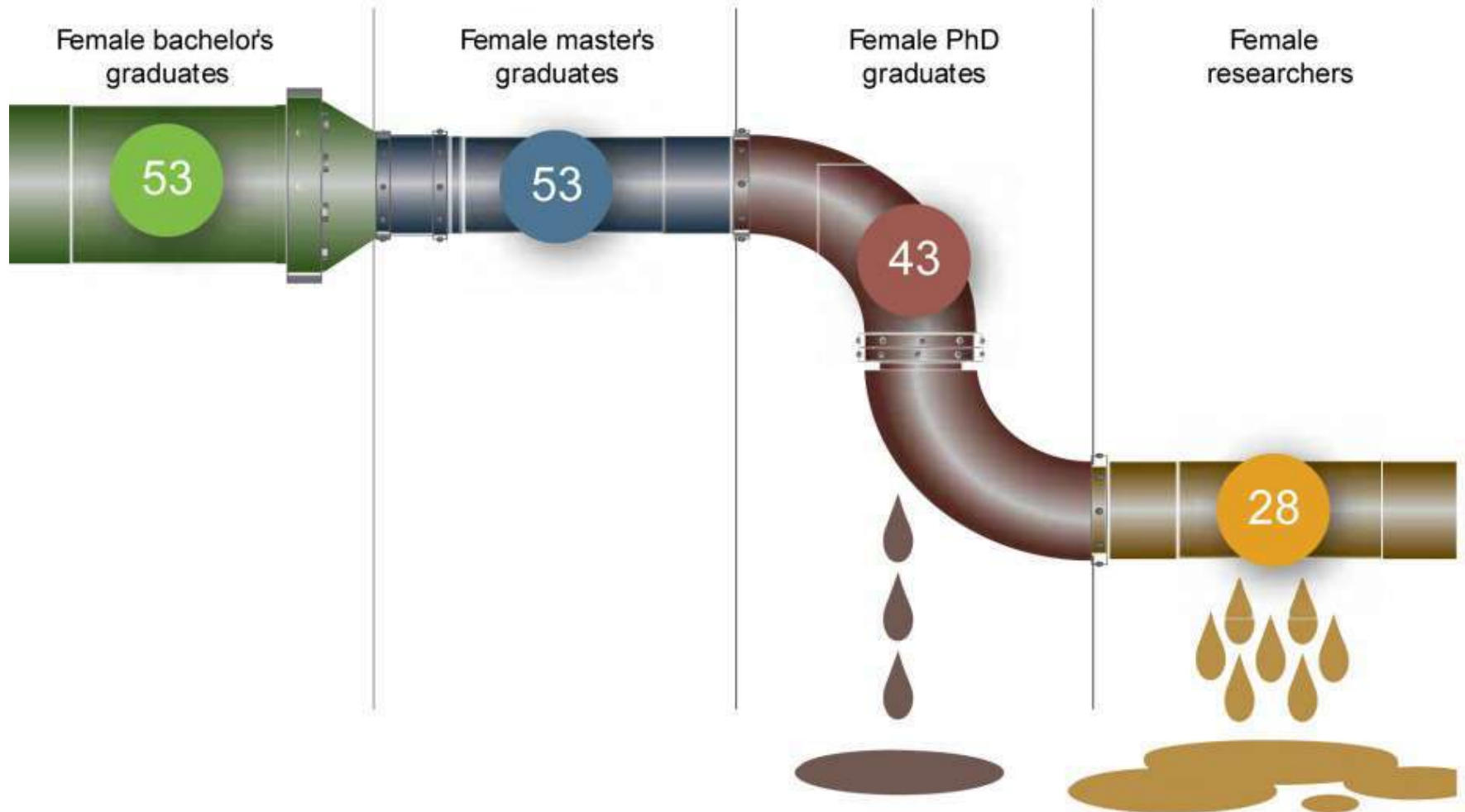
1970-1971 Canadian Statistics



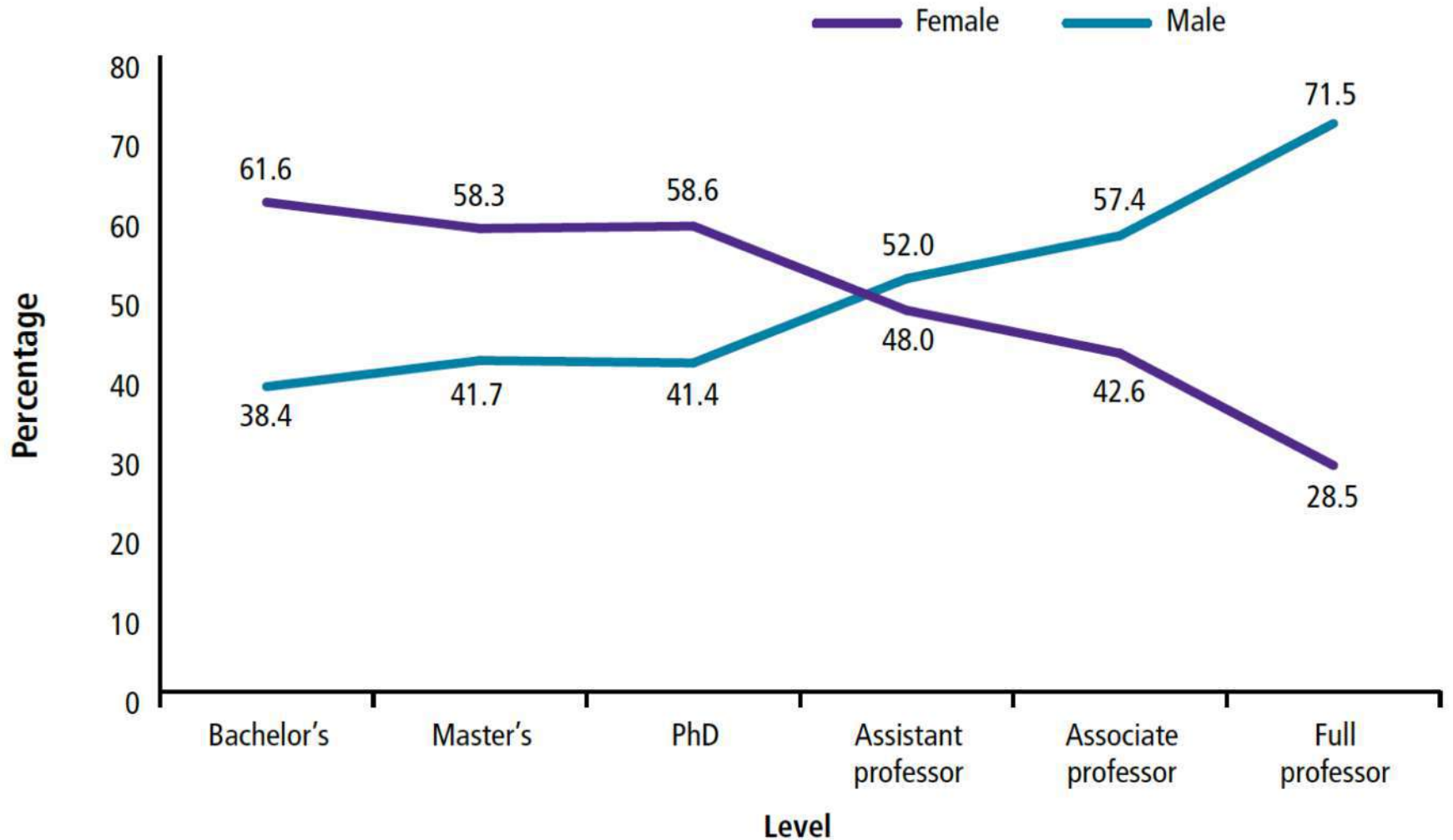
(Data Source: Adapted with the permission of Wendy Robbins and Bill Schipper. Statistics Canada, n.d.d., n.d.b.; CRC, 2012b; CERC, 2012; CAUT, 2012)

The Leaky Pipeline:

The leaky pipeline: share of women in higher education and research, 2013 (%)



Scissor Diagram



(Data Source: Statistics Canada, n.d.d., n.d.b.)

A Physicist Said Women's Brains Make Them Worse at Physics — Experts Say That's 'Laughable'

By Rafi Letzter, Staff Writer | October 2, 2018 11:17am ET

f 0

🐦 0

F

🌐

🔗

MORE ▾



The particle physics lab CERN

Credit: CERN

A male physicist claimed during a lecture that men are discriminated against in [physics](#). He also said that there are fewer women than men in physics largely because of innate differences in intelligence between the sexes, and partly because women are less interested in physics.

But experts in neuroscience, intelligence and the interactions of gender and society told Live Science that they weren't impressed.

"I find that pretty laughable, actually," said Maria Natasha Rajah, a cognitive scientist and expert in neuroimaging at McGill University in Quebec.




Thunberg at a boat. Greta Thunberg (Getty Images/Alamy)

The Misogyny of Climate Deniers

Why do right-wing men hate Greta Thunberg and Alexandria Ocasio-Cortez so much? Researchers have some troubling answers to that question.

By **MARTIN GELIN** | August 28, 2019

 Add to Pocket



Green with rage: Women climate change leaders face online attacks

September 12, 2019 4:44pm EDT

Canadian Environment Minister Catherine McKenna has had to hire security due to social vitriol aimed at her in public. THE CANADIAN PRESS/Drew Hoptman

Email

Twitter 47

Facebook 1.1k

LinkedIn

Print

Women leaders who support climate action are being attacked online with increasing regularity. These attacks should be viewed as a problem not only for the planet, but also to the goals of achieving gender equality and more inclusive, democratic politics.

Catherine McKenna, Canada's environment and climate change minister, recently announced that she's had to hire security to protect herself and her family while in public. With an election now on, it's likely she'll face further abuse in the weeks to come.

Authors



Tracey Raney
Associate Professor of Politics and Public Administration, Ryerson University



Mackenzie Gregory
Master's Student, Ryerson University

Disclosure statement

Leadership + An
'We b
its lis



Former Obama Whit
your methodology p
Jarratt tweeted. (Ma



By Jen
Septe
Forbes Magazi
most innovativ

Last week, For
minds of today
Tesla's Elon M
Facebook's Ma



Sarah Robb O'Hagan ✓
@ExtremeSRO



an on

Come on @Forbes WHAT WERE YOU THINKING??? 99 men and 1 woman?? I can come up with 100 women at this level without even googling. FIGURE IT OUT. #FFS #TimesUp #SoOverThis forbes.com/lists/innovati...

AMERICA'S
MOST INNOVATIVE LEADERS

America's Most Innovative Leaders
Meet today's most creative business minds.
forbes.com

♥ 115 7:02 PM - Sep 6, 2019



A REPORTER AT LARGE OCTOBER 23, 2017 ISSUE

FROM AGGRESSIVE OVERTURES TO SEXUAL ASSAULT: HARVEY WEINSTEIN'S ACCUSERS TELL THEIR STORIES

Multiple women share harrowing accounts of sexual assault and harassment by the film executive.

By Ronan Farrow



#TimesUp

#MeToo



A COLD CASE

Years ago, two women allege, their team leader sexually harassed them in Antarctica. Now they are taking action

In 1999 at Pivot Peak in Antarctica, Jane Willenbring (right) was the only woman on a four-person team including David Marchant (center) and his brother (left). ADAM LEWIS



It is time to overcome unconscious bias in ecology

To the Editor — Training and mentoring young scholars is one of the most important responsibilities of senior scientists. Amongst the many tasks that mentorship involves, helping mentees to develop a strong foundation in their field is vital. In this regard, sharing a list of papers deemed to be essential reading could be a useful starting point, particularly given the challenge of tackling a new, vast and rapidly expanding literature. In their paper titled ‘100 articles every ecologist must read’, Franck Courchamp and Corey Bradshaw produce such a list. Sadly, they got it wrong.

Rather than developing a representative and inspiring list of papers for young ecologists, Courchamp & Bradshaw have presented a highly gender and racially biased list in which 97 of 100 selected articles are first-authored by white men. Only two articles are led by women (Camille Parmesan and Mary Power); these are ranked last. One paper is led by a non-white man (Motoo Kimura). Compounding the list’s lack of diversity is its domination by a small number of scientists: 22 of the articles are first-authored by three white men (Robert MacArthur, Bob May and David Tilman), and a further 35 articles are led by only 15 additional white men. We do not dispute that these men have made exceptional contributions. What we do contend is that this list has failed to capture ecology’s diversity of exceptional scientists. We are deeply disturbed that its authors would promote this list to graduate students as the ‘must read’ papers in ecology. It is not a list we would ever recommend. By almost exclusively presenting works by white men, we fear Courchamp & Bradshaw are sending a strong message to a new generation of ecologists: women and people of colour need not apply.

Courchamp & Bradshaw’s list is also hampered by its lack of representation of the field of ecology itself. Ecology encompasses an array of approaches and scales, from

the molecular to the macroecological, and addresses both pure and applied questions. Yet, the authors elicited information from the editorial boards of ‘pure ecology’ journals only, overlooking the field’s top-ranked journals (*Global Change Biology*, *Molecular Ecology*, the *Journal of Applied Ecology* and *Conservation Biology*, for example) that do not fit within this narrow definition. They also elicited information from members of the Faculty of 1,000 (F1000) Ecology section. The composition of the selected editorial boards and F1000 members are themselves severely gender and racially biased. Although developing any list of this type will, to some extent, be a subjective endeavour, there are sound ways to minimize bias when eliciting the judgements of experts².

Academia is rife with bias, including overt harassment³ and bullying⁴, as well as more subtle, but pervasive unconscious (or ‘implicit’) bias^{5–7}. Unconscious biases are shaped by culture, family and friends, and personal experiences, and they influence how we view and evaluate others. Yet, because they lurk below the surface, we rarely recognize that they inform the choices we make⁵. From reference letters⁸, interview panels⁹ and awards committees to student evaluations¹⁰ and the peer review process¹¹, unconscious bias plays a role in deciding who to hire, promote, reward, publish and fund. As scientists, we can choose either to perpetuate unconscious bias — for example, by giving only privileged individuals a seat at the table, or in this case, the right to choose influential papers — or we can actively work to overcome it.

Ecology is a dynamic and growing discipline, with enormous relevance to the environmental challenges facing the world. Solving these challenges requires that we attract and retain the best and brightest young scientists. Doing so necessitates that we enhance the inclusivity of our field. Female role models were limited when we

were growing up, but were hugely important for us. Today there is an ever-increasing number of brilliant female scientists training the next generation of ecologists. Failure to showcase the contributions of these scientists does a huge disservice to students. To our minds, Courchamp & Bradshaw’s paper will not be remembered as an inspirational list of must-read papers in ecology, but rather as an ode to a legacy of white male dominance in our field and the epidemic of unconscious bias that continues to this day. □

Julia K. Baum^{1*} and Tara G. Martin²

¹Department of Biology, University of Victoria, Victoria, British Columbia, Canada. ²Department of Forest & Conservation Sciences, University of British Columbia, Vancouver, British Columbia, Canada. *e-mail: baum@uvic.ca

Published online: 14 December 2017
<https://doi.org/10.1038/s41559-017-0441-y>

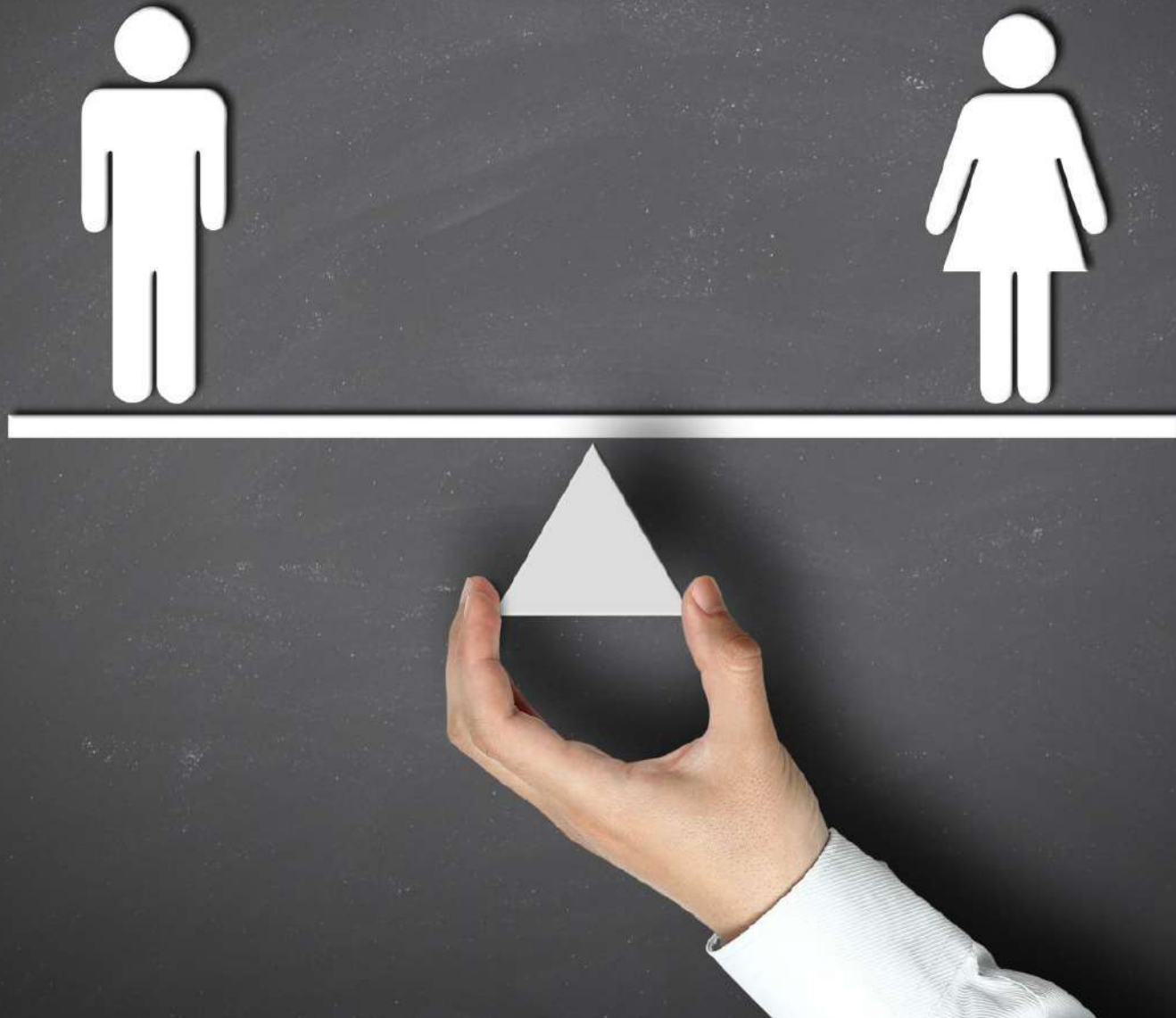
References

- Courchamp, F. & Bradshaw, C. J. A. *Nat. Ecol. Evol.* <https://doi.org/10.1038/s41559-017-0370-9> (2017).
- Martin, T. G. et al. *Conserv. Biol.* **26**, 29–38 (2012).
- Clancy, K. B. H., Nelson, R. B., Rutherford, J. N. & Hinde, K. *PLoS ONE* **9**, e102172 (2014).
- Keashly, L. & Neuman, J. H. *Admin. Theory Pract.* **32**, 48–70 (2010).
- Easterly, D. M. & Ricard, C. S. *J. Res. Admin.* **42**, 61–73 (2011).
- Moss-Racusin, C. A., Dovidio, J. F., Brescoll, V. L., Graham, M. J. & Handelsman, J. *Proc. Natl Acad. Sci. USA* **109**, 16474–16479 (2012).
- Milkman, K. L., Akinola, M. & Chugh, D. *J. Appl. Psychol.* **100**, 1678–1712 (2015).
- Dutt, K., Pfaff, D. L., Bernstein, A. F., Dillard, J. S. & Block, C. J. *Nat. Geosci.* **9**, 805–808 (2016).
- Best Practices for Conducting Faculty Searches* (The President and Fellows of Harvard College, Harvard Univ., 2016); <http://bit.ly/2nwpBpq>.
- MacNell, L., Driscoll, A. & Hunt, A. N. *Innov. Higher Educ.* **40**, 291–303 (2015).
- Tomkins, A., Zhang, M. & Heavlin, W. D. *Proc. Natl Acad. Sci. USA* **114**, 12708–12713 (2017).

Competing interests

The authors declare no competing financial interests.

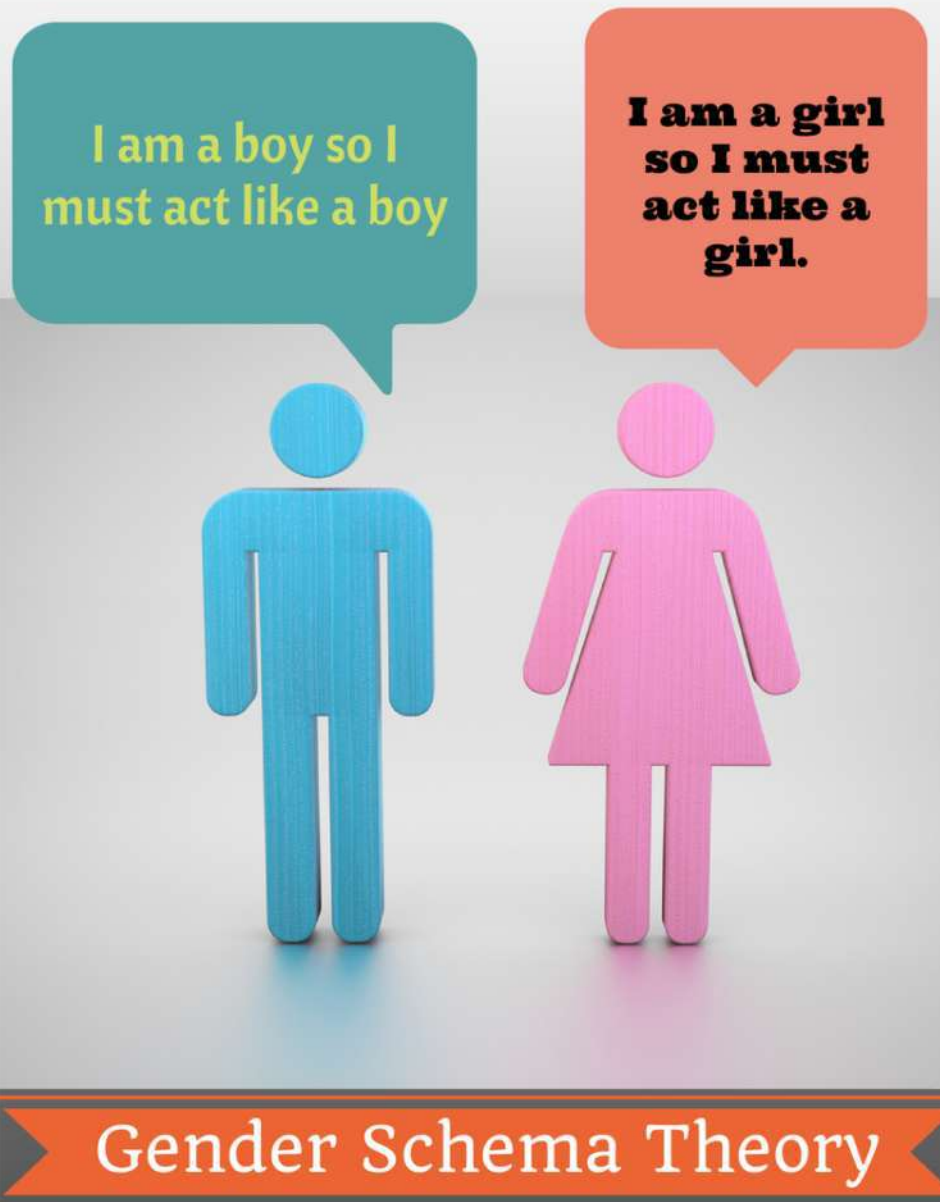
Gender Bias / Unconscious Bias



Schemas = organized clusters of information.

A cognitive framework which helps us to organize and interpret information.

Often these help us to confirm our pre-existing ideas or beliefs and therefore contribute to stereotypes.



What does a scientist look like?



#DressLikeAScientist

#ThisIsWhatAScientistLooksLike

<http://time.com/5201175/draw-a-scientist-studies/>

Gender Schemas Are the Foundation of Gender Bias



Eden Hennessey is the research and programs director at the Laurier Centre for Women in Science at Wilfrid Laurier University. She notes that despite gains made by women in the last few decades — they now account for about 70 per cent of all university graduates in Canada — their participation in STEM fields has plateaued at 20–30 per cent.

“Women are participating in medicine and biology more than in the past, but when we look at the taxonomy of medical professions, we still see that women are the majority of pediatricians while men are the majority of cardiologists,” she says. “There are still gendered expectations that come out in different ways.”

Hennessey cites research on gender stereotyping, implicit bias, the over-representation of men in science awards, and gendered perceptions of warmth versus competence, all indicating that deeply-rooted and often sexist associations are extremely difficult to combat.

“We all judge others along a continuum of how much they violate or are in line with our expectations. It takes an awful lot to re-train bias,” she says. “We are married to these stereotypes. It’s doing nothing for women, but it’s maintaining power for men.”

Patterns of Gender Bias

Gender bias falls into four basic patterns. Naming them makes it easier to spot them, and having a common language to describe the different types of bias makes it harder for others to shrug off or ignore complaints.

Four Distinct Patterns

Learn about the four main gender bias patterns listed below. Does one of these ring a bell with you? Or has someone you know run up against one? Learn to play the game of gender equality—and win.

PROVE IT AGAIN!

When women have to work twice as hard to get half as far.



[Click Here](#)

MATERNAL WALL

When mothers are assumed to be incompetent and uncommitted.



[Click Here](#)

DOUBLE BIND

When women must choose between being liked and being respected.



[Click Here](#)

GENDER WARS

When gender bias turns into conflicts among women.



[Click Here](#)



Prove It Again!

When women have to work harder to establish competence

Women often tell us that they have to work twice as hard to get half as far. What's behind this? Studies show that, in jobs historically held by men, men are presumed to be competent, while women often have to prove their competence over and over again. Thus men but not women may be given the benefit of the doubt. In addition, women's mistakes may be remembered forever while men's are soon forgotten.

One of the most common examples of "Prove it Again!" is the double standard that men are judged on their potential, while women are judged strictly on what they already have accomplished. Women also may get polarized evaluations from students or peers: Women who are superstars get high evaluations while women whose work is merely excellent tend to get sharply lower evaluations than similarly situated men. <https://genderbiasbingo.com>

Maternal Wall

When women encounter severe bias once they have children

Maternal Wall is the strongest and most open form of gender bias. It stems from stereotypes that link motherhood with lack of competence and commitment. The leading study on maternal wall stereotypes found that, compared to women with identical resumes but no children, mothers were:

- 79% less likely to be hired
- 100% less likely to be promoted
- Offered \$11,000 less in salary for the same position
- Held to higher performance and punctuality standards

Bias against mothers stems not only from assumptions about what mothers are like, but also from assumptions about how mothers should behave. Even today, women often encounter statements indicating that mothers don't belong in the workplace. Such statements can either be hostile ("Mothers belong at home") and sexist, or "accommodating" and seemingly supportive.

Double Bind

"I'm either a bitch or a bimbo."

So said Carly Fiorina, the high-profile former CEO of Hewlett Packard, describing a phenomenon social scientists call "ambivalent sexism." When women face ambivalent sexism, they sometimes have to choose between being liked but not respected, or being respected but not liked. In these situations women face complex political dynamics that don't affect men.

When ambivalent sexism is at work, women who adhere to traditionally feminine roles meet with benevolent approval—but are not seen as go-getters. Women who don't adhere to feminine scripts are respected but seen as having personality problems. When this occurs, women are called to task for behavior that is seen as unobjectionable in their male colleagues—sometimes called the "he's assertive, she's aggressive" syndrome. Another example of the same pattern is when self-promotion is seen as inappropriate in women ("she's a shameless self-promoter") but appropriate in men ("he knows his own worth"). Double binds also

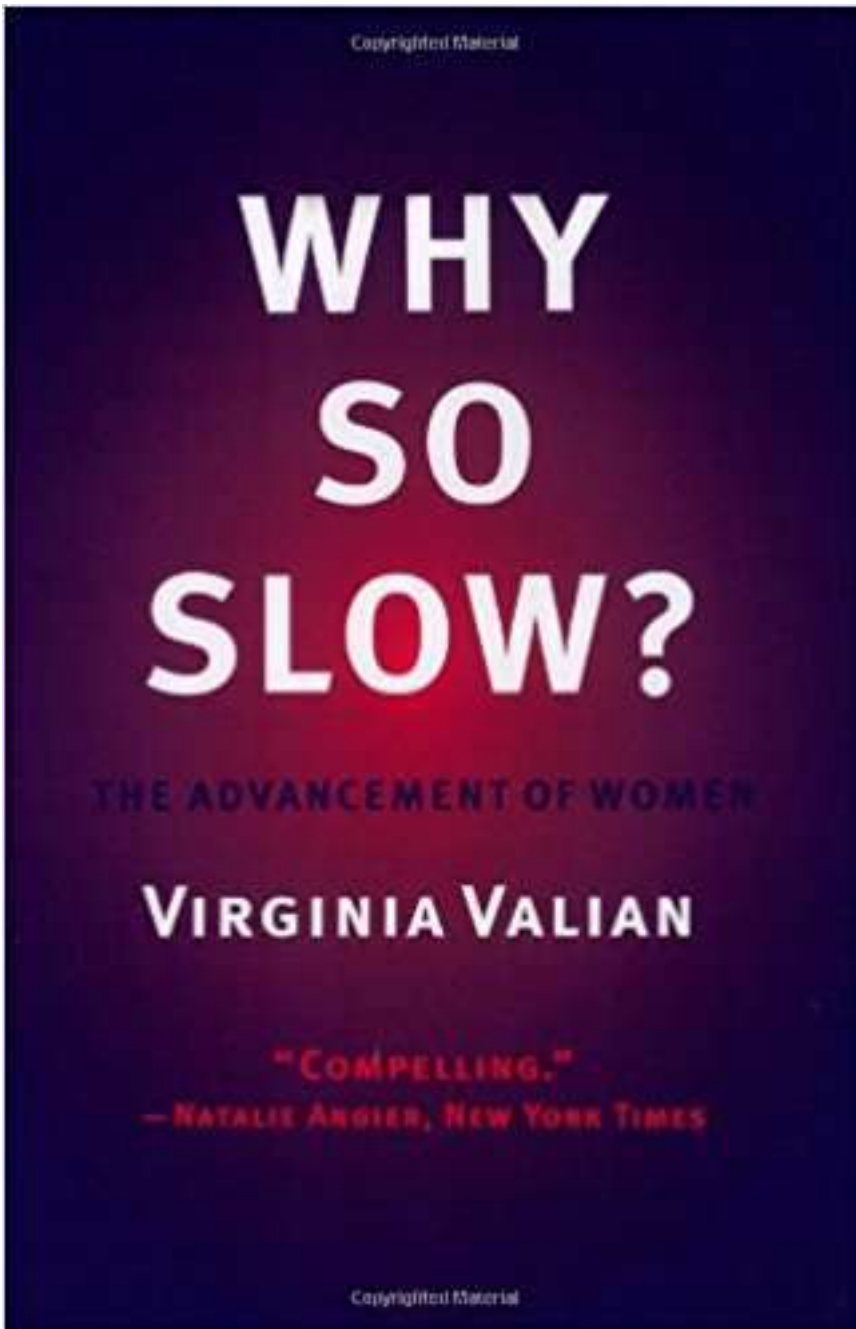
Gender Wars

When gender bias pits women against women

When women are required to fit into tightly defined feminine roles in order to be accepted, those who are willing to act as expected often end up in opposition to those who aren't. Women who behave in traditionally feminine ways may find women who behave in traditionally masculine ways off-putting, and vice versa. In this way, gender bias can create conflict among women.

Likewise, professional women who have succeeded by playing by men's rules may have a lot invested in proving that "that's what it takes to be a serious professional." Women who seek to change the old rules may feel shocked and betrayed if more established professional women don't support them.

So-called "mommy wars" are one type of gender war. Mommy wars are particularly acute in academia because of the high percentage of women who do not have children. Sometimes childless women who may be regretful that they never had children, may think: "I gave up so much, why should she have it all?" "Child-free" women, who never wanted children, may feel



Gender schemas / mental models

“The most important consequence of gender schemas for professional life is that men tend to be overrated and women underrated.”

Nepotism and sexism in peer-review

In the first-ever analysis of peer-review scores for postdoctoral fellowship applications, the system is revealed as being riddled with prejudice. The policy of secrecy in evaluation must be abandoned.

**Christine Wennerås and
Agnes Wold**

“A female applicant had to be 2.5 times more productive than the average male applicant to receive the same competence score...”

“...this represents ~3 extra papers in *Nature* or *Science*”

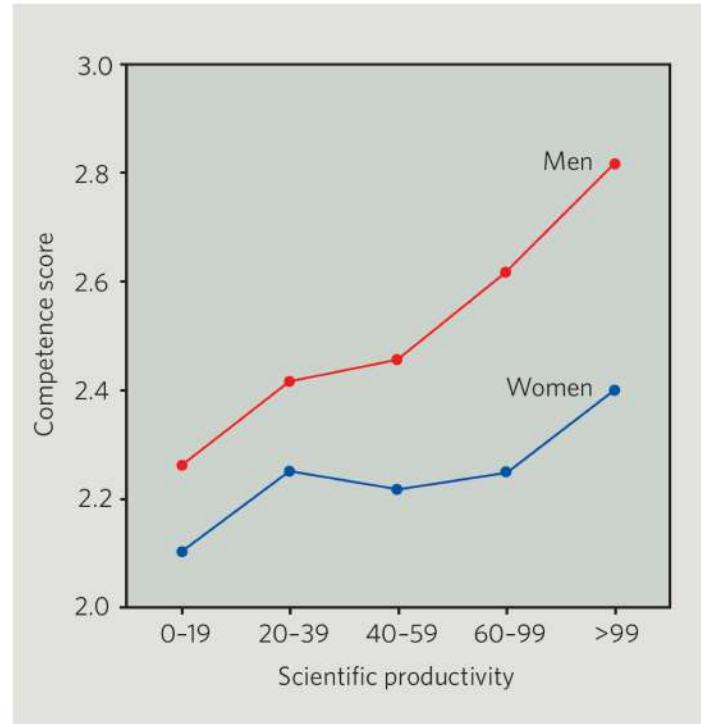


Figure 2 | Competence scores awarded after peer review. Peer reviewers in Sweden award lower competence scores to female scientists than to similarly productive male scientists.



M. GOLDWATER/PALAMY

Does gender matter?

The suggestion that women are not advancing in science because of innate inability is being taken seriously by some high-profile academics. **Ben A. Barres** explains what is wrong with the hypothesis.

When I was 14 years old, I had an unusually talented maths teacher. One day after school, I excitedly pointed him out to my mother. To my amazement, she looked at him with shock and said with disgust: "You never told me that he was black". I looked over at my teacher and, for the first time, realized that he was an African-American. I had somehow never noticed his skin colour before, only his spectacular teaching ability. I would like to think that my parents' sincere efforts to teach me prejudice were unsuccessful. I don't know why this lesson takes for some and not for others. But now that I am 51, as a female-to-male transgendered person, I still wonder about it, particularly when I hear male gym teachers telling young boys "not to be like girls" in that same derogatory tone.

Hypothesis testing

Last year, Harvard University president Larry Summers suggested that differences in innate aptitude rather than discrimination were more likely to be to blame for the failure of women to advance in scientific careers¹. Harvard professor Steven Pinker then put forth a similar

argument in an online debate², and an almost identical view was elaborated in a 2006 essay by Peter Lawrence entitled 'Men, Women and Ghosts in Science'³. Whereas Summers prefaced his statements by saying he was trying to be provocative, Lawrence did not. Whereas Summers talked about "different availability of aptitude at the high end," Lawrence talked about average aptitudes differing. Lawrence argued that, even in a utopian world free of

"Few tragedies can be more extensive than the stunting of life, few injustices deeper than the denial of an opportunity to strive or even to hope, by a limit imposed from without, but falsely identified as lying within."
— Stephen Jay Gould

bias, women would still be under-represented in science because they are innately different from men.

Lawrence draws from the work of Simon Baron-Cohen⁴ in arguing that males are 'on average' biologically predisposed to systematize,

to analyse and to be more forgetful of others, whereas females are 'on average' innately designed to empathize, to communicate and to care for others. He further argues that men are innately better equipped to aggressively compete in the 'vicious struggle to survive' in science. Similarly, Harvard professor Harvey Mansfield states in his new book, *Manliness*⁵, that women don't like to compete, are risk adverse, less abstract and too emotional.

I will refer to this view — that women are not advancing because of innate inability rather than because of bias or other factors — as the Larry Summers Hypothesis. It is a view that seems to have resonated widely with male, but not female, scientists. Here, I will argue that available scientific data do not provide credible support for the hypothesis but instead support an alternative one: that women are not advancing because of discrimination. You might call this the 'Stephen Jay Gould Hypothesis' (see left). I have no desire to make men into villains (as Henry Kissinger once said, "Nobody will ever win the battle of the sexes; there's just too much fraternizing with the enemy"). As to who the practitioners of this bias are, I will be pointing my finger at women

Shortly after I changed sex, a faculty member was heard to say "Ben Barres gave a great seminar today, but then his work is much better than his sister's."

Science faculty's subtle gender biases favor male students

Corinne A. Moss-Racusin^{a,b}, John F. Dovidio^b, Victoria L. Brescoll^c, Mark J. Graham^{a,d}, and Jo Handelsman^e

^aDepartment of Molecular, Cellular and Developmental Biology, ^bDepartment of Psychology, ^cSchool of Management, and ^dDepartment of Psychiatry, Yale University, New Haven, CT 06520

Edited* by Shirley Tilghman, Princeton University, Princeton, NJ, and approved August 21, 2012 (received for review July 2, 2012)

Despite efforts to recruit and retain more women, a stark gender disparity persists within academic science. Abundant research has demonstrated gender bias in many demographic groups, but has yet to experimentally investigate whether science faculty exhibit a bias against female students that could contribute to the gender disparity in academic science. In a randomized double-blind study ($n = 127$), science faculty from research-intensive universities rated the application materials of a student—who was randomly assigned either a male or female name—for a laboratory manager position. Faculty participants rated the male applicant as significantly more competent and hireable than the (identical) female applicant. These participants also selected a higher starting salary and offered more career mentoring to the male applicant. The gender of the faculty participants did not affect responses, such that female and male faculty were equally likely to exhibit bias against the female student. Mediation analyses indicated that the female student was less likely to be hired because she was viewed as less competent. We also assessed faculty participants' preexisting subtle bias against women using a standard instrument and found that preexisting subtle bias against women played a moderating role, such that subtle bias against women was associated with less support for the female student, but was unrelated to reactions to the male student. These results suggest that interventions addressing faculty gender bias might advance the goal of increasing the participation of women in science.

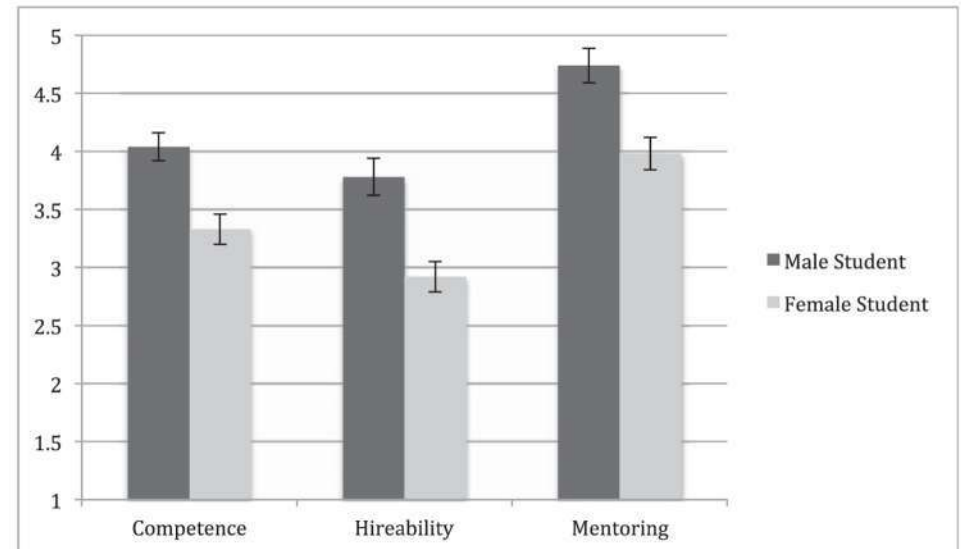


Fig. 1. Competence, hireability, and mentoring by student gender condition (collapsed across faculty gender). All student gender differences are significant ($P < 0.001$). Scales range from 1 to 7, with higher numbers reflecting a greater extent of each variable. Error bars represent SEs. $n_{\text{male student condition}} = 63$, $n_{\text{female student condition}} = 64$.

What Happens Before? A Field Experiment Exploring How Pay and Representation Differentially Shape Bias on the Pathway Into Organizations

Katherine L. Milkman
The University of Pennsylvania

Modupe Akinola
Columbia University

Dolly Chugh
New York University

Little is known about how discrimination manifests before individuals formally apply to organizations or how it varies within and between organizations. We address this knowledge gap through an audit study in academia of over 6,500 professors at top U.S. universities drawn from 89 disciplines and 259 institutions. In our experiment, professors were contacted by fictional prospective students seeking to discuss research opportunities prior to applying to a doctoral program. Names of students were randomly assigned to signal gender and race (White, Black, Hispanic, Indian, Chinese), but messages were otherwise identical. We hypothesized that discrimination would appear at the informal “pathway” preceding entry to academia and would vary by discipline and university as a function of faculty representation and pay. We found that when considering requests from prospective students seeking mentoring in the future, faculty were significantly more responsive to White males than to all other categories of students, collectively, particularly in higher-paying disciplines and private institutions. Counterintuitively, the representation of women and minorities and discrimination were uncorrelated, a finding that suggests greater representation cannot be assumed to reduce discrimination. This research highlights the importance of studying decisions made before formal entry points into organizations and reveals that discrimination is not evenly distributed within and between organizations.

Keywords: discrimination, pathways, race, gender, audit study

Supplemental materials: <http://dx.doi.org/10.1037/apl0000022.supp>



What's in a Name: Exposing Gender Bias in Student Ratings of Teaching

Lillian MacNell • Adam Driscoll • Andrea N. Hunt

Published online: 5 December 2014

© Springer Science+Business Media New York 2014

Abstract Student ratings of teaching play a significant role in career outcomes for higher education instructors. Although instructor gender has been shown to play an important role in influencing student ratings, the extent and nature of that role remains contested. While difficult to separate gender from teaching practices in person, it is possible to disguise an instructor's gender identity online. In our experiment, assistant instructors in an online class each operated under two different gender identities. Students rated the male identity significantly higher than the female identity, regardless of the instructor's actual gender, demonstrating gender bias. Given the vital role that student ratings play in academic career trajectories, this finding warrants considerable attention.



Female applicants are less likely to be described as “brilliant,” “trailblazer,” or “one of the best students I’ve ever had,” according to a study of recommendation letters for highly selective geoscience postdoctoral fellowships.

CREDIT: JOZEFMICIC/ISTOCKPHOTO

Recommendation letters reflect gender bias

By [Maggie Kuo](#) | Oct. 3, 2016 , 12:00 PM

Gender differences in recommendation letters for postdoctoral fellowships in geoscience

Kuheli Dutt^{1*}, Danielle L. Pfaff², Ariel F. Bernstein², Joseph S. Dillard² and Caryn J. Block²

Gender disparities in the fields of science, technology, engineering and mathematics, including the geosciences, are well documented and widely discussed^{1,2}. In the geosciences, despite receiving 40% of doctoral degrees, women hold less than 10% of full professorial positions³. A significant leak in the pipeline occurs during postdoctoral years⁴, so biases embedded in postdoctoral processes, such as biases in recommendation letters, may be deterrents to careers in geoscience for women. Here we present an analysis of an international data set of 1,224 recommendation letters, submitted by recommenders from 54 countries, for postdoctoral fellowships in the geosciences over the period 2007–2012. We examine the relationship between applicant gender and two outcomes of interest: letter length and letter tone. **Our results reveal that female applicants are only half as likely to receive excellent letters versus good letters compared to male applicants.** We also find no evidence that male and female recommenders differ in their likelihood to write stronger letters for male applicants over female applicants. Our analysis also reveals significant regional differences in letter length, with letters from the Americas being significantly longer than any other region, whereas letter tone appears to be distributed equivalently across all world regions. These results suggest that women are significantly less likely to receive excellent recommendation letters than their male counterparts at a critical juncture in their career.

Under representation of women in science, technology

Table 1 | Recommendation letters by gender.

	Female applicant	Male applicant	Total
Female recommender	67	81	148
Male recommender	295	781	1,076
Total	362	862	1,224

selection processes, as they contribute to the overall perception of a candidate's 'fit' for a position and often provide the first impression of the applicant^{12,13}. Further, recommendation letters offer personal information about the candidate, and due to the subjective nature of these letters, the biases of the writer are more likely to surface^{11,14,15}. Implicit biases can surface via the way applicants are described in recommendation letters, with women being described as less confident and forceful, and more nurturing and helpful than men¹², and receiving fewer 'standout' adjectives such as superb and brilliant, and more 'grindstone' adjectives such as hardworking and diligent^{13,14}. Also, women are under-represented in fields where raw, innate intellectual talent is considered a requirement for success, since women are stereotyped as not possessing such talent¹⁶.

Thus, there is evidence of qualitative differences in recommendation letters written for male versus female applicants. However, past research has several limitations, including: lack of an international data set and/or limited statistical ability to explore regional differences^{12–14}; use of descriptive rather

Evidence from peer review that women are held to higher standards

Erin Hengel 22 December 2017

When evaluated by narrowly defined quality measures, women are often found to outperform men. This column uses an analysis of almost 10,000 articles in top economics journals to show that one area where this is the case is clarity of writing. Tougher editorial standards and/or biased referee assignment may force women to write better, and may also reduce their productivity.



A A

According to raw numerical counts, women produce less than men. For example, female real estate agents list fewer homes (Seagraves and Gallimore 2013); female lawyers bill fewer hours (Azmat and Ferrer 2017); female physicians see fewer patients (Ceci et al. 2014).

Yet there is another side to female productivity. When evaluated by narrowly defined quality measures, women often outperform men. For example, female real estate agents sell for higher prices (Salter et al. 2013); female lawyers make fewer ethical violations (Hatar et al. 2013); female physicians are less likely to die or be sued (Ceci et al. 2014).

In a recent study, I show that female economists write better than men (Hengel 2017). Using five readability measures, I find that articles in top economics journals are better written than those in other journals.

Why? Because they have to be. In a model of peer review, I show that tougher editorial standards and/or biased referee assignment may force women to write better, and may also reduce their productivity.

Higher standards impose a 'quantity/quality trade-off' and 'leaky pipeline'.¹ Spending more



Erin Hengel

Lecturer in Economics, University of Liverpool

Don't Miss

Working hours, political views, and German reunification

Fuchs-Schündeln

Explaining Germany's exceptional recovery: A new eBook

Marin

You Retweeted



Buffy the Psych Prof @DrPsyBuffy · Jan 5

"Wow, this surprises me," said no female professor ever
[sciencedaily.com/releases/2018/...](https://www.sciencedaily.com/releases/2018/01/)

Science News

from research organizations

Female professors asked for favors more than male professors

3

19

38



Gender disparities in colloquium speakers at top universities



Christine L. Nittrouer, Michelle R. Hebl, Leslie Ashburn-Nardo, Rachel C. E. Trump-Steele, David M. Lane, and Virginia Valian

PNAS December 18, 2017. 201708414; published ahead of print December 18, 2017.

<https://doi.org/10.1073/pnas.1708414115>

[Add to Cart \(\\$10\)](#)

Edited by Susan T. Fiske, Princeton University, Princeton, NJ, and approved November 29, 2017 (received for review May 25, 2017)

Article

Figures & SI

Authors & Info

PDF

This article requires a subscription to view the full text. If you have a subscription you may use the login form below to view the article. Access to this article can also be purchased.

Significance

Recently, research has focused on identifying gender gatekeepers—people or practices that may (unintentionally) engage in, create, or maintain gender disparities. In the current research, we examine gender differences in academic colloquium speakers. Colloquium talks lead to enhancement of a researcher's reputation, networks, research collaborations, and sometimes result in job offers. Results from our three studies indicate that women are underrepresented relative to men as colloquium speakers across six disciplines. To examine the role of self-selection, we find that women neither decline talk invitations at greater rates nor question the importance of talks more than men do. Finally, we show that the presence of women as colloquium chairs (and potentially committee members) increases the likelihood of having female colloquium speakers.



Mae Jemison, the first black woman to travel in space

Brendan Hoffman / Getty Images

Women Are Invited to Give Fewer Talks Than Men at Top U.S. Universities

It's not because they turn down talks more often, or because there aren't enough women to invite.

ED YONG | DEC 18, 2017 | SCIENCE

Alberta
Canada

Trans Mountain Pipeline means more money for what matters most.

Roads, schools & hospitals.

LEARN MORE



Jo Handelsman @jo44atWID · 19 Dec 2017

Great article about representation of women in colloquia out in PNAS today. Dispels lots of myths (excuses) for this phenomenon. Article by @edyong209 Yong in @TheAtlantic is very interesting.



Women Are Invited to Give Fewer

It's not because they turn down talks enough women to invite.

theatlantic.com



Ed Yong @edyong209

Following

Replying to @microProfMom @jo44atWID @TheAtlantic

RIGHT? It's funny how no one looks at all-male panels and asks "Wow, it must suck to have been nominated just because you're a man."

7:31 AM - 20 Dec 2017

59 Retweets 213 Likes



2

59

213



3

86

120



Karla Satchell @microProfMom · 20 Dec 2017

Recently I required nominations to replace 100% male panel with minimum 30% women. I learned "women don't like to be nominated just because they are women". I think I sputtered my coffee laughing. Fact-Qualified women want to be nominated, if requires a nudge to remind, so be it.

3

21

95





Baum Lab

@baumlab



Is there ANY type of opportunity or evaluation in academia that is not **#genderbiased**? White male colleagues, if you still think this is not your problem, you are part of the problem b/c you benefit-at the expense of others-from your privilege every day in academia. **#WomenInSTEM**

Athene Donald  @AtheneDonald

Another potential source of gender disparity controlled by academic 'gatekeepers': who gets to give colloquia pnas.org/content/early/...

10:29 AM - 19 Dec 2017

2 Retweets 5 Likes



Copyrighted Material

WHY SO SLOW?

THE ADVANCEMENT OF WOMEN

VIRGINIA VALIAN

"COMPELLING."

— NATALIE ANGLER, NEW YORK TIMES

Copyrighted Material



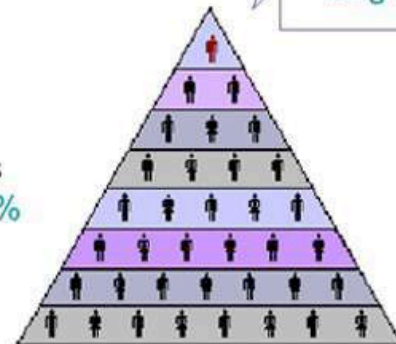
<https://www.youtube.com/watch?v=c8P92a8BnAc>

It really is a mountain out of a molehill:

Martell, Lane, and Emrich's (1996) model assumed a tiny bias in favor of men, which accounted for only 1% of variance in promotion.

Operating at a systematic minute disadvantage can have substantial long term effects.

After many iterations the top level was 65% male.



Gender Equity Project

WHY MEN DON'T BELIEVE THE DATA ON GENDER BIAS IN SCIENCE

Quality of evidence revealing subtle gender biases in science is in the eye of the beholder

Ian M. Handley^{a,1}, Elizabeth R. Brown^{a,b}, Corinne A. Moss-Racusin^c, and Jessi L. Smith^a

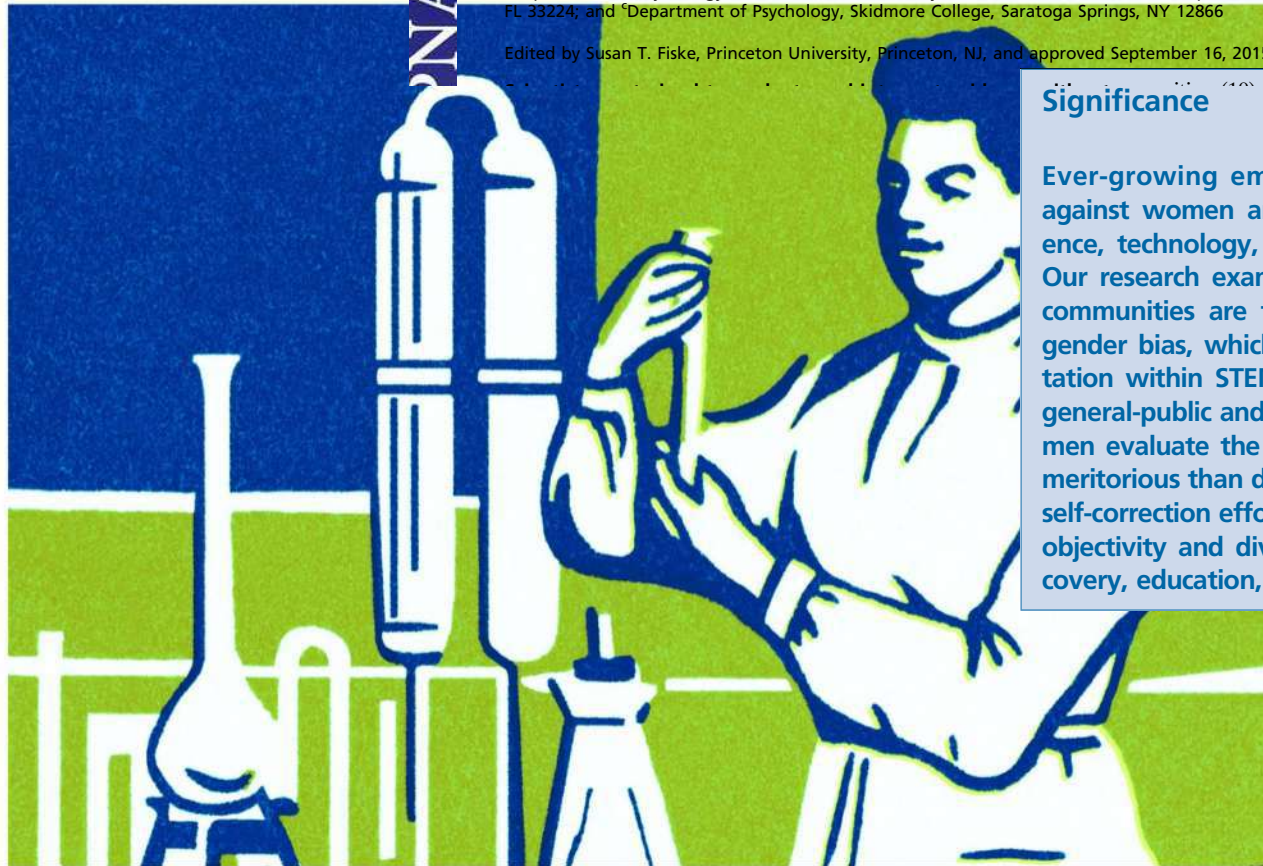
^aDepartment of Psychology, Montana State University, Bozeman, MT 59717-3440; ^bDepartment of Psychology, University of North Florida, Jacksonville, FL 33224; and ^cDepartment of Psychology, Skidmore College, Saratoga Springs, NY 12866

Edited by Susan T. Fiske, Princeton University, Princeton, NJ, and approved September 16, 2015 (received for review May 31, 2015)

PNAS

Significance

Ever-growing empirical evidence documents a gender bias against women and their research—and favoring men—in science, technology, engineering, and mathematics (STEM) fields. Our research examined how receptive the scientific and public communities are to experimental evidence demonstrating this gender bias, which may contribute to women's underrepresentation within STEM. Results from our three experiments, using general-public and university faculty samples, demonstrated that men evaluate the quality of research unveiling this bias as less meritorious than do women. These findings may inform and fuel self-correction efforts within STEM to reduce gender bias, bolster objectivity and diversity in STEM workforces, and enhance discovery, education, and achievement.



WHY MEN DON'T BELIEVE THE DATA ON GENDER BIAS IN SCIENCE

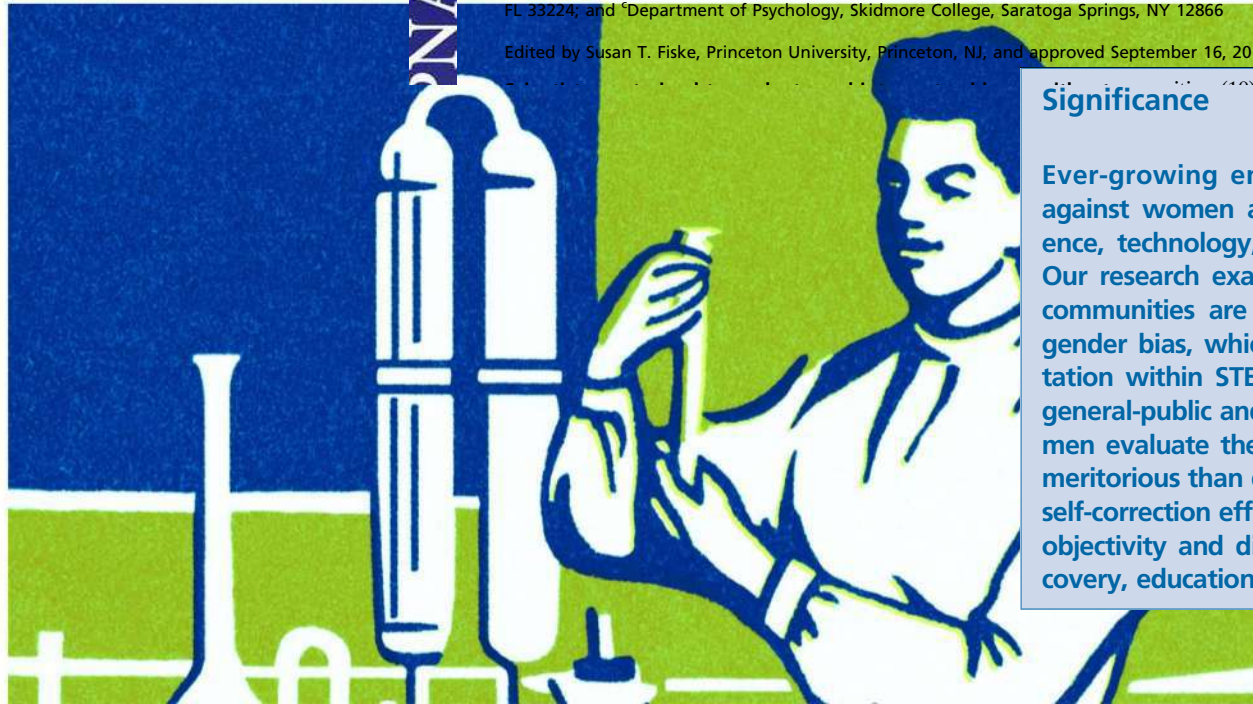
Quality of evidence revealing subtle gender biases in science is in the eye of the beholder

Ian M. Handley^{a,1}, Elizabeth R. Brown^{a,b}, Corinne A. Moss-Racusin^c, and Jessi L. Smith^a

^aDepartment of Psychology, Montana State University, Bozeman, MT 59717-3440; ^bDepartment of Psychology, University of North Florida, Jacksonville, FL 33224; and ^cDepartment of Psychology, Skidmore College, Saratoga Springs, NY 12866

Edited by Susan T. Fiske, Princeton University, Princeton, NJ, and approved September 16, 2015 (received for review May 31, 2015)

PNAS



Significance

Ever-growing empirical evidence documents a gender bias against women and their research—and favoring men—in science, technology, engineering, and mathematics (STEM) fields. Our research examined how receptive the scientific and public communities are to experimental evidence demonstrating this gender bias, which may contribute to women's underrepresentation within STEM. Results from our three experiments, using general-public and university faculty samples, demonstrated that men evaluate the quality of research unveiling this bias as less meritorious than do women. These findings may inform and fuel self-correction efforts within STEM to reduce gender bias, bolster objectivity and diversity in STEM workforces, and enhance discovery, education, and achievement.

'When it comes to bias, it seems that the desire to believe in a meritocracy is so powerful that until a person has experienced sufficient career-harming bias themselves they simply do not believe it exists.' - Ben Barres

100 articles every ecologist should read

Franck Courchamp ^{1*} and Corey J. A. Bradshaw ^{1,2}

Reading scientific articles is a valuable and major part of the activity of scientists. Yet, with the upsurge of currently available articles and the increasing specialization of scientists, it becomes difficult to identify, let alone read, important papers covering topics not directly related to one's own specific field of research, or that are older than a few years. Our objective was to propose a list of seminal papers deemed to be of major importance in ecology, thus providing a general 'must-read' list for any new ecologist, regardless of particular topic or expertise. We generated a list of 544 papers proposed by 147 ecology experts (journal editorial members) and subsequently ranked via random-sample voting by 368 of 665 contacted ecology experts, covering 6 article types, 6 approaches and 17 fields. Most of the recommended papers were not published in the highest-ranking journals, nor did they have the highest number of mean annual citations. The articles proposed through the collective recommendation of several hundred experienced researchers probably do not represent an 'ultimate', invariant list, but they certainly contain many high-quality articles that are undoubtedly worth reading—regardless of the specific field of interest in ecology—to foster the understanding, knowledge and inspiration of early-career scientists.

The progress of science is built on the foundations of previous research—we take the flame of our predecessors and pass it faithfully to the next generation of scientists, and so it has always been. But this implies knowing the state of the art of our field, as well as being aware as much as possible about progress in other relevant fields. Hence, science can be represented as an ever-growing brick wall of published evidence, which subsequent research bricks can add to—and sometimes challenge, erode or even smash. Scientific articles have more recently also started playing another role: as metrics of the

ability to be both rigorous and creative—two complementary features needed for high-quality research. Even experienced scientists find it difficult to allocate time to push aside grant writing, supervision, meetings and teaching, and often end up reading only the latest 'hot' papers⁴. As online searching has increased as a strategy to identify needed journal articles⁸, one may focus on more direct and immediate knowledge needs to the detriment of more basic readings. Unsurprisingly, important papers covering topics not directly related to one's own specific field of research, or that are older than a few years, are even more difficult to iden-

It is time to overcome unconscious bias in ecology

To the Editor — Training and mentoring young scholars is one of the most important responsibilities of senior scientists. Amongst the many tasks that mentorship involves, helping mentees to develop a strong foundation in their field is vital. In this regard, sharing a list of papers deemed to be essential reading could be a useful starting point, particularly given the challenge of tackling a new, vast and rapidly expanding literature. In their paper titled ‘100

the molecular to the macroecological, and addresses both pure and applied questions. Yet, the authors elicited information from the editorial boards of ‘pure ecology’ journals only, overlooking the field’s top-ranked journals (*Global Change Biology*, *Molecular Ecology*, the *Journal of Applied Ecology* and *Conservation Biology*, for example) that do not fit within this narrow definition. They also elicited information from members of the Faculty of 1,000 (F1000) Ecology section. The composition of the selected editorial boards and F1000 members are themselves severely gender and racially biased. Although developing any list of this type will, to some extent, be a subjective endeavour, there are sound ways to minimize bias when eliciting the judgements of experts².

Academia is rife with bias, including overt harassment³ and bullying⁴, as well as more subtle, but pervasive unconscious (or ‘implicit’) bias⁵⁻⁷. Unconscious biases are shaped by culture, family and friends, and personal experiences, and they influence how we view and evaluate others. Yet, because they lurk below the surface, we rarely recognize that they inform the choices we make⁵. From reference letters⁸, interview panels⁹ and awards committees to student evaluations¹⁰ and the peer review process¹¹, unconscious bias plays a role in deciding who to hire, promote, reward, publish and fund. As scientists, we can choose either to perpetuate unconscious bias — for example, by giving only privileged individuals a seat at the table, or in this case, the right to choose influential papers — or we can actively work to overcome it.

Ecology is a dynamic and growing discipline, with enormous relevance to the environmental challenges facing the world. Solving these challenges requires that we attract and retain the best and brightest young scientists. Doing so necessitates that we enhance the inclusivity of our field. Female role models were limited when we

were growing up, but were hugely important for us. Today there is an ever-increasing number of brilliant female scientists training the next generation of ecologists. Failure to showcase the contributions of these scientists does a huge disservice to students. To our minds, Courchamp & Bradshaw’s paper will not be remembered as an inspirational list of must-read papers in ecology, but rather as an ode to a legacy of white male dominance in our field and the epidemic of unconscious bias that continues to this day. □

Julia K. Baum^{1*} and Tara G. Martin²

¹Department of Biology, University of Victoria, Victoria, British Columbia, Canada. ²Department of Forest & Conservation Sciences, University of British Columbia, Vancouver, British Columbia, Canada.

*e-mail: baum@uvic.ca

Published online: 14 December 2017
<https://doi.org/10.1038/s41559-017-0441-y>

References

- Courchamp, F. & Bradshaw, C. J. A. *Nat. Ecol. Evol.* <https://doi.org/10.1038/s41559-017-0370-9> (2017).
- Martin, T. G. et al. *Conserv. Biol.* **26**, 29–38 (2012).
- Clancy, K. B. H., Nelson, R. B., Rutherford, J. N. & Hinde, K. *PLoS ONE* **9**, e102172 (2014).
- Keashly, L. & Neuman, J. H. *Admin. Theory Pract.* **32**, 48–70 (2010).
- Easterly, D. M. & Ricard, C. S. *J. Res. Admin.* **42**, 61–73 (2011).
- Moss-Racusin, C. A., Dovidio, J. F., Brescoll, V. L., Graham, M. J. & Handelsman, J. *Proc. Natl Acad. Sci. USA* **109**, 16474–16479 (2012).
- Milkman, K. L., Akinola, M. & Chugh, D. *J. Appl. Psychol.* **100**, 1678–1712 (2015).
- Dutt, K., Pfaff, D. L., Bernstein, A. F., Dillard, J. S. & Block, C. J. *Nat. Geosci.* **9**, 805–808 (2016).
- Best Practices for Conducting Faculty Searches* (The President and Fellows of Harvard College, Harvard Univ., 2016); <http://bit.ly/2nwpBpq>.
- MacNell, L., Driscoll, A. & Hunt, A. N. *Innov. Higher Educ.* **40**, 291–303 (2015).
- Tomkins, A., Zhang, M. & Heavlin, W. D. *Proc. Natl Acad. Sci. USA* **114**, 12708–12713 (2017).

Competing interests

The authors declare no competing financial interests.



Baum Lab

@baumlab

Heartfelt thanks to @KateGraves for this cheeky endorsement of my & @TaraGMartin’s @NatureEcoEvo Correspondence piece. May it serve as a catalyst for change!
 #EnoughIsEnough #GenderEquality
 #TimeForChange

Kate Graves @KateGraves

Perhaps this is the 1 must-read paper in ecology for 2017 @TaraGMartin: @baumlab nature.com/articles/s4155..

8:26 PM - 19 Dec 2017

1 Retweet 16 Likes



1 1 16 ||

100 papers that every ecologist should read

If you're a regular reader of CB.com, you'll be used to my year-end summaries of the influential conservation papers of that calendar year (e.g., 2016, 2015, 2014, 2013), as somewhat subjectively assessed by *F1000 Prime* experts. You might also recall that I wrote a post with the slightly provocative title *Essential papers you've probably never read* back in 2015 where I talked about papers that I believe at least my own students should read and appreciate by the time they've finished the thesis.



14
11
2017

But this raised a much broader question — of all the thousands of papers out there that I *should* have read/be reading, is there a way to limit the scope and identify the really important ones with at least a hint of objectivity? And I'm certainly not referring to the essential methods papers that you have to read and understand in order to implement their recommended analysis into your own work — these are often specific to the paper you happen to be writing at the moment.

The reason this is important is that there is absolutely no way I can keep on top of my scientific reading, and not only because there are now over 1.5 million papers published across the sciences each year. If you have even the slightest interest in working across sub-disciplines or other disciplines, the challenge becomes more insurmountable. Finding *the most pertinent and relevant* papers to read, especially when introducing students or young researchers to the concepts, is turning into an increasingly nightmarish task. So, how do we sift through the mountain of articles out there?

It was this question that drove the genesis of our paper that came out only today in *Nature Ecology and Evolution* entitled '100 articles every ecologist should read'. 'Our' in this case means

The science of
conserving life ...

[t](#)
[f](#)
[in](#)
[g+](#)
[@](#)
[↻](#)
[RG](#)



EMAIL SUBSCRIPTION

Enter your email address to subscribe to ConservationBytes.com and receive notifications of new posts by email.

Join 11,354 other followers

Enter your email address

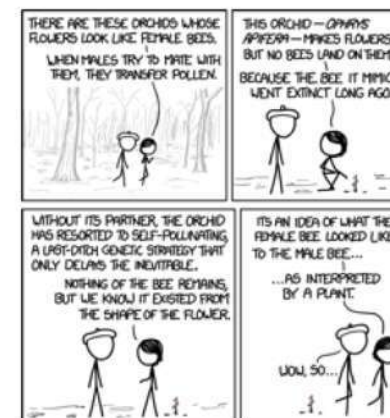
Subscribe!

 Follow ConservationBytes.com

SEARCH

Comments? Questions? Use this form (bottom of page).

CARTOON OF THE WEEK



Correspondence | 14 December 2017

The future of ecology is collaborative, inclusive and deconstructs biases

Kelly S. Ramirez, Asmer



correspondence

Correspondence | 14

It is time to over

Julia K. Baum & Tara G.

Questionable survey methods generate a questionable list of recommended articles

Correspondence | 14

Editorial board i

Emilio M. Bruna

Correspondence | 14

Can 100 must-r

Gregory S. Gilbert

To the Editor — Courchamp and Bradshaw¹ provided a list of 100 papers that “every ecologist” should read; a broad and sobering statement. The list was constructed by soliciting opinions from 665 “experts” as defined by editorial positions at ecology journals. The study is described as a survey and a correlation analysis was performed on the data, implying methodological rigour and robust results. However, we find that this study (and its companion² using the same data) suffered from severe methodological omissions, errors and flaws, calling into question any utility of the results.

When soliciting opinions and views from human subjects, social scientists adhere to rigorous methods that aim to prevent unusable results corrupted by bias and oversight. Such papers provide ample methodological details that permit future replication. Publishable peer-reviewed studies must meet these general expectations

highlighted the 14 ‘unknown’ voters, which were not explained in correspondence. Their gender is unknown (self-identified anonymously?).

Small sample and r
Sample size and representativeness are two critical factors that were overlooked when reviewing surveys of 665 experts in a small population of ecology (Society of America and 9,000 members; <https://esa/about/>). This pool of experts is not representative of the entire population of ecology experts^{3,4}. Demographic data regarding

details to know what corrective measures
In conclusion, we do not accept that our methodology was flawed as claimed¹, and we agree that a reading list recommended by a different pool of experts would probably have been different; this was in fact a conclusion of our original article². Consequently, we stress that the gender bias in authors of our recommended must-read list is less due to a bias of our approach/pool of respondents, than to biases in our entire discipline, in particular those that were more prevalent a few decades ago, given that the recommended articles were mostly classics from a median of 38 years ago²; as a result, any list entirely balanced in this regard would reveal a deliberate bias in the opposite direction and an attempt to rewrite the history of ecology. Being blamed for these biases is equivalent to being accused of bias when proposing a list of historical, milestone laws authored by US senators, who happen to have been mostly men. While we are of course cognizant that sampling editorial board members does not reflect the demographics of the entire ecological community, we contend that the resulting compilation still represents a relevant and useful reading list recommended by experts across many sub-disciplines in the field.

Effects of Fish in River Food Webs

MARY E. POWER

Experimental manipulations of fish in a Northern California river during summer base flow reveal that they have large effects on predators, herbivores, and plants in river food webs. California roach and juvenile steelhead consume predatory insects and fish fry, which feed on algivorous chironomid larvae. In the presence of fish, filamentous green algae are reduced to low, prostrate webs, infested with chironomids. When the absence of large fish releases smaller predators that suppress chironomids, algal biomass is higher, and tall upright algal turfs become covered with diatoms and cyanobacteria. These manipulations provide evidence that the Hairston, Smith, Slobodkin–Fretwell theory of trophic control, which predicts that plants will be alternately limited by resources or herbivores in food webs with odd and even numbers of trophic levels, has application to river communities.

THE ROLE OF FISH IN RIVER FOOD webs has been hotly debated. The earlier notion that physical factors play stronger roles than trophic interactions in structuring ecological communities in flowing waters (1) is being challenged by the view that both matter (2, 3). Although some field studies have shown that herbivorous fish can directly control algal standing crops in rivers (3, 4), and by implication must influence other parts of algal-based food

trate, webbed appearance (Fig. 1B). This architecture results from dense infestations of chironomid larvae, dominated by *Pseudochironomus richardsoni*, which weave algae into retreats, or tufts, 0.5 to 1 cm long and reduce algal biomass. By midsummer, these chironomids are dominant components of the river arthropod assemblage (7). The three common fishes that summer in the study reach are juvenile steelhead (*Oncorhynchus mykiss* = *Salmo gairdneri*), California

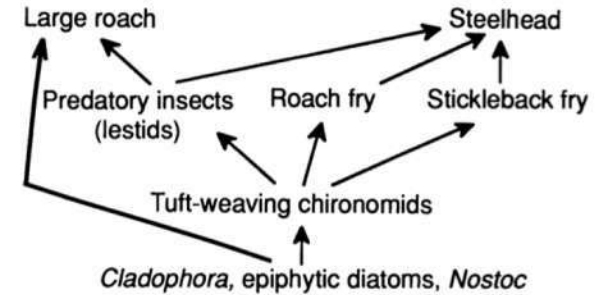


Fig. 2. Trophic relations of dominant biota in and around algal turfs during the summer low-flow period. Arrows point from prey to their consumers.





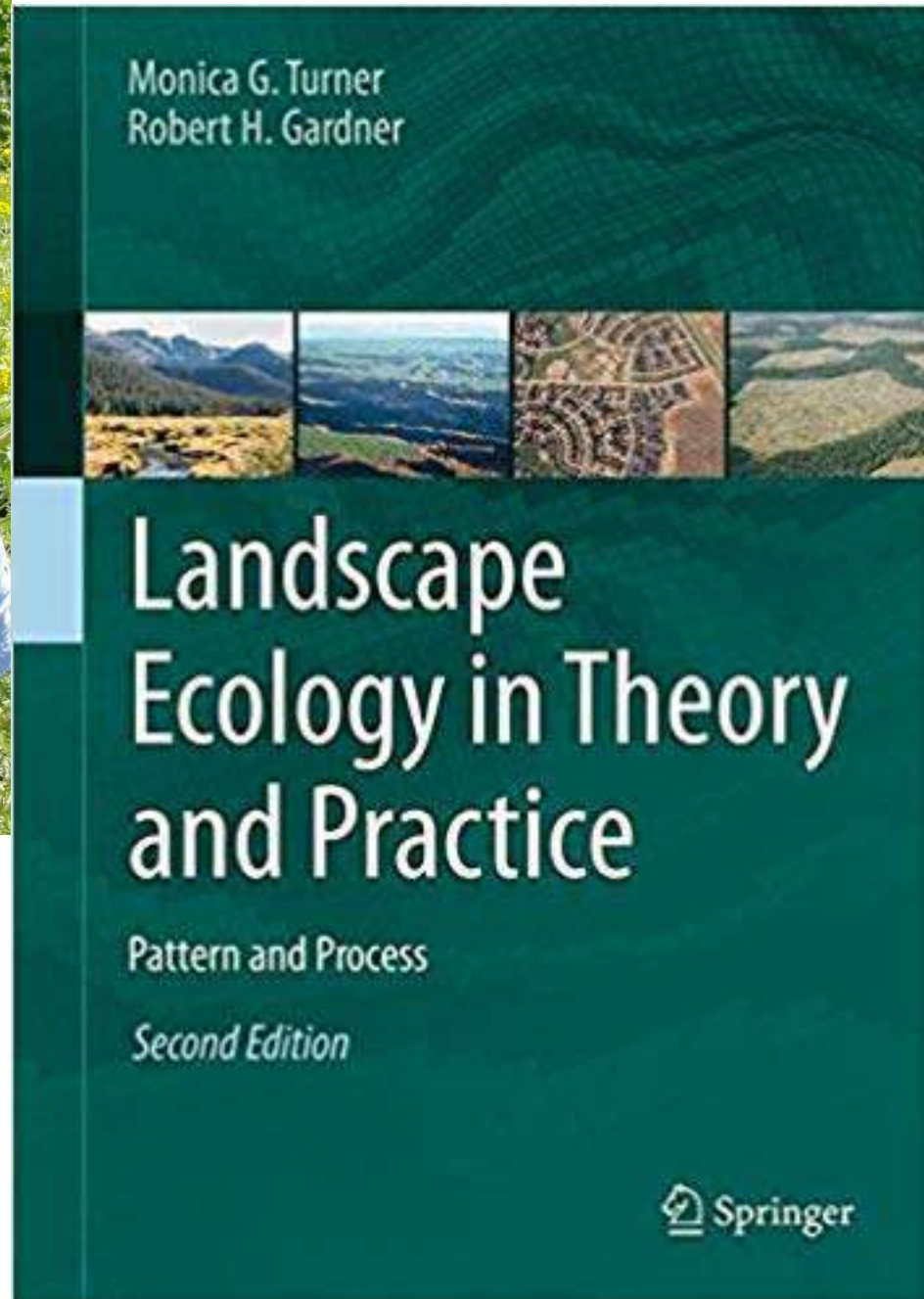
A globally coherent fingerprint of climate change impacts across natural systems

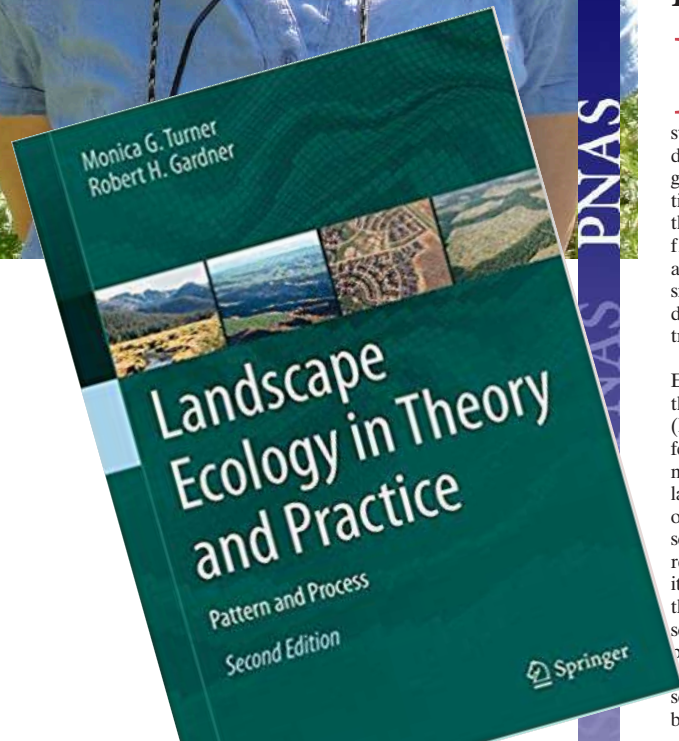
Camille Parmesan* & Gary Yohe†

** Integrative Biology, Patterson Laboratories 141, University of Texas, Austin, Texas 78712, USA*

† John E. Andrus Professor of Economics, Wesleyan University, 238 Public Affairs Center, Middletown, Connecticut 06459, USA

Causal attribution of recent biological trends to climate change is complicated because non-climatic influences dominate local, short-term biological changes. Any underlying signal from climate change is likely to be revealed by analyses that seek systematic trends across diverse species and geographic regions; however, debates within the Intergovernmental Panel on Climate Change (IPCC) reveal several definitions of a ‘systematic trend’. Here, we explore these differences, apply diverse analyses to more than 1,700 species, and show that recent biological trends match climate change predictions. Global meta-analyses documented significant range shifts averaging 6.1 km per decade towards the poles (or metres per decade upward), and significant mean advancement of spring events by 2.3 days per decade. We define a diagnostic fingerprint of temporal and spatial ‘sign-switching’ responses uniquely predicted by twentieth century climate trends. Among appropriate long-term/large-scale/multi-species data sets, this diagnostic fingerprint was found for 279 species. This suite of analyses generates ‘very high confidence’ (as laid down by the IPCC) that climate change is already affecting living systems.





PNAS

Profile of Monica G. Turner

In October 1988, ecologist Monica Turner rode in a helicopter over Yellowstone National Park and glimpsed the aftermath of unprecedented destruction. Earlier that summer, a severe drought triggered the largest fires the region had seen in two centuries, and by the time the fires abated, over one-third of the park had been consumed by the flames. As Turner flew overhead, looking at the charred, and in some places still smoldering, landscape, she did not see desolation and death. Instead, she saw transition and rebirth.

The Yellowstone fires gave Turner, the Eugene P. Odum Professor of Ecology at the University of Wisconsin–Madison (Madison, WI), a grand opportunity. A few years earlier, Turner had joined a nascent scientific movement termed landscape ecology, a subdiscipline of ecology and geography examining the large-scale relationships among the land, its resources, and the organisms that inhabit it. Turner was particularly interested in the dynamics of heterogeneous landscapes, such as what causes spatial patterning and how it is important ecologically, and the fires at Yellowstone presented a natural experiment unfolding before her eyes.

“I was expecting that the fire damage



Monica G. Turner

Birth of a Movement

The suburbs of Long Island just outside of New York City, where Turner grew up, may not seem like the ideal setting to raise a nature lover. However, frequent summer camping trips across the northeastern United States spurred in Turner a fascination with the outdoors. By the time she started college at Fordham University (New York, NY) in the Bronx in 1976, Turner had narrowed down her career aspirations to becoming either a veterinarian

University of Georgia’s acceptance letter in her mail and initially decided to attend Boston University (Boston, MA), but when she later received a call from the University of Georgia asking whether she would like to visit the campus, she decided to go. “And I just really enjoyed it,” she says. “I was so impressed with all the work that was going on down there that I changed my decision quickly” and attended the University of Georgia.

Although the campus, ecology program, and faculty at the University of Georgia greatly impressed Turner, the thought of long years of graduate research was not particularly appealing. Her first taste of independent research had been her senior honors thesis on phytoplankton growth in Long Island Sound, which primarily taught her that she did not like sitting in front of microscopes. “When I started graduate school, I really just wanted to teach at a small college and be a park ranger in the summers. I was going to do the research only because I needed to in order to get the degree,” she confesses. But as she progressed through graduate school, her attitude began to change.

The change partially arose from her dissertation work on the interactions between wildfires and the grazing of feral horses on Cumberland Island National Seashore in Saint Marys, GA (3). But an-

COMMUNITY DEVELOPMENT AND PERSISTENCE IN A LOW ROCKY INTERTIDAL ZONE¹

JANE LUBCHENCO²

Biological Laboratories, Harvard University, Cambridge, Massachusetts 02138 USA

AND

BRUCE A. MENGE

Zoology Department, Oregon State University, Corvallis, Oregon 97331 USA

Abstract. This paper analyzes the factors controlling the development and persistence of patterns of distribution, abundance, and diversity of space users in the low rocky intertidal zone of New England. The spatial structure of this community changes along a wave exposure gradient. Mussels (*Mytilus edulis*) dominate at headlands exposed to wave shock, the alga *Chondrus crispus* (Irish moss) dominates at sites protected from wave shock, and both are abundant at areas intermediate in exposure to waves. Using a combination of experiments (exclosures, enclosures, removals) and observations, we evaluated the effects of several factors on this system, including (1) predation, (2) herbivory, (3) plant–plant competition, (4) plant–animal competition, and (5) physical disturbance from high-energy waves.

The interaction having the greatest effect on the structure of this low zone association was predation. At protected sites, the starfish *Asterias forbesi*, *Asterias vulgaris*, and the snail *Thais lapillus* prey heavily on *Mytilus*, which is the functionally dominant competitor in the low (and mid) zone(s). When secondary succession is initiated by removal of all erect animals and plants, community development in the absence of these predators (predator exclusion) results in competitive elimination of both the barnacle *Balanus balanoides* and *Chondrus* by *Mytilus*. A similar result occurs if predators are excluded from unaltered stands of *Chondrus*. Controls in these experiments (i.e., with predators present) usually either developed to, or remained as stands of *Chondrus*. At intermediate sites, patches of *Mytilus* occasionally escaped from predation, suggesting predation intensity is patchy in space and time. Persistence of *Chondrus* is thus a by-product of the activities of predators at protected sites. At exposed sites, predators do not control the mussels. As a consequence, *Mytilus* outcompetes *Chondrus* and *Balanus* for space and achieves structural dominance.

Derivability abundance decreases, and abundance and accessibility of ephemeral algae increase with



COMMUNITY DEVELOPMENT AND PERSISTENCE IN A LOW ROCKY INTERTIDAL ZONE¹

JANE LUBCHENCO²

Biological Laboratories, Harvard University, Cambridge, Massachusetts 02138 USA

AND

BRUCE A. MENGE

Zoology Department, Oregon State University, Corvallis, Oregon 97331 USA

Abstract. This paper analyzes the factors controlling the development and persistence of patterns of distribution, abundance, and diversity of space users in the low rocky intertidal zone of New England. The spatial structure of this community changes along a wave exposure gradient. Mussels (*Mytilus edulis*) dominate at headlands exposed to wave shock, the alga *Chondrus crispus* (Irish moss) dominates at sites protected from wave shock, and both are abundant at areas intermediate in exposure to waves. Using a combination of experiments (exclosures, enclosures, removals) and observations, we evaluated the effects of several factors on this system, including (1) predation, (2) herbivory, (3) plant–plant competition, (4) plant–animal competition, and (5) physical disturbance from high-energy waves.



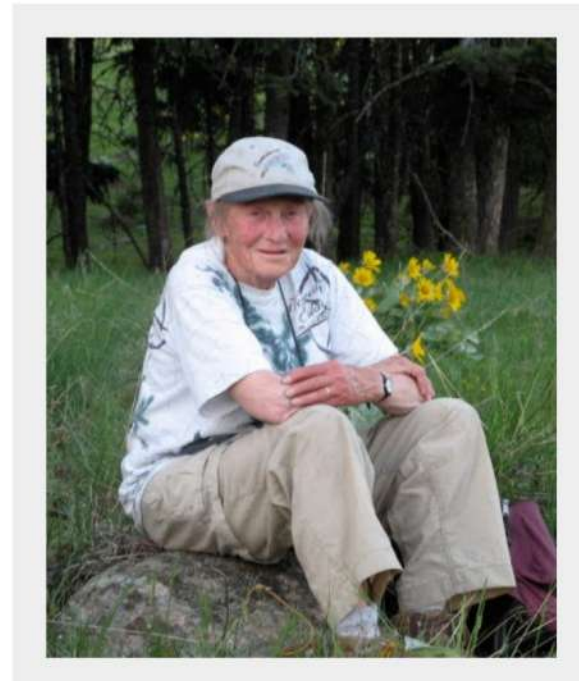
'Hope for the ocean lies in the marriage between a deep respect for our dependence on nature and a desire to create innovative ways to use the ocean without using it up.'

Who was E.C. Pielou?

A Homage to EC Pielou: One of the 20th Century's Most Accomplished Scientists

POST PROVIDED BY [DANIEL SIMBERLOFF](#), [NATHAN SANDERS](#) AND [PEDRO PERES-NETO](#)

Evelyn Chrystalla 'E.C.' Pielou (February 20, 1924 – July 16, 2016) – a towering figure in ecology – was a key pioneer in the incorporation of statistical rigor into biogeography and ecology. She devised many important statistical hypotheses tests for spatial arrangements and patterns ranging in scale from individual plants in a field through to elevational zonation of vegetation to ranges of groups of species distributed over regional through to continental-scale ranges. Her research has provided the



The Matilda Effect

Recent work has brought to light so many cases, historical and contemporary, of women scientists who have been ignored, denied credit or otherwise dropped from sight that a sex-linked phenomenon seems to exist, as has been documented to be the case in other fields, such as medicine, art history and literary criticism. Since this systematic bias in scientific information and recognition practices fits the second half of Matthew 13:12 in the Bible, which refers to the under-recognition accorded to those who have little to start with, it is suggested that sociologists of science and knowledge can add to the 'Matthew Effect', made famous by Robert K. Merton in 1968, the 'Matilda Effect', named for the American suffragist and feminist critic Matilda J. Gage of New York, who in the late nineteenth century both experienced and articulated this phenomenon. Calling attention to her and this age-old tendency may prod future scholars to include other such 'Matildas' and thus to write a better, because more comprehensive, history and sociology of science.

The Matthew Matilda Effect in Science

Margaret W. Rossiter

The Matilda Effect

Since Rossiter first noticed that hundreds of female scientists were described, but “obscured” through a variety of means in the reference work *American Men of Science* — now called *American Men and Women of Science* — more research has unmasked the challenges that women face pursuing science careers, and why the Matilda Effect continues to exist.

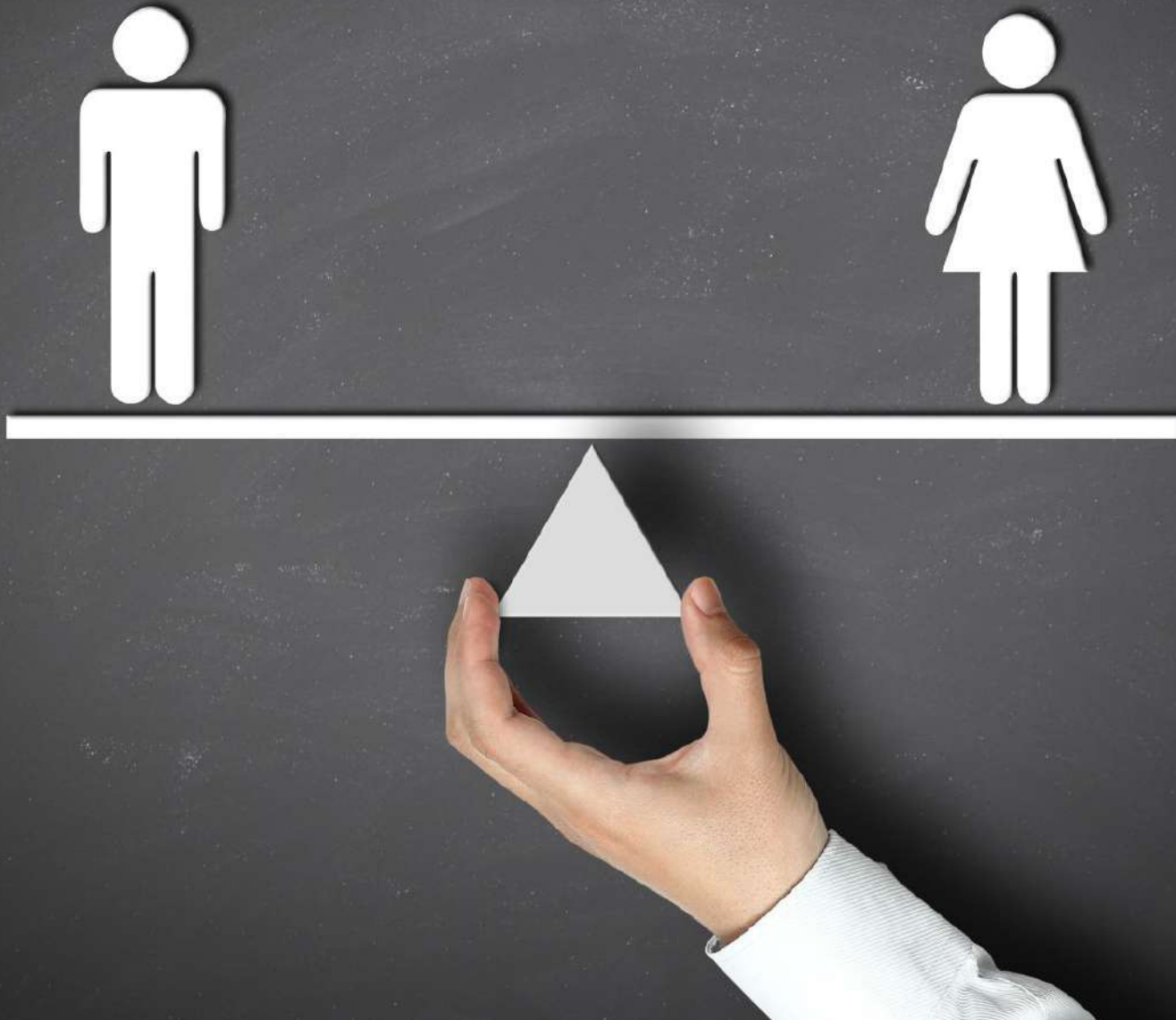
In 1993, Cornell University historian of science [Margaret Rossiter](#) dubbed the denial of recognition to women scientists “the Matilda effect,” for suffragist and abolitionist Matilda Joslyn Gage, whose 1893 essay “[Woman as an Inventor](#)” protested the common assertion that “woman... possesses no inventive or mechanical genius.” Gage wrote that “even the United States census” failed “to enumerate her among the inventors of the country.” Such assertions, Gage proceeded to demonstrate, “are carelessly or ignorantly made... although woman’s scientific education has been grossly neglected, yet some of the most important inventions of the world are due to her.”

The Matthew Matilda Effect in Science

Margaret W. Rossiter



Bullying



Culture of cruelty: why bullying thrives in higher education

In an environment where discussion, debate and criticism are encouraged, undermining behaviour can flourish

- **[‘Professors are supposed to be stressed! That’s the job’](#)**
- **[Take our survey on bullying in academia](#)**

Sam Farley and Christine Sprigg

Mon 3 Nov 2014 15.30 GMT



3,250  54 



▲ **'In workplaces dominated by men, woman are more likely to be bullied and vice versa.'** Photograph: Sam Friedrich

Hundreds of academics at top UK universities accused of bullying

Senior professors among 300 people alleged to have bullied students and colleagues

Hannah Devlin and Sarah Marsh

Fri 28 Sep 2018 17.30 BST



▲ Current and former academics told the Guardian they had experienced aggressive behaviour and career sabotage. Photograph: Alamy

Hundreds of academics have been accused of bullying students and colleagues in the past five years, prompting concerns that a culture of harassment and intimidation is thriving in Britain's leading universities.

A Guardian investigation found nearly 300 academics, including senior professors and laboratory directors, were accused of bullying students and colleagues.

Dozens of current and former academics spoke of aggressive behaviour, extreme pressure to deliver results, career sabotage and HR managers appearing more concerned about avoiding negative publicity than protecting staff.

In response, Prof Venki Ramakrishnan, the president of the Royal Society, called for an overhaul of workplace practices, saying bullying had become ingrained in the culture of too many academic institutions.

Scientists behaving badly

The Thesis Whisperer

Academic assholes and the circle of niceness

Just like the horse whisperer – but with more pages

February 13, 2013 · by Thesis Whisperer



As we talked we started to wonder: **do you get further in academia if you are a jerk?**

Teresa Amabile, who did a series of controlled experiments using fictitious book reviews. While the reviews themselves essentially made the same observations about the books, the tone in which the reviewers expressed their observations was tweaked to be either nice or nasty.

What Amabile found was:

“...negative or unkind people were seen as less likeable but more intelligent, competent, and expert than those who expressed the same messages in gentler ways”

Scientists behaving badly

The Thesis Whisperer

Academic assholes and the circle of niceness

Just like the horse whisperer – but with more pages

February 13, 2013 - by Thesis Whisperer

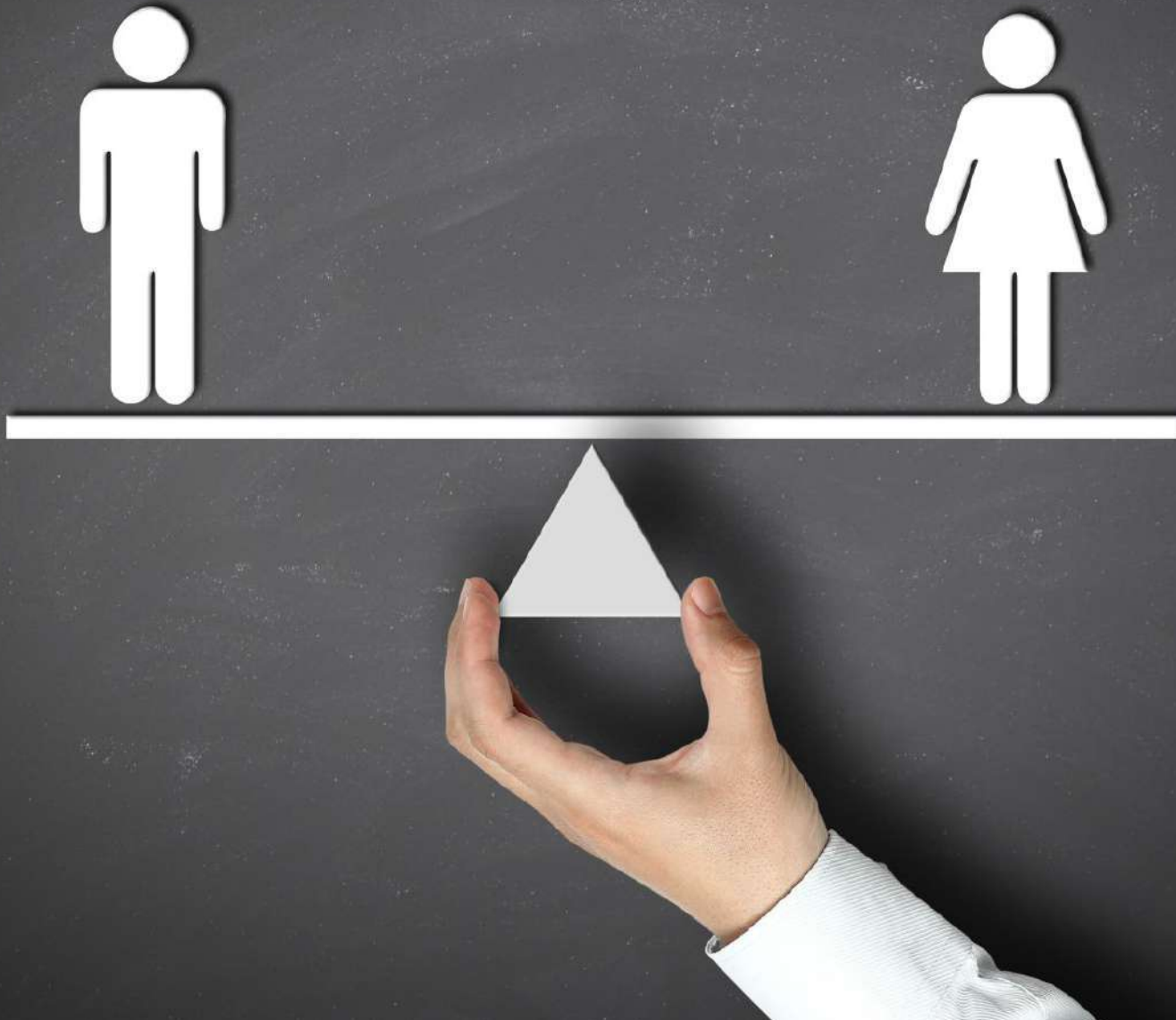


“...negative or unkind people were seen as less likeable but more intelligent, competent, and expert than those who expressed the same messages in gentler ways”

This sentence made me think about the nasty cleverness that some academics display when they comment on student work in front of their peers. Displaying cleverness during PhD seminars and during talks at conferences is a way academics show off their scholarly prowess to each other, sometimes at the expense of the student. **Cleverness is a form of currency in academia; or 'cultural capital' if you like.** If other academics think you are clever they will listen to you more; you will be invited to speak at other institutions, to sit on panels and join important committees and boards. Appearing clever is a route to power and promotion. If performing like an asshole in a public forum creates the perverse impression that you are more clever than others who do not, there is a clear incentive to behave this way.

Inger Mewburn @thesiswhisperer

Sexual Harassment and Assault



Disturbing allegations of sexual harassment in Antarctica leveled at noted scientist

By [Meredith Wadman](#) | Oct. 6, 2017, 12:45 PM [Science Magazine](#)

Editor's note: This article includes crude language and disturbing details.



A COLD CASE

Boston University (BU) is investigating sexual harassment complaints made against a prominent Antarctic geologist by two of his former graduate students. The women allege that David Marchant, then an assistant professor, harassed them during different research expeditions starting 2 decades ago, while they were isolated in small groups in the Antarctic. In supporting documents and interviews, several other women report similar treatment from Marchant in that period.

Time Person of the Year honoree leaves university over sexual harassment inaction

USA TODAY NETWORK Justin Murphy, @citizenmurphy

Published 6:03 p.m. ET Dec. 22, 2017 | Updated 6:26 p.m. ET Dec. 22, 2017



D&C watchdog reporter Lauren Peace has an exclusive conversation with Dr. J. Dr. Celeste Kidd who were among those named Time magazine's 'Person of the sexual harassment at the University of Rochester. Virginia Butler/Lauren Peace



Jessica Cantlon, at the door to her office in the Brain Cognitive studies department. She and others filed complainants against the University of Rochester and Florian Jaeger, who's office is next to hers.

(Photo: MAX SCHULTE/@maxrophoto/staff photographer)



(Photo: MAX SCHULTE/@maxrophoto/staff photographer)

CONNECT TWEET LINKEDIN COMMENT EMAIL MORE

ROCHESTER, N.Y. — Jessica Cantlon, recently named one of [Time Magazine's People of the Year](#) for her role as one of the lead complainants against Florian Jaeger at the University of Rochester, will leave the school's Brain and Cognitive Science department along with her husband for positions at Carnegie Mellon University. [she said this week](#)



Survey of Academic Field Experiences (SAFE): Trainees Report Harassment and Assault



Kathryn B. H. Clancy^{1*}, Robin G. Nelson², Julienne N. Rutherford³, Katie Hinde⁴

1 University of Illinois, Urbana-Champaign, Department of Anthropology, Urbana, Illinois, United States of America, **2** Skidmore College, Department of Anthropology, Saratoga Springs, New York, United States of America, **3** University of Illinois, Chicago, Department of Women, Children, and Family Health Science, Chicago, Illinois, United States of America, **4** Harvard University, Department of Human Evolutionary Biology, Cambridge, Massachusetts, United States of America

Abstract

Little is known about the climate of the scientific fieldwork setting as it relates to gendered experiences, sexual harassment, and sexual assault. We conducted an internet-based survey of field scientists (N = 666) to characterize these experiences. Codes of conduct and sexual harassment policies were not regularly encountered by respondents, while harassment and assault were commonly experienced by respondents during trainee career stages. Women trainees were the primary targets; their perpetrators were predominantly senior to them professionally within the research team. Male trainees were more often targeted by their peers at the research site. Few respondents were aware of mechanisms to report incidents; most who did report were unsatisfied with the outcome. These findings suggest that policies emphasizing safety, inclusivity, and collegiality have the potential to improve field experiences of a diversity of researchers, especially during early career stages. These include better awareness of mechanisms for direct and oblique reporting of harassment and assault and, the implementation of productive response mechanisms when such behaviors are reported. Principal investigators are particularly well positioned to influence workplace culture at their field sites.



Survey of Academic Field Experiences (SAFE): Trainees Report Harassment and Assault



Kathryn B. H. Clancy^{1*}, Robin G. Nelson², Julienne N. Rutherford³, Katie Hinde⁴

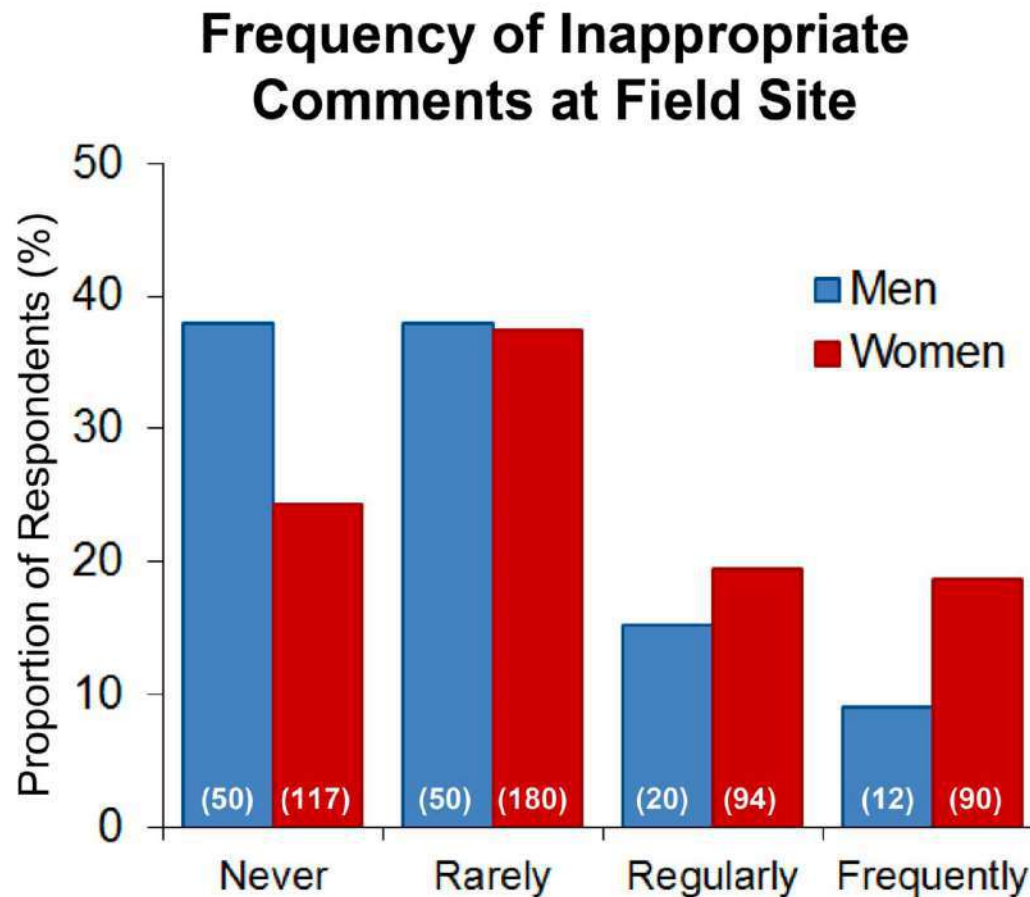


Figure 1. Proportion of survey respondents, by gender, who indicated that inappropriate or sexual comments occurred never, rarely, regularly, or frequently at their most recent or most notable field site (N).

doi:10.1371/journal.pone.0102172.g001

Survey of Academic Field Experiences (SAFE): Trainees Report Harassment and Assault



Kathryn B. H. Clancy^{1*}, Robin G. Nelson², Julienne N. Rutherford³, Katie Hinde⁴

A majority (64%, $N = 423/658$) of all survey respondents, stated that they had personally experienced sexual harassment: i.e. inappropriate or sexual remarks, comments about physical beauty, cognitive sex differences, or other such jokes. Over 20% of respondents reported that they had personally experienced sexual assault: i.e. physical sexual harassment, unwanted sexual contact, or sexual contact in which they could not or did not give consent, or felt it would be unsafe to fight back or not give consent ($N = 140/644$, 21.7%). Respondents who declined to provide a

Speaking out about sexual harassment in shark science

🕒 November 21 by Guest Writer



*Dr. Lisa Whitenack is an Associate Professor of Biology of Allegheny College. She is a shark paleobiologist, studying modern and fossil shark teeth over their 400 million year history. While she is also a member of the Board of Directors and acting chair of the Equity and Diversity committee of the American Elasmobranch Society (AES), this piece is not written under the umbrella of AES. **Follow her on twitter at @WhitenackLab.***

Author's note: italicized quotations in this piece come from many different female shark researchers who gave Lisa permission to share their stories in this post.

"Funny that all of this Harvey Weinstein nonsense triggers feelings of AES in me..."

<http://www.southernfriedscience.com/speaking-out-about-sexual-harassment-in-shark-science/>

Back in mid-October, a colleague of mine sent the above to me in a private message on social media.



Rachel T. Graham

Follow

Nov 21, 2017 · 13 min read

"Are we there yet?" Women in shark science



<https://medium.com/@rachelgraham/are-we-there-yet-women-in-shark-science-cdb029c3bb26>

The author measuring a juvenile Caribbean reef shark with a team of traditional fishers during night fieldwork conducted out of a small panga. Photo: Carol Foster.

'A Complete Culture of Sexualization': 1,600 Stories of Harassment in Higher Ed

By Nell Gluckman | DECEMBER 12, 2017



Karen L. Kelsky founded The Professor Is In, a consultancy that gives academics career advice. In 2014 she created an [online survey](#) about graduate-student debt that received hundreds of responses, with some students reporting that they owed in the range of \$200,000 to \$300,000. Respondents found sharing the information therapeutic, and, as Ms. Kelsky says, it changed the conversation around graduate school.

Now, as news breaks daily about sexual harassment in seemingly every industry, including higher education, Ms. Kelsky decided to apply the approach again. She created a survey in which academics and former academics can [submit their stories](#) about sexual misconduct, and their responses will be shared anonymously

<https://www.chronicle.com/article/A-Complete-Culture-of/242040>

The Professor Is In

Karen Kelsky, an academic career adviser, was deluged with

By Lydia Zepeda

The harassment tax

A senior faculty member asked me into his office. I assumed it was to talk about agricultural data. It was the fall of 1991 and I was untenured, 32 years old, and 7 months pregnant. He was in his 60s and one of many men who were going to vote on my tenure. He showed me the recent issue of *Vanity Fair* with Demi Moore on the cover, pregnant and nude. “She reminds me of you,” he said as he tried to catch my eye. I looked at the floor, stunned. I mumbled something and backed out of his office, wondering whether I would ever feel clean again.

This was just one example of the sexual harassment I experienced during my career as a professor. It happened to me; it happens to other female faculty members; and it happens to female staff, graduate students, and undergraduates. It wasn’t all men and it didn’t happen all the time, but it happened, and it was part of my life in academia: grant writing, teaching, publishing in peer-reviewed journals—oh, and dealing with creeps and the messes they made.

Sexual harassment is draining. It takes up time and energy, and it does not result in anything for one’s CV or annual review. It is a productivity tax on women. In my case, it meant I avoided co-authoring or having joint grants with male colleagues, things that would likely have increased my funding and publications.

The costs also spill over to others. By taking up women’s energy and lowering productivity, harassment wastes valuable grant money and taxpayer funding. It is also a key reason



“Sexual harassment is ... a productivity tax on women.”

day, a man guarding me couldn’t get the ball from me and punched me in the breast. It was hard enough to knock me to the floor and leave a bruise. When I demanded to know why he punched me, he yelled “Women have no business

renowned researcher had hit on her and touched her inappropriately during a postdoc interview. I advised her not to take the job because if he did that during the interview, in all likelihood it would escalate later. She would not be dissuaded. “It is just too good a job,” she said. She decided to take a calculated risk because, she said, “what else are you going to do? It’s everywhere.” So, along with doing first-class research, she has to figure out how to keep her boss’s hands off her.

Sexual harassment even affected my free time, interfering with my efforts to recharge and sustain my productivity. Earlier in my career, I played basketball with faculty and staff members on campus. I was usually the only woman. One

Harassment in science is real

As the rallying cry against sexual harassment and bullying in many fields, including academia, continues to grow, more and more victims are coming forward with their stories, reflecting how this damaging culture has been the norm across sectors for decades. Studies of women in academia report that more than half have experienced harassment. This behavior has remained obscured for many reasons: fear, resignation, and acceptance. The scientific community must recognize the difficult conversations that have started and embrace this watershed moment as an opportunity for rapid and essential cultural change.

In our own fields of geophysical and environmental sciences, in which teams of researchers travel to far corners of the planet, harassment has long been a reality. Huts atop frozen ice sheets, bunks on research vessels, and poster-strewn office halls have all hosted scenes of inexcusable behavior. Our own personal stories comprise more than three decades of scientific achievement, yet cultural change in our fields seems as slow as the glaciers we study. Senior scientists

Since news of the sexual misconduct of film executive Harvey Weinstein broke, the #MeToo movement denouncing harassment is a light across the sciences. People are speaking up and sharing stories that they have hidden for decades. We know from our research that meltwater produced by a warming climate can make glaciers move faster. We know, too, that major social events can trigger rapid changes in communities. The recent high-profile harassment cases are an opportunity to change the basic ethical culture of science.

Cultural change must occur at the individual, team, professional society, and institutional levels. This year, the American Geophysical Union adopted a new ethics policy that defines bullying and harassment as scientific misconduct. The American Geosciences Institute, which encompasses more than 50 scientific societies, is working to adopt a common statement to address harassment. As societies move forward, harassers will no longer be bestowed academic honors while victims sit quietly in the audience. Change must come to institutions where harassers retire or resign and go to new institutions to begin again.

The greatest opportunity for cultural change rests with individual scientists, teams,



“...cultural change rests with individual scientists, teams, and professional societies.”

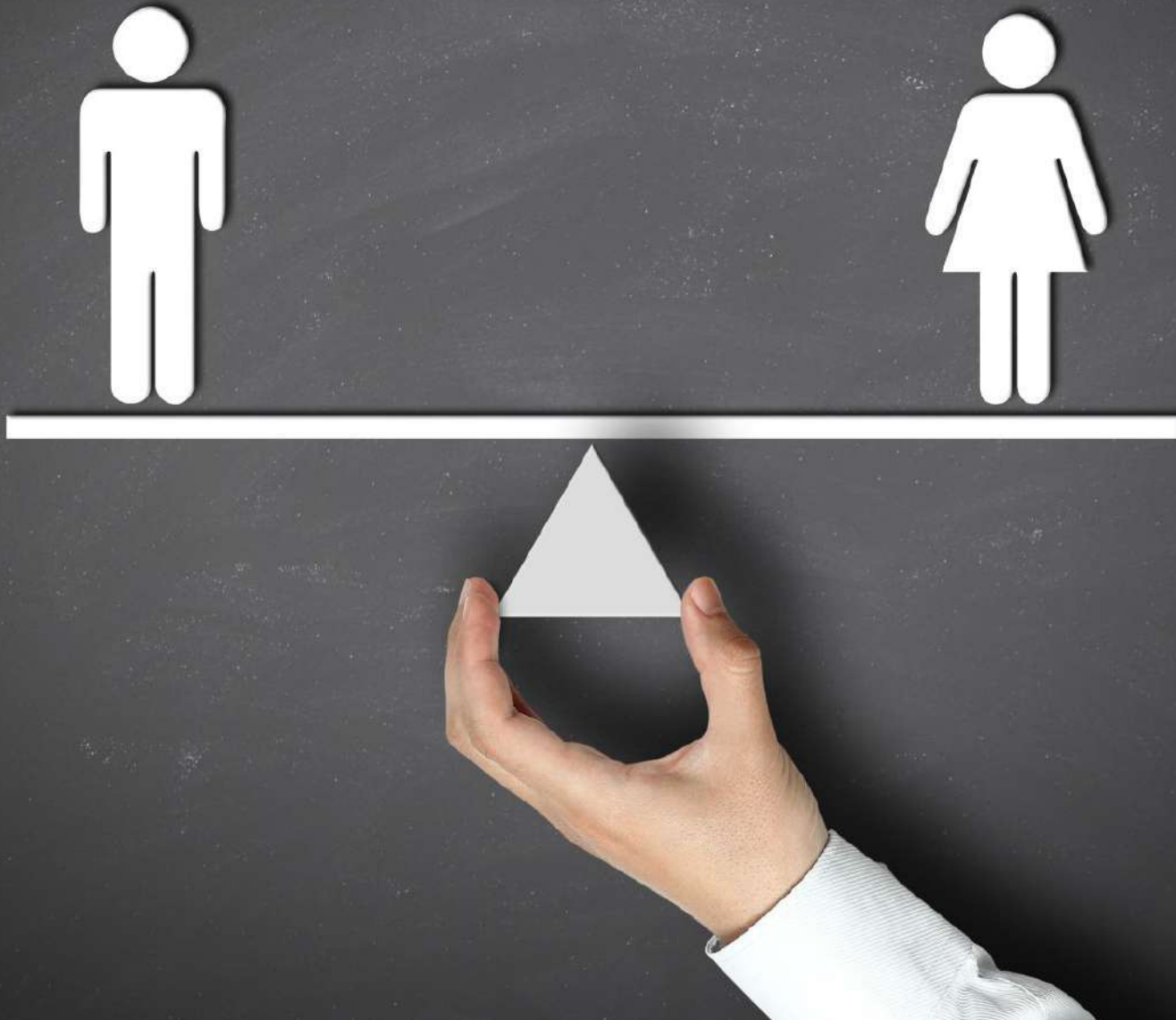


Robin E. Bell is a professor at the Lamont-Doherty Earth Observatory of Columbia University, Palisades, New York, and is president-elect of the American Geophysical Union. robinb@ldeo.columbia.edu



Lora S. Koenig is a senior research scientist at the National Snow and Ice Data

Two Fallacies



Fallacy # 1: Women aren't interested in STEM

Signs emerging that more females are gravitating to STEM fields

VIRGINIA GALT
SPECIAL TO THE GLOBE AND MAIL
PUBLISHED MAY 21, 2018

It was a telling moment for Jodi Kovitz when she talked about a severe shortage of women in advanced fields that the girls were out in force, conversing easily with male peers on such topics as artificial intelligence and engineering.

Of the 300 participants, all in the 13-to-17 age range, 150 received invitations to the youth tech summit, organized by the Girls in STEM (TKS), were based solely on their own knowledge," tech entrepreneur Jodi Kovitz said. "Female applicants continue to grow that interested in STEM fields." Jodi Kovitz is a partner at Nathoo, who co-founded with McKinsey and Co



Imogen Coe
@RySciDean



Following



Really tired of hearing that it's on girls to "fix" the lack of their presence in tech. Data 4 decades show girls participate at equivalent rates to boys in STEM in Canada from K-12. They "self-select" out bc they are made unwelcome, marginalized. Fix the system not the girls

Steven Murphy @DrStevenMurphy

"The key is to catch them young and encourage them, alongside the talented boys, before they self-select out." theglobeandmail.com/business/career ... #GirlsInSTEM @RySciDean

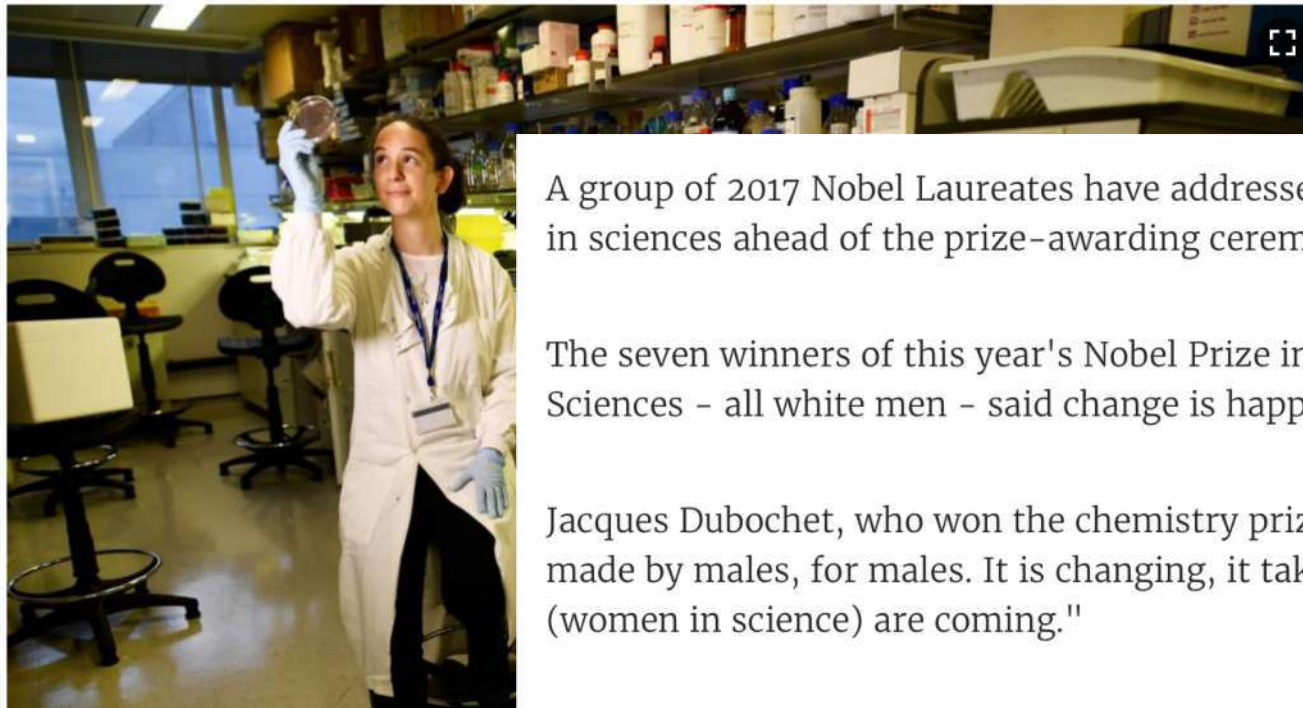
Steven Murphy @

"The key is to catch them young and encourage them, alongside the talented boys, before they self-select out." theglobeandmail.com/business/career ... #GirlsInSTEM @RySciDean

Fallacy #2: Be patient, change is coming...

Fallacy #2: Be patient, change is coming...

Nobel Laureates Say Change Coming for Women in Sciences



A group of 2017 Nobel Laureates have addressed the lack of female representation in sciences ahead of the prize-awarding ceremony in Stockholm.

The seven winners of this year's Nobel Prize in Physics, Chemistry and Economic Sciences - all white men - said change is happening.

Jacques Dubochet, who won the chemistry prize, told reporters: "Science has been made by males, for males. It is changing, it takes time, but you will see it, they (women in science) are coming."

Physicist Kip Thorne pointed to the increase in the number of women entering undergraduate programs in sciences today compared to when he was a student.

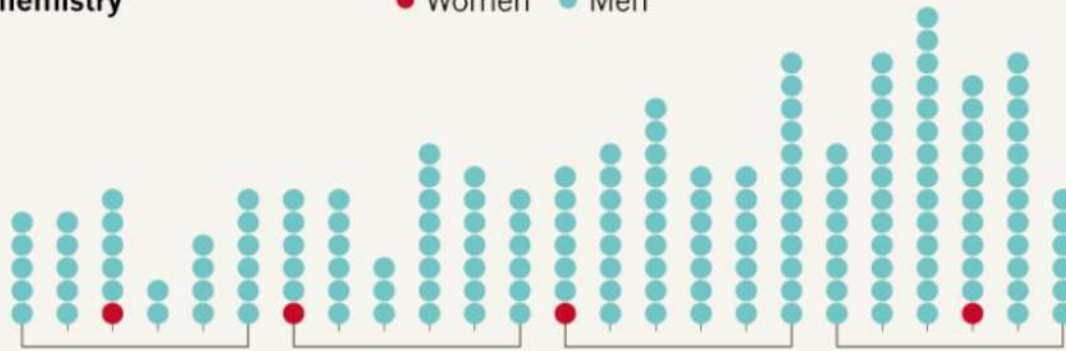
He said Thursday: "Change is coming, but there is a long delay between entering freshman and the Nobel prize."

NOBEL IMBALANCE

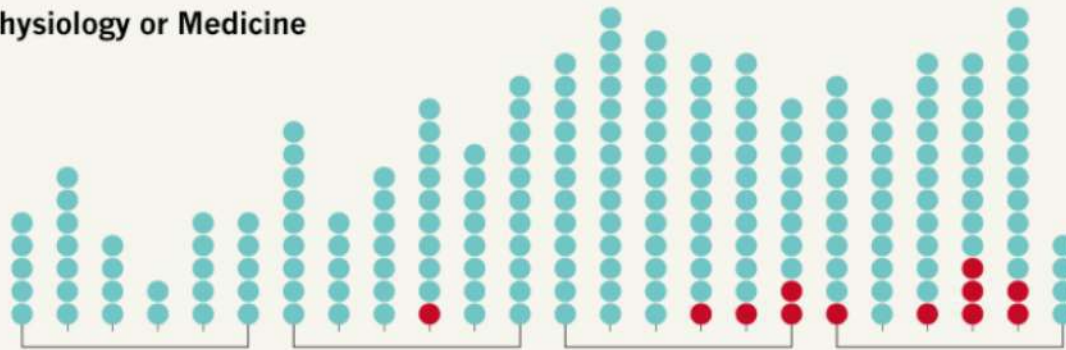
Of the 599 Nobel medals awarded in scientific disciplines, just 18 have gone to women.

Chemistry

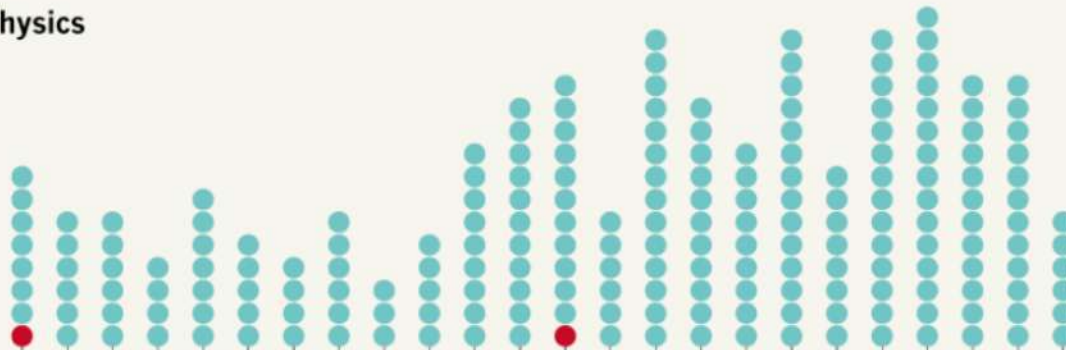
● Women ● Men



Physiology or Medicine



Physics



1901-1930

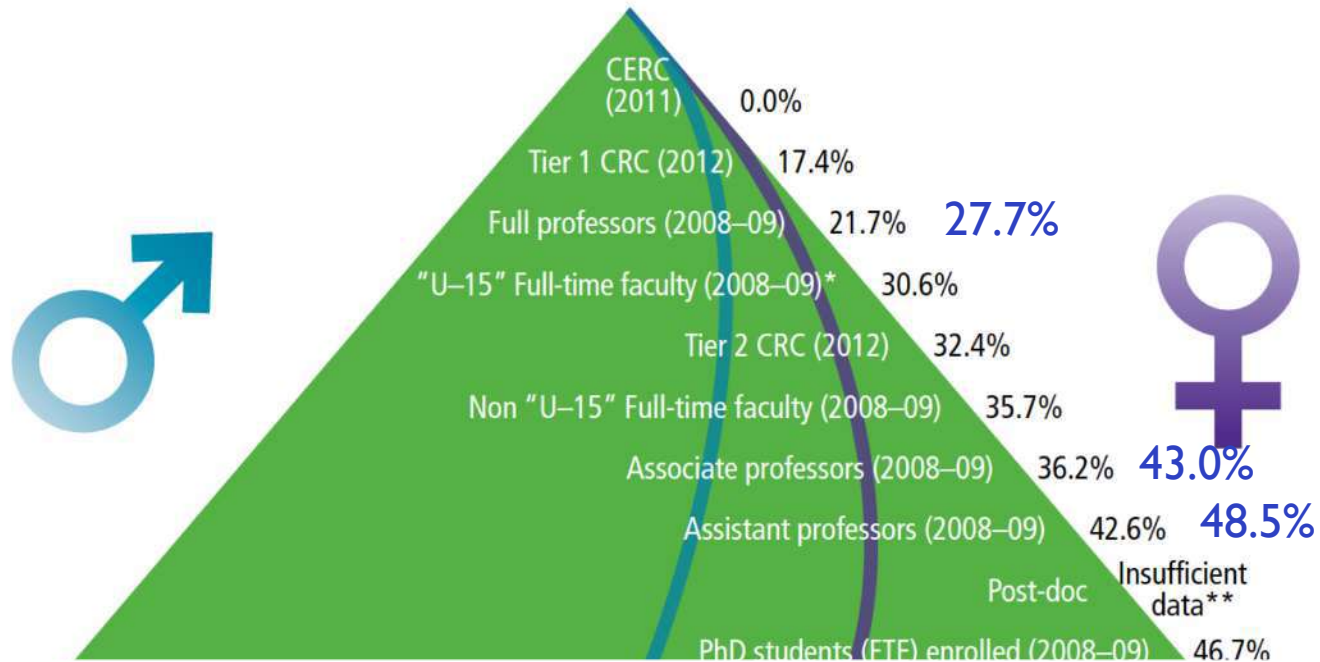
1931-1960

1961-1990

1991-2017

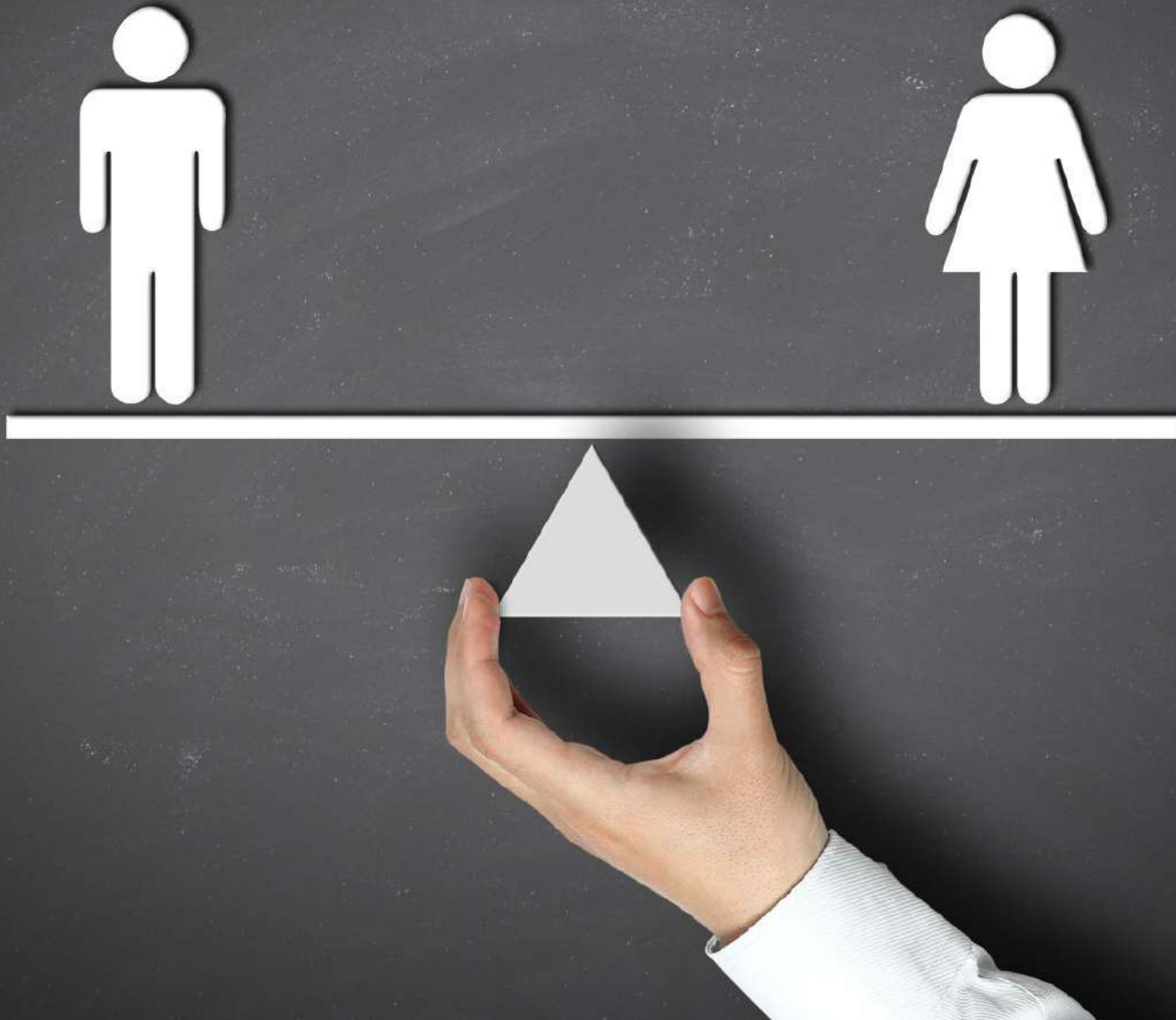
Proportion of Women in University Research Positions (2008-2012)

2017 Canadian Statistics



One would think that it was only a question of time before women found their place at the highest levels of academia. Not so, according to Dr. Larivière's demographic analysis. Equality may not be attained for a long time. "According to current global trends, parity in the social sciences should be achieved in 2050. In natural sciences, it will be more like 2150."

There is Hope!





PERSONAL LIFE

REVEALS ALL

Person of the Year

TIME

THE
SILENCE
BREAKERS
THE VOICES
THAT LAUNCHED
A MOVEMENT





Photo for illustrative purposes only

Female Scientists Report a Horrifying Culture of Sexual Assault

Research labs and field sites are swarming with men who sexually harass and assault their colleagues. But when women come forward, the perpetrators aren't punished—the victims are.

<https://www.marieclaire.com/career-advice/a14104684/sexual-harassment-assault-in-science-field/>

OUR MISSION

THE MISSION OF 500 WOMEN SCIENTISTS IS TO SERVE SOCIETY BY MAKING SCIENCE OPEN, INCLUSIVE, AND ACCESSIBLE

TO ACHIEVE OUR MISSION WE:

1. Empower women to grow to their full potential in science;
2. Increase scientific literacy through public engagement;
3. Advocate for science and equality.

It is a first step in committing to each other and to taking action for our science, our country, and the health of our planet. Just as science is built on evidence, observation, and ongoing evaluation, we are building this movement on the same tenets.

— Dr. Kelly Ramirez

<https://500womenscientists.org>



It's Time for Science and Academia to Address Sexual Misconduct








Almost every woman in science has either personally experienced or knows someone who has experienced sexual harassment, racism or assault

By Rukmani Vijayaraghavan, Kristy L. Duran, Kelly Ramirez, Jane Zelikova, Emily Lescak, 500 Women Scientists on December 12, 2017

system that is all too willing to look away. **How many victims of such harassment have been driven out of science as a result? What contributions to science have been lost?**



Your Science Conference Should Have a Code of Conduct

 Brett Favaro^{1,2*},  Samantha Oester³,  John A. Cigliano⁴,  Leslie A. Cornick⁵,  Edward J. Hind⁶,
 E. C. M. Parsons³ and  Tracey J. Woodbury⁷

¹School of Fisheries, Fisheries and Marine Institute of Memorial University of Newfoundland, St. John's, NL, Canada

²Department of Ocean Sciences, Memorial University of Newfoundland, Logy Bay, NL, Canada

³Department of Environmental Science and Policy, George Mason University, Fairfax, VA, USA

⁴Department of Biological Sciences, Environmental Conservation Program, Cedar Crest College, Allentown, PA USA

⁵Department of Marine and Environmental Sciences, Alaska Pacific University, Anchorage, AK, USA

⁶Department of Sociology, Manchester Metropolitan University, Manchester, UK

⁷Society for Human Resource Management, Alexandria, VA, USA

Science conferences are a critical component of the scientific enterprise. They give us opportunities to present our research, to network and create future career opportunities, and to recruit researchers to our teams (Parsons, 2015). Many fruitful collaborations have spawned from chance meetings at conferences, and doubtless innumerable conservation solutions have stemmed from conversations over coffee at these important events. Therefore, whenever there is inequity of access to science conferences, the entire discipline suffers. Conservation science is tasked with saving the Earth's biodiversity, so for us, inequity means the biosphere suffers as well. But most importantly, individuals who are passionate about conservation can be driven out of the field due to

A Cultural Shift...

HOME | NEWS

AAAS Approves Policy to Revoke Elected Fellows for Misconduct or Ethics Breach



15 September 2018

Anne Q. Hoy
Office of Public Programs



Council Meeting

AAAS has been active in ensuring that the scientific community and its institutions are safe and welcoming for all participants. | Neil Orman/AAAS

The governing body of the American Association for the Advancement of Science voted Saturday to enact a policy under which an elected AAAS Fellow's lifetime honor can be revoked for proven scientific misconduct or serious breaches of professional ethics.

Nobel Prize in Chemistry Goes to a Woman for the Fifth Time in History



Frances H. Arnold in 2016. She was awarded the Nobel Prize in Chemistry for her work conducting the directed evolution of enzymes. Heikki Saukkomaa/Agence France-Presse — Getty Images

By Sandra E. Garcia

Oct. 3, 2018



Since 1901, when the Nobel Prize in Chemistry was first awarded, [177 people have captured the honor](#). On Wednesday, Frances H. Arnold became only the fifth woman to be awarded the prize.

Home | News | Physics



DAILY NEWS 2 October 2018

Donna Strickland is the third woman ever to win a physics Nobel Prize



The winners of the 2018 Nobel Prize in physics
Niklas Elmehed/Nobel Prize 2018

By Douglas Heaven

The 2018 [Nobel Prize](#) in physics has been awarded to three physicists for their work on lasers. One half of the award goes to Arthur Ashkin, who invented optical tweezers – a way to manipulate tiny objects using focused beams of light – and the other half is shared between Gérard Mourou and Donna Strickland for their method of generating high-intensity ultra short optical pulses, which can be used to cut or drill very precise holes in material, including living tissue.

This is the first time in 55 years that a woman has won the Nobel Prize in physics, bringing the total number of female recipients of the prize to three.

THE NOBEL PRIZE

The Nobel Prize 
@NobelPrize



"We need to celebrate women physicists because they're out there... I'm honoured to be one of those women," says Donna Strickland.

She becomes the third woman to receive the [#NobelPrize](#) in Physics, joining Maria Goeppert-Mayer (1963) and Marie Curie (1903). Congratulations!

3:41 AM - Oct 2, 2018

 14.1K  8,433 people are talking about this

Kirsty Duncan Wants To Force Universities To Appoint More Female Research Chairs

Science Minister Kirsty Duncan speaks in Ottawa on Dec 15, 2016. (Photo: Sean Kilpatrick/The Canadian Press)



OTTAWA — Canada's science minister says universities aren't doing the heavy lifting to appoint more female research chairs, so she wants to force their hands.

On her way to give a speech Wednesday to Canada's university presidents in Montreal, Kirsty Duncan was handed the latest statistics on the number of men and women among applicants for new Canada Research Chair positions.

"They're dismal," Duncan said in an interview with The Canadian Press. "There were two times more men nominated than women."

The Canada Research Chairs program was implemented 17 years ago to create 2,000 research positions at universities across the country to push for excellence in engineering, natural sciences, health sciences, humanities and social sciences. Canada spends \$265 million a year on the program.

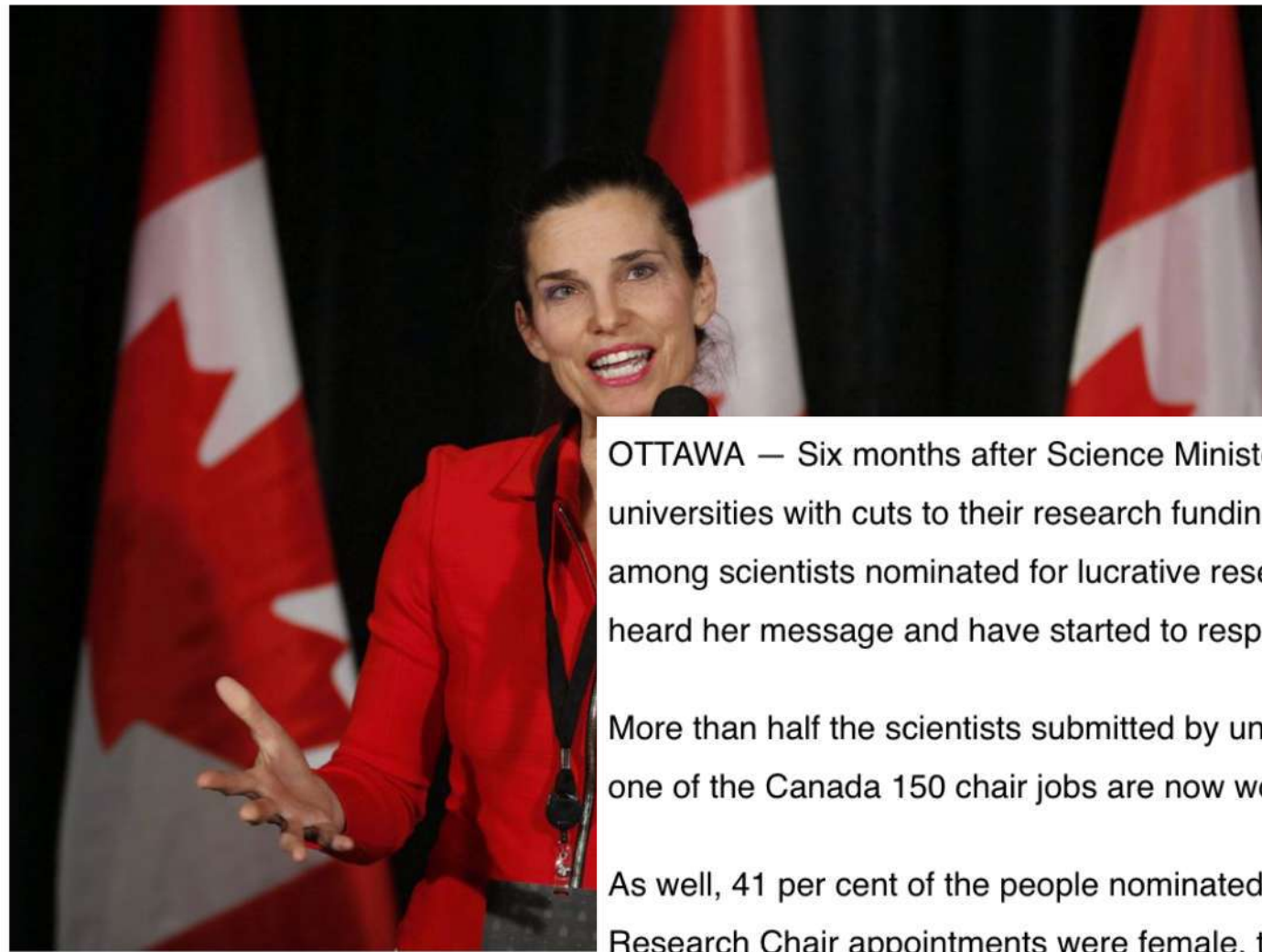
As of December 2016, there were 1,612 filled positions, among which 30 per cent were women. That fits with the fact between 2000 and 2015, 31 per cent of applicants for the jobs were from women.

Duncan said the latest figures show nothing has changed, a status quo she can't accept, since she made it known when she was sworn in to the Liberal cabinet that improving the gender balance would be a priority.

'The bar isn't moving'

"The bar isn't moving and that can't continue," she said, noting that she even ad-libbed part of her speech because of it: "I let them know I was very disappointed with the results."

Universities heard gender balance message loud and clear, science minister says



OTTAWA — Six months after Science Minister Kirsty Duncan threatened universities with cuts to their research funding over a “dismal” gender balance among scientists nominated for lucrative research posts, she says they have heard her message and have started to respond.

More than half the scientists submitted by universities for consideration for one of the Canada 150 chair jobs are now women, Duncan said.

As well, 41 per cent of the people nominated for the latest round of Canada Research Chair appointments were female, the highest proportion ever in the 17 years the program has existed.

“I think the message is getting through,” Duncan said.

Minister of Science Kirsty Duncan answers questions from Jan. 23, 2017. Canada's science minister says more than 150 research jobs are female. THE CANADIAN PRESS/To

Government reveals list of Canada 150 Research Chairholders

24 researchers will soon join Canadian universities from institutions around the world – many of them expats looking for a way home.

By NATALIE SAMSON | MAR 29 2018

[Post a comment](#) | [Share](#)



Minister Duncan (centre) was joined by 12 of the new Canada 150 Research Chairs at the announcement ceremony.

NEWS

Canadian government unveils draft Athena SWAN charter

Consultations will continue in February and March with underrepresented groups and academic institutions on the draft charter aimed at promoting equity, diversity and inclusion.

By ANQI SHEN | FEB 20 2019

 **Post a comment** | **Share**    

To mark the International Day of Women and Girls in Science on February 11, the federal minister of science and sport, Kirsty Duncan, unveiled the draft version of a “**made-in-Canada**” Athena SWAN charter. Another round of consultations on the draft is **underway**, continuing through February and March, aimed at “underrepresented groups and academic institutions” across the country.

The government intends to finalize the charter this spring, according to Valérie Levert-

New roster of 'superstar' research chairs reflects equity rules

IVAN SEMENIUK > SCIENCE REPORTER
PUBLISHED APRIL 17, 2019



Ice and climate scientist Dorthe Dahl-Jensen examines a slice of glacial ice with Denmark's Minister for Research, Tommy Ahler. Dr. Dorthe Dahl-Jensen, who moved to the University of Manitoba in December, is one of five women named in the latest round of the Canada Excellence Research Chairs program.

Ottawa is set to unveil the outcome of a high-stakes talent search aimed at luring top researchers from around the world to Canadian universities. And, unlike previous rounds of the Canada Excellence Research Chairs program, the results show that requirements aimed at improving gender equity in the recruitment process are having an impact.

Of the eight new chairholders to be announced on Wednesday, five are female academics who are leaving their faculty positions in Europe and the United States to come to Canada. Each chair is tied to \$10-million in federal funding to be

Government of Canada announces talented and diverse group of new and renewed Canada Research Chairs

From: [Canada Research Chairs](#)

News release

The 346 Chairs at 52 universities reflect the Canada we see today

June 14, 2019, Victoria, B.C. — Tri-agency Institutional Programs Secretariat

Our government recognizes that diversity of backgrounds, experiences and thought breed great science and research. If we want Canada to achieve its greatest potential in research, we need the diversity of citizens and communities to be reflected in our academic ranks.

Canada Research Chairs are world-class scientists and scholars from diverse backgrounds who are working on new discoveries and innovations that help our environment, health, communities and economy thrive.

That's why today, the Honourable [Kirsty Duncan](#), Minister of Science and Sport, announced an investment of over \$275 million for 346 new and renewed Canada Research Chairs at 52 institutions across Canada for research excellence.

This announcement builds on Minister Duncan's vision for an equitable, diverse and inclusive research community. By requiring universities to develop and implement detailed equity and diversity plans, the most recent competition results are: 47 per cent women, 22 per cent visible minorities, 5 per cent persons with disabilities and 4 per cent Indigenous peoples. This is a notable improvement in the number of underrepresented groups taking up these prestigious Chairs as compared to previous competitions.

"Progress isn't just a seat at the table anymore but the ability to command it, too."

– Ava DuVernay, Filmmaker, 2017



EMBRACING DIMENSIONS

EQUITY, DIVERSITY, AND INCLUSION IN THE
CANADIAN POST-SECONDARY SYSTEM

Sept. 10 | 12 p.m.

Medical Sciences Building, Rm. 140

Speaker: Dr. Imogen Coe, Canadian thought leader on EDI
in STEM; Chemistry & Biology Professor, Ryerson
University

events.uvic.ca/madec



Dr. Imogen Coe
Professor, Chemistry
& Biology, Ryerson



Friday, September 27, 2019 12:00pm - 5:00pm
Legislative Assembly Victoria