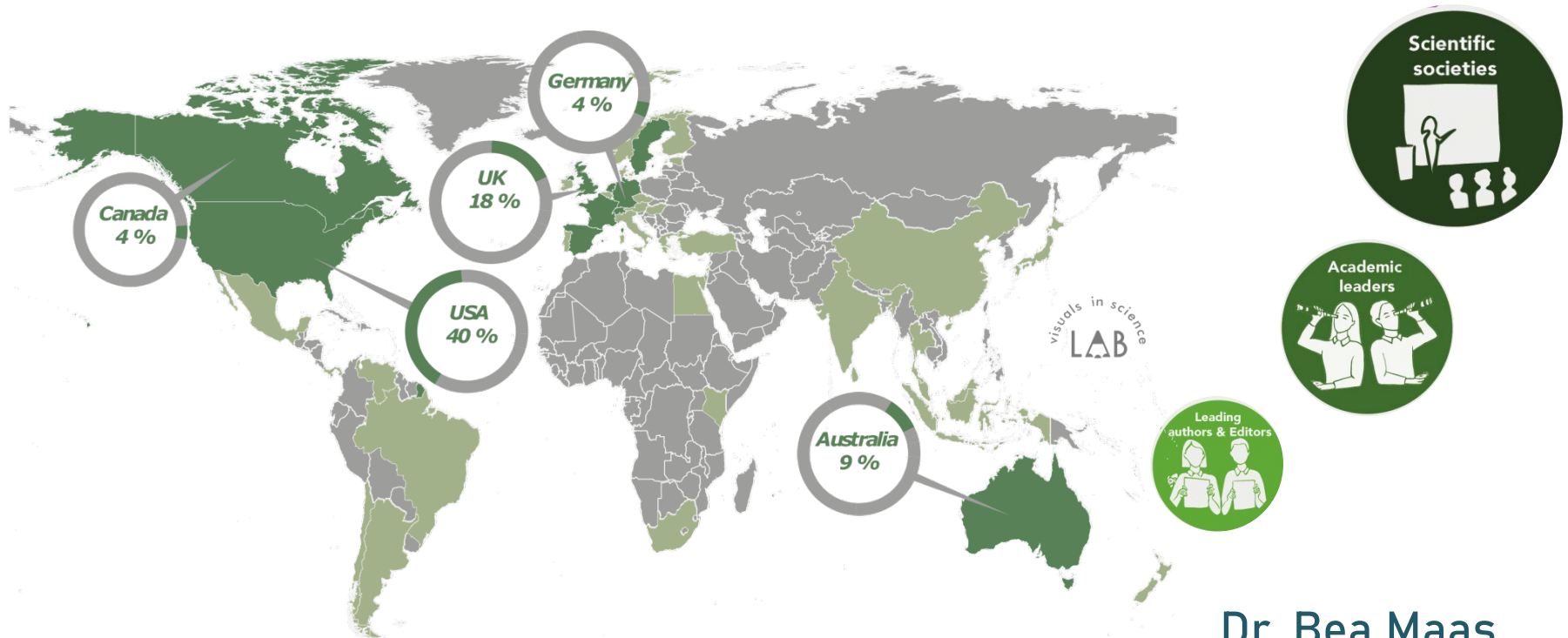


Overcoming implicit bias in the tropical conservation community for better research and practice



Dr. Bea Maas
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Dpt. of Botany & Biodiversity Research
University of Vienna - Austria

June 2023

What we don't think we think

unconscious attitudes & beliefs, unaware gut reactions and subconscious feelings, behaviours & judgement towards people



can directly affect our outcomes, success and well-being at different workplaces, networks, societies, groups, etc.

Conservation and ecology research tackles global issues without global input

The data would benefit from being more inclusive.

BY ELLIE SHECHET | PUBLISHED MAR 3, 2021 6:16 PM

ENVIRONMENT

SCIENCE

50 Years of Children Drawing Scientists

When girls don't see women as scientists, they may not see their future selves as scientists, either—but teachers can make a difference.

By Youki Terada
May 22, 2019



How Implicit Bias and Lack of Diversity Undermine Science

The first step toward fixing the culture of STEM is recognizing that it's broken

By Kuhlshütt on December 17, 2018

Comment | [Published: 26 November 2018](#)

How the entire scientific community can confront gender bias in the workplace

[Kathleen E. Grogan](#)

[Nature Ecology & Evolution](#) 3, 3–6 (2019)



Implicit Bias

= unconscious/unacknowledged preferences that can affect our beliefs or behaviors

Just to name a few...



“Companies ranking highly for **gender diversity** performed 16% better, and those with greater **ethnic diversity** performed 35% better than lower ranking organisations”

Harvard Business Review, 2016

Forbes

LEADERSHIP STRATEGY

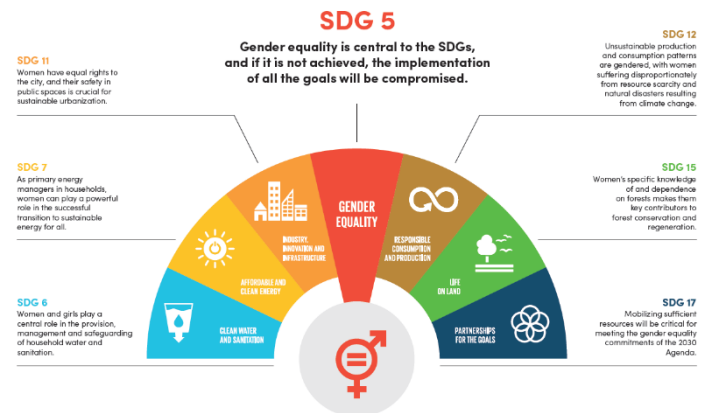
Diversity Confirmed To Boost Innovation And Financial Results

“Companies with above-average diversity produced a greater proportion of **revenue from innovation** (45% of total) than from companies with below average diversity (26%). This 19% innovation-related advantage translated into overall **better financial performance.**”

Forbes, 2020

„Gender equality is central to the SDG's, and if not achieved, the **implementation of all the goals** will be compromised“

UN Women, 2019



TURNING PROMISES INTO ACTION:
GENDER EQUALITY IN THE 2030 AGENDA FOR SUSTAINABLE DEVELOPMENT

More diverse =



Maas et al, 2020
– Nature Ecology & Evolution

DEI =

Diversity, Equity & Inclusion



Just another talk on DEI?



We all have implicit biases. So what can we do about it? | Dushaw Hockett |

TEDxMidAtlanticSalon

358.670 Aufrufe • vor 4 Jahren

TEDx Talks

Dushaw Hockett is the founder and Executive Director of Safe Places for the Advancement of Community and Equity (SPACES), ...

4:54 So the science of implicit bias would say that those associations that you just made those aren't mere verbal associations thos...



Implicit Bias -- how it effects us and how we push through | Melanie Funchess |

TEDxFlourCity

462.599 Aufrufe • vor 7 Jahren

TEDx Talks

This talk was given at a local TEDx event, produced independently of the TED Conferences. Everyone makes assumptions about ...



How to Outsmart Your Own Unconscious Bias | Valerie Alexander | TEDxPasadena

514.242 Aufrufe • vor 3 Jahren

TEDx Talks

The human brain is a remarkable achievement in evolution. Unfortunately, the brain activity that kept the human species alive for ...



Implicit Bias, Stereotype Threat and Higher Ed | Russell McClain |

TEDxUniversityofMarylandBaltimore

54.052 Aufrufe • vor 3 Jahren

TEDx Talks


Russell McClain examines the role of implicit bias and stereotype threat - the fear of confirming another's biased views - in ...



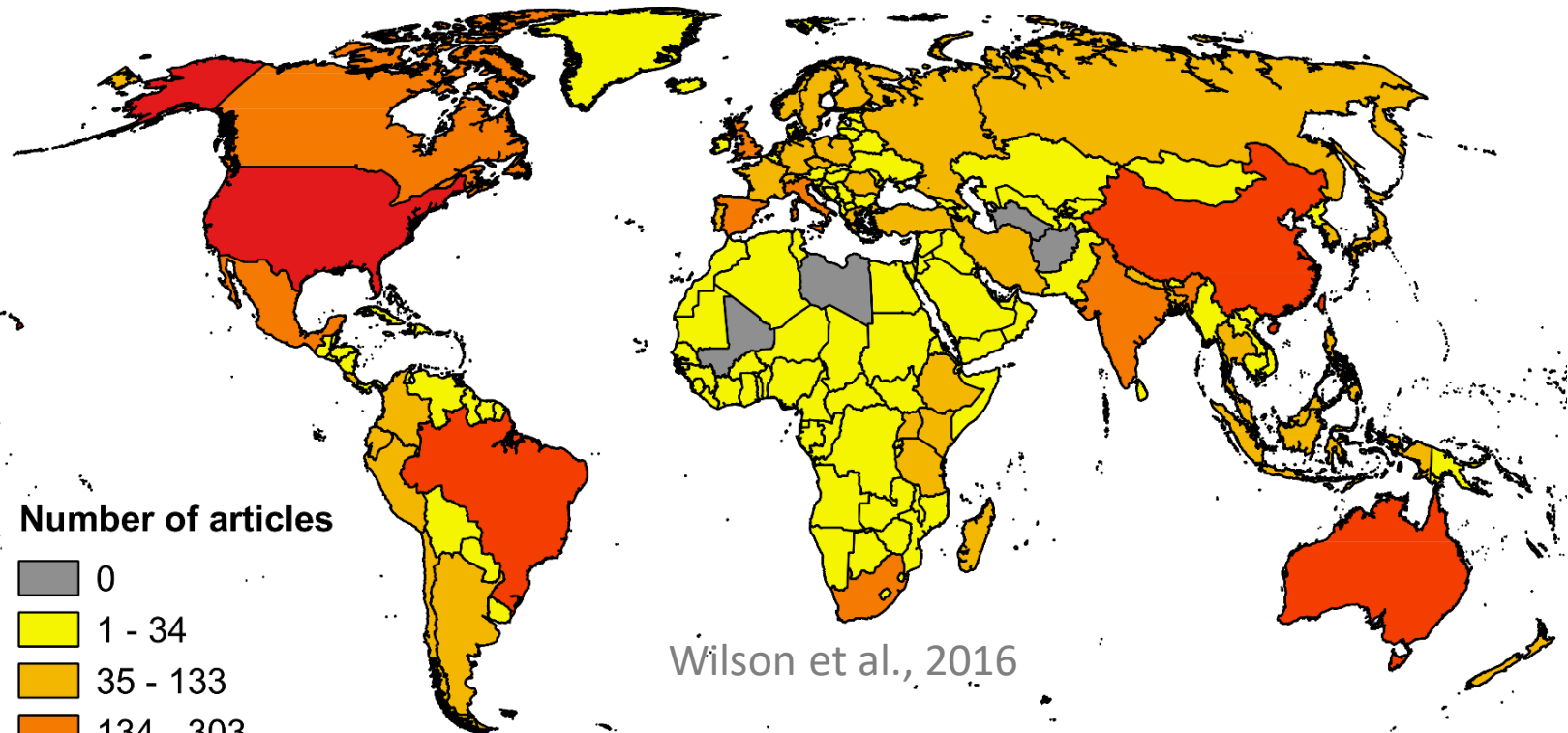
Stereotype Threat | Blacks Are Not As Intelligent as Whites | Excessive Cognitive Load

3 Stellen

Conservation Research Is Not Happening Where It Is Most Needed







Kerrie A. Wilson , Nancy A. Auerbach, Katerina Sam, Ariana G. Magini, Alexander St. L. Moss, Simone D. Langhans, Sugeng Budiharta, Dilva Terzano, Erik Meijaard

Published: March 29, 2016 • <https://doi.org/10.1371/journal.pbio.1002413>



Wilson et al., 2016

Number of articles

-  0
-  1 - 34
-  35 - 133
-  134 - 303
-  304 - 1000
-  > 1000

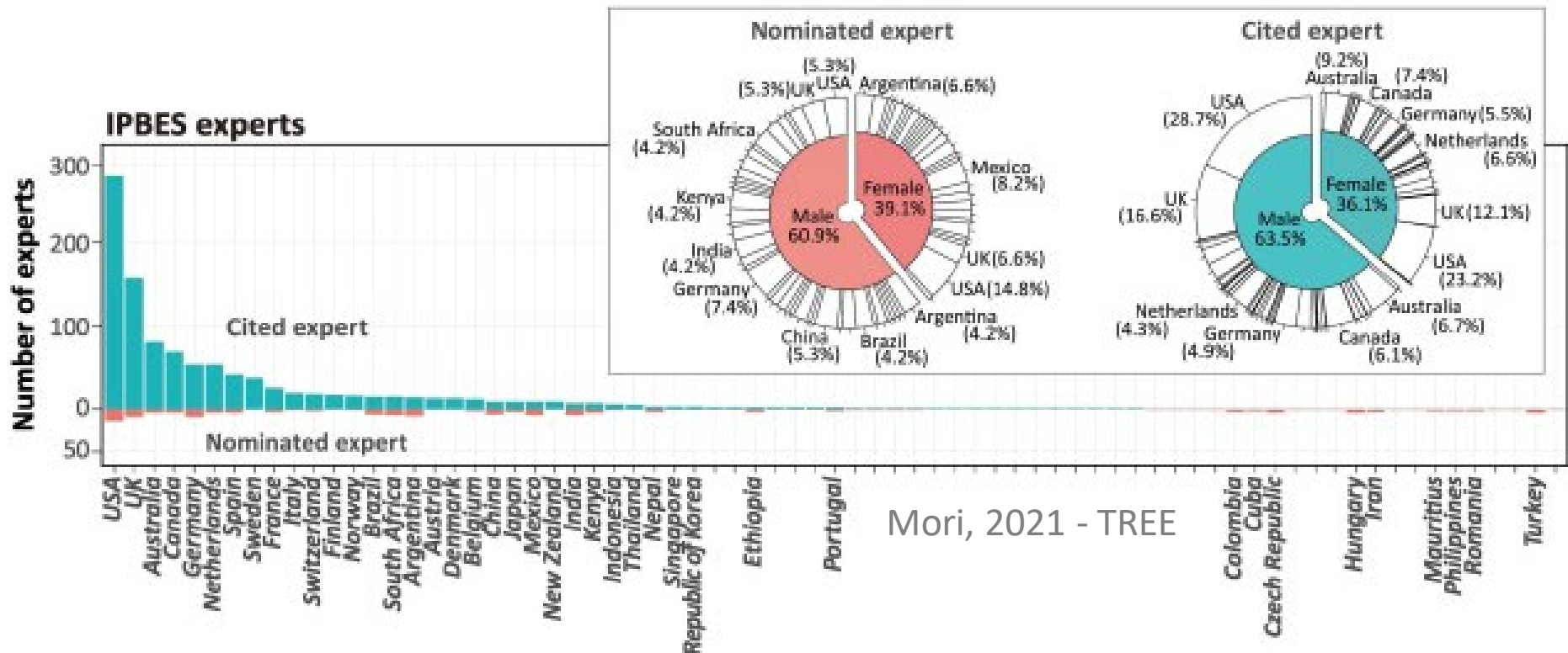
- comparatively less research from most biodiverse countries
- science in these countries is often not led by researchers based in-country
- scientists are also underrepresented in important international fora

Diversity, equity, and inclusion in academia to guide society

Akira S. Mori  

Published: November 12, 2021 • DOI: <https://doi.org.uaccess.univie.ac.at/10.1016/j.tree.2021.10.010>

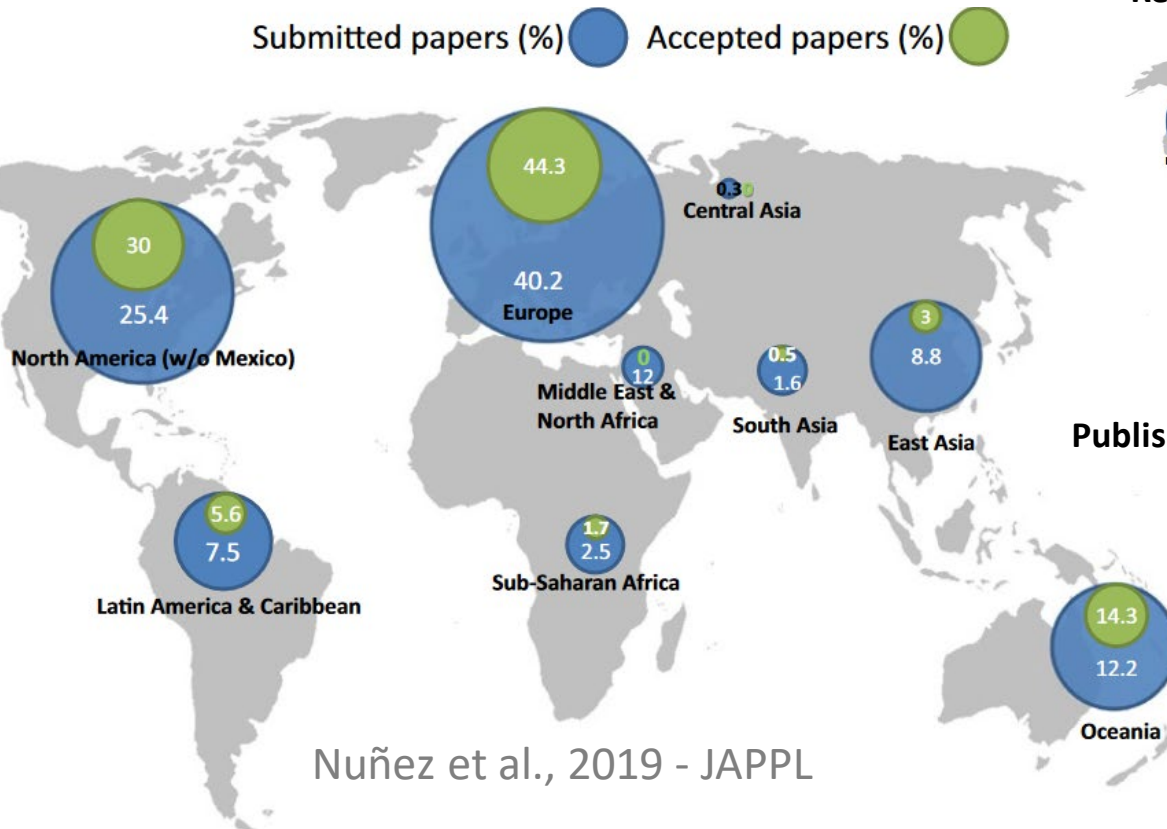
- IPBES assessments include strong gender & geographic bias
- Same for IPCC and many other global policy efforts
- Bias occurs both in nominations and in citations



Assessing the uneven global distribution of readership, submissions and publications in applied ecology: Obvious problems without obvious solutions

Martin A. Nuñez ✉, Jos Barlow, Marc Cadotte, Kirsty Lucas, Erika Newton, Nathalie Pettorelli, Philip A. Stephens

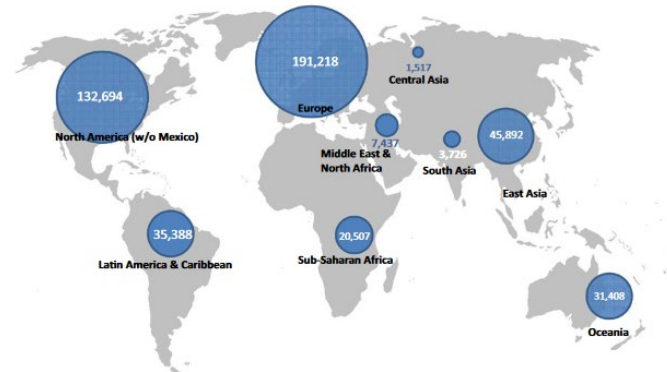
Submitted papers (%) ● Accepted papers (%) ●



Nuñez et al., 2019 - JAPPL

→ Global distribution of Journal of Applied Ecology articles (2015-2017)

Readership (accessed papers 2015-2017)



Published papers per mill. people (2015-2017)



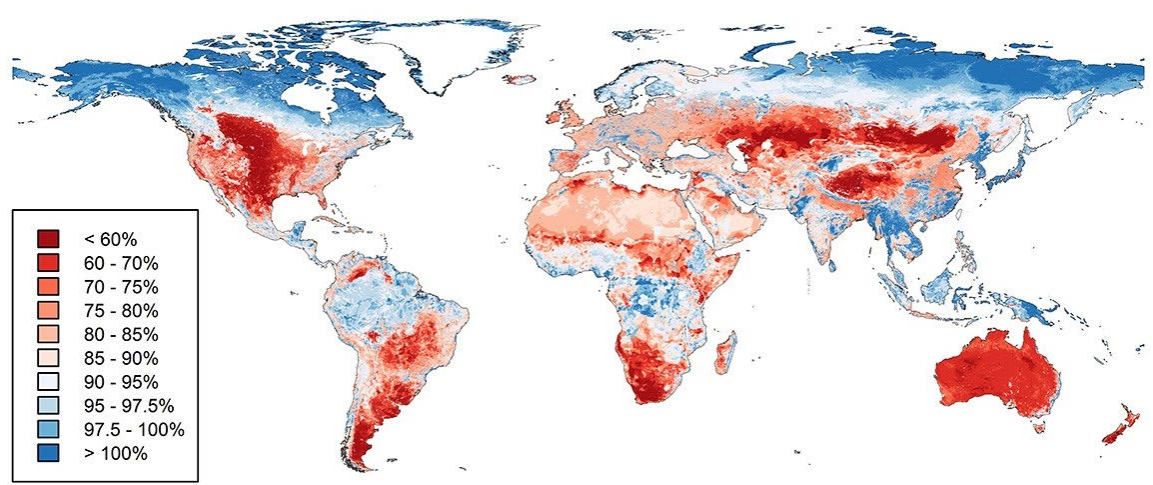
*“...the almost complete lack of representation from certain regions is deeply concerning and a problem that **does not have any simple solution.** (...) Ultimately, to create change, the entire scientific community, as well as national and international funders, **need to prioritize global inclusion**”*

DIVERSITY

The backbone of resilient ecosystems

Species diversity loss has reached unsafe levels across 58% of the world's land surface

*Newbold et al.
2016/Science*



Reconciling requires diversity
*e.g., Maas et al.
2019/BiolCons;
2020/Nature EvoEvo*



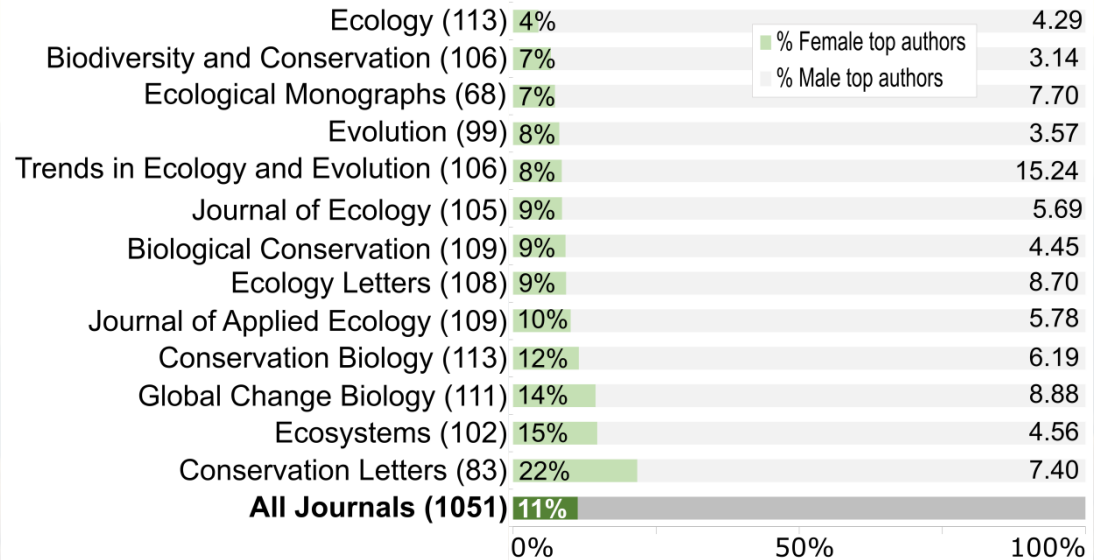
How diverse is the author- and leadership in ecology & conservation?

DIVERSITY IN ECOLOGY

Who are the top publishing authors?

METHODS:

- ✓ Selected 13 leading ecology journals (IF-based)
- ✓ Identified top publishing authors (~100/journal; WoS)
- ✓ Analysed ratios and trends (1945-2019)



**excluded some journals due to focus on original research/papers*

Maas et al, 2021 – Conservation Letters

DATA: 1051 top publishing authors
+ binary gender + country/affiliation
+ author position + citations + GDP/capita/country-pop.size

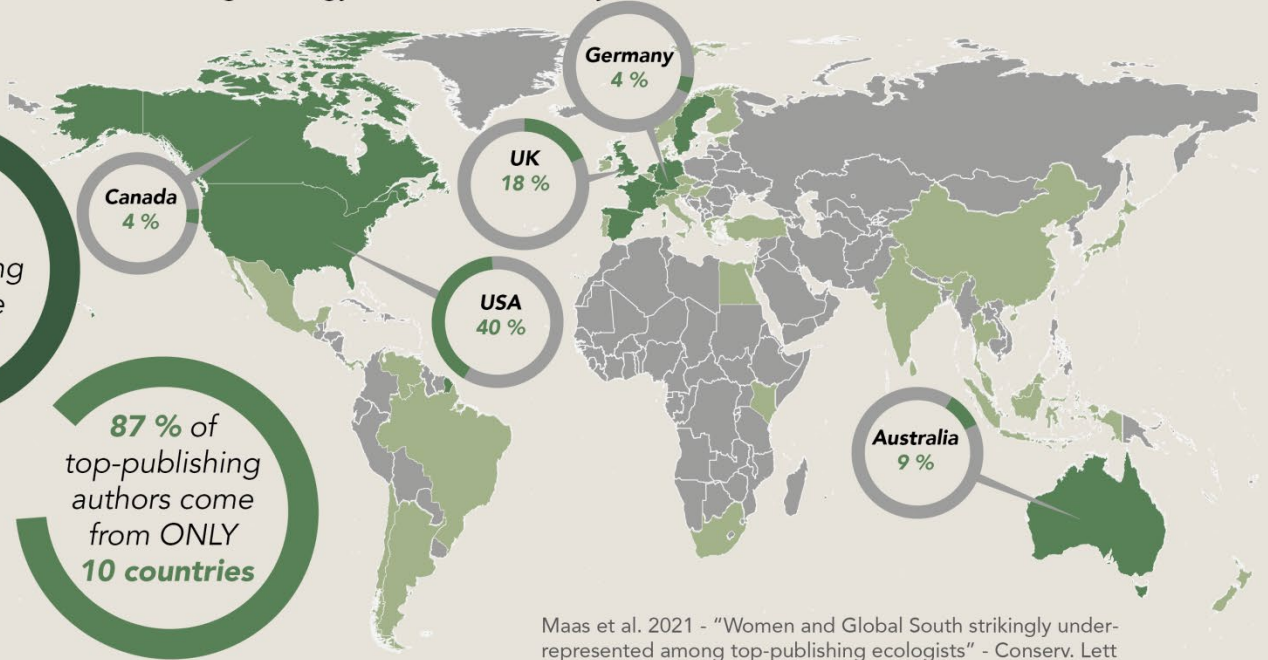
Total list of top authors: 11% women; > 75% from only 5 countries!

RESULTS

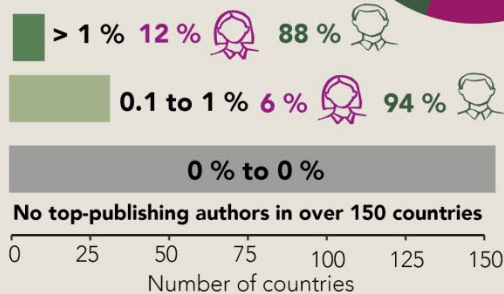
Gender and geographic bias among top authors

Lack of diversity among top-publishing ecologists

The study examined the gender and affiliations of 1051 top-authors, those scientists with the most publications in 13 leading ecology and conservation journals [1945 - 2019].



Proportion of top-publishing authors by country



Maas et al. 2021 - "Women and Global South strikingly under-represented among top-publishing ecologists" - Conserv. Lett

Reasons for and changes of biases over time?

RESULTS

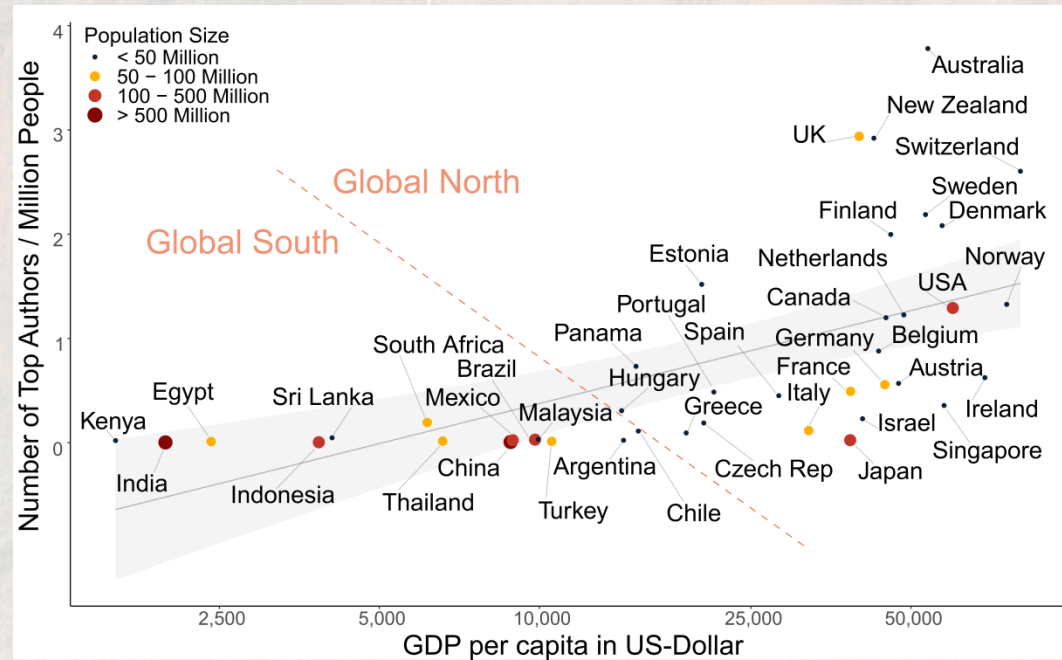
How does bias change?

OVER TIME: Women & minority countries (<2% TPA)

	♀	🌐
1945-1959	3%	3%
1960-1974	2%	3%
1975-1989	7%	8%
1990-2004	13%	20%
2005-2019	18%	25%
1945-2019	11%	17%

Significant changes in color (Chi2)

GDP/capita ~ no. of TPA (standardized by country pop. size)



- ❖ Proportions of groups NOT related to journal identity or journal age
- ❖ Male TPA published more papers in more journals, more single-authors

Some factors are more straightforward than others...

RECOMMENDATIONS

Promoting diversity & inclusion in ecology

Towards a Diverse and Inclusive Scientific Leadership

10 Key actions

1. Increase diversity and inclusion among collaborators and co-authors

2. Recommend new editors from under-represented groups (e.g. women) and under-represented countries



3. Promote team's ethnic and geographic diversity

4. Use alternative metrics in recruitment and promotions

5. Support scientist on parental leave

6. Identify, create and evaluate measures for enhancing and safeguarding inclusive scientific communities



7. Commit to current ethical guidelines

8. Increase editors from diverse backgrounds and under-represented groups and guidance on inclusive behaviour

9. Editorial boards should promote diversity, equity and inclusion

10. Increase transparency of publishing process (i.e. editor and reviewer assignment)



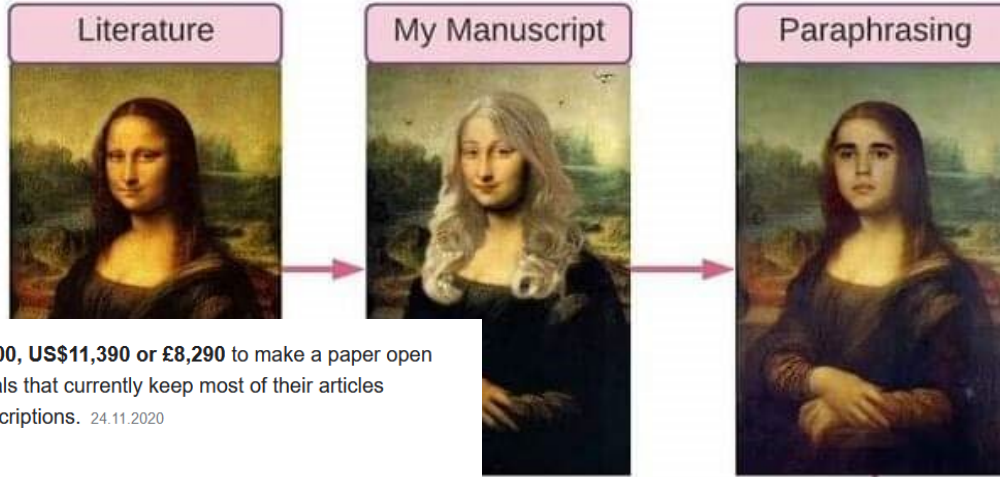
Academic leaders are assigned based on high publication rates

Leadership in academic societies is related to high publication rates

Maas et al. 2021 - "Women and Global South strikingly underrepresented among top-publishing ecologists" - Conserv. Lett

... and should be implemented immediately in scientific best practice

BIASED PUBLISHING PROCESSES



From 2021, the publisher will charge €9,500, US\$11,390 or £8,290 to make a paper open access (OA) in Nature and 32 other journals that currently keep most of their articles behind paywalls and are financed by subscriptions. 24.11.2020

<https://www.nature.com/news>

Nature journals reveal terms of landmark open-access option

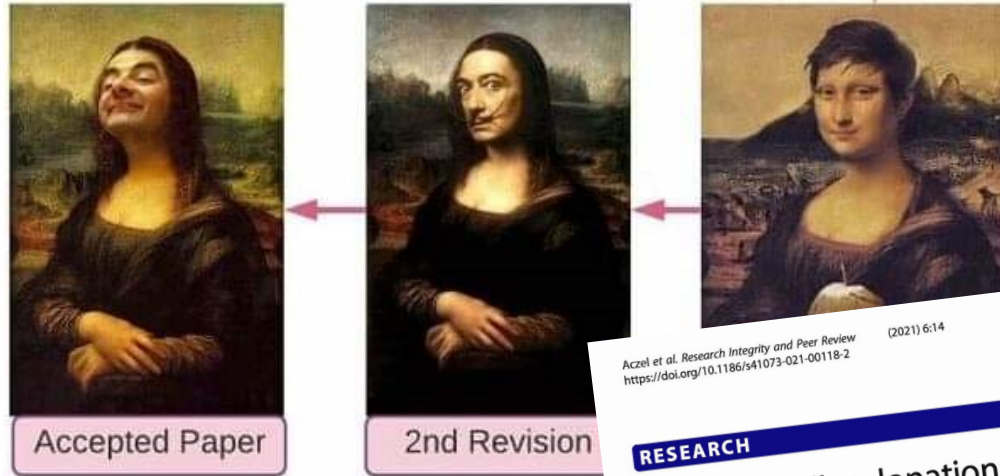
Dr. Glaucomflecken
@DGlaucomflecken

Nature does open access

Tweet übersetzen

3,6M Mal angesehen

19.10.21 Jan. 22 · Twitter Web App



Aczel et al. *Research Integrity and Peer Review*
<https://doi.org/10.1186/s41073-021-00118-2>

(2021) 6:14

Research Integrity and Peer Review

RESEARCH

Open Access

A billion-dollar donation: estimating the cost of researchers' time spent on peer review

Balazs Aczel^{1*}, Barnabas Szasz^{1*} and Alex O. Holcombe²

Nic DiPalma @NicD... · 05. Sept.. 20

Antwort an @iamscicomm

So hard to choose...

- Diversity, **inclusion**, equality
- Kill 'publish or perish'
- Greater funding [accessibility]
- End **paywall** journals
- Bigger budget for communication
- Free donuts

Jade Barclay 🌈 · 04. Dez.. 20

"How can I tell a tuberculosis patient... that I will pay more than 100 times her/his treatment to **publish** the study results?"

Nature's commitment to diversity & **inclusion**.. of those who can afford it??
Hmm

(Funny seeing this behind Forbes' new **paywall**)

forbes.com/sites/madhukar...



ASSESSMENT & EVALUATION

How diverse is (y)our community?

❖ **Self-Assessment** – e.g.,

- Check author ratios
- Check hiring ratios
- Take Tests (Harvard IAT)
- Take Trainings (Services)

❖ **Key tasks** – e.g.,

- Alternative metrics
- Equal opportunities
- Transparency
- Climate Surveys

4. Evaluate

1. Self-Assess

Transparency

2. Develop

e.g.,
double or
triple blind
reviews;
boards;
roles

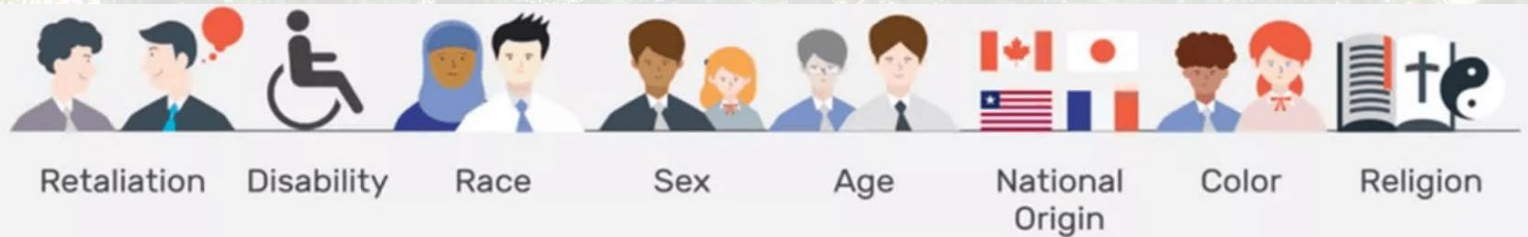
3. Implement

New practices should be accompanied by measures and evaluation

DIVERSITY ACROSS ALL LEVELS

Giving credit where credit is due

- ❖ **More diverse teams are more productive, innovative and impactful**
(e.g., Jimenez et al. 2019/Nature Eco Evo; Maas et al. 2020/NatureEcoEvo)
- ❖ **Biased top authorship may lead to biased leadership**
(e.g., Moher et al. 2018/PlosBiology; Potvin et al. 2018/PlosOne)
- ❖ **We are missing essential perspectives!**
(e.g., Maas et al. 2019/BiolCons; Nuñez et al. 2019/J.Appl.Ecol)



→ **Interdependency of SDG's** (e.g., Nash et al. 2020 - One Earth)

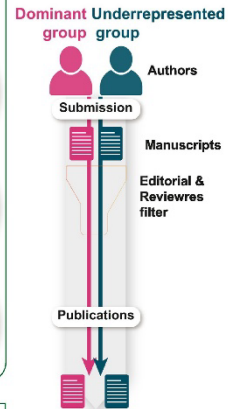
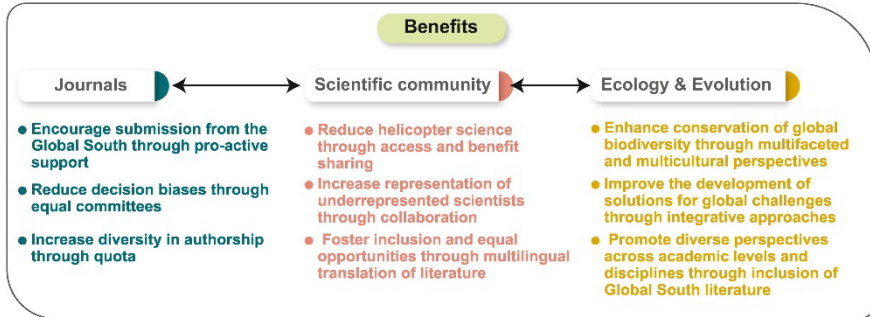
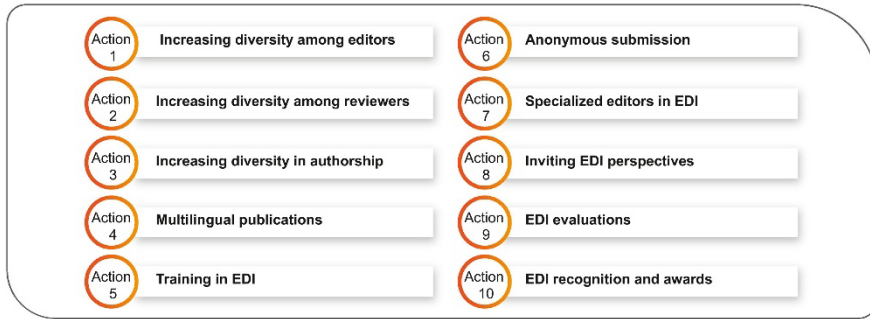
Recommendations for making editorial boards diverse and inclusive

Hayat Mahdjoub¹ @ , Bea Maas² @, Martin A. Nuñez^{3 4} @, Rassim Khelifa^{5 6 7} @

- attracting a wider readership
- enhancing diversity among authors
- overcoming biases in editorial decisions

Mahdjoub et al, 2022 – Trends Ecol. Evol.

Ten actions to promote Justice, Equity, Diversity and Inclusion (EDI) in editorial boards



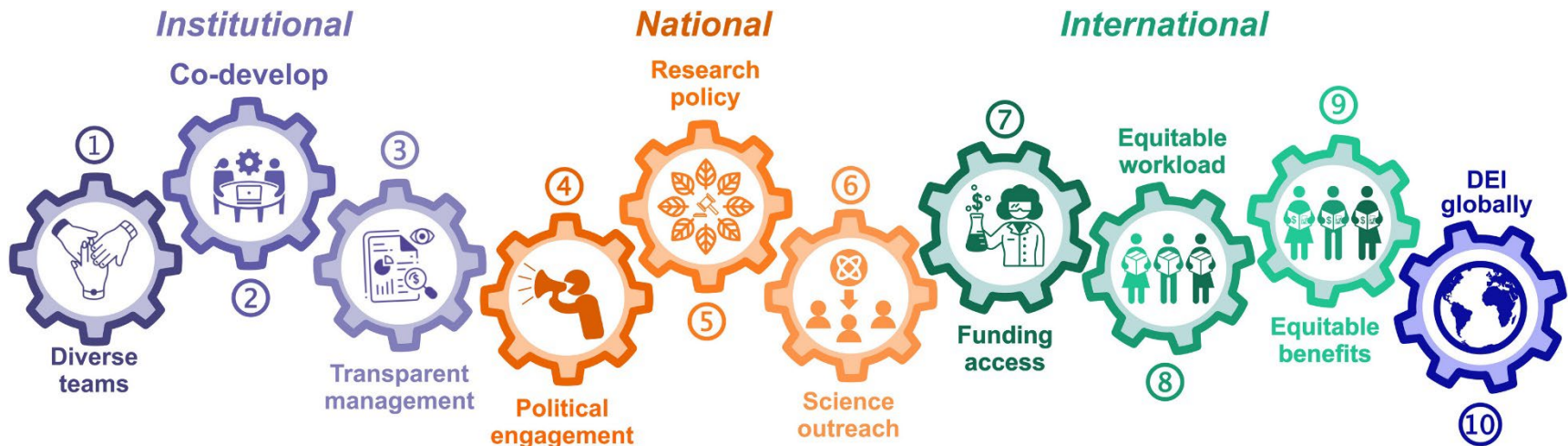
Essays and Perspectives

Global South leadership towards inclusive tropical ecology and conservation

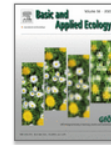
Carolina Ocampo-Ariza^{a b}, Manuel Toledo-Hernández^{a c}, Felipe Librán-Embido^{d e}, Dolores Armenteras^f, Justine Vansynghel^g, Estelle Raveloaritiana^{a h}, Isabelle Arimond^b, Andrés Angulo-Rubianoⁱ, Teja Tschardt^a, Valeria Ramírez-Castañeda^{j k}, Annemarie Wurz^{a l}, Gabriel Marcacci^{b m}, Mina Anders^a, J. Nicolás Urbina-Cardonaⁿ, Asha de Vos^{o p}, Soubadra Devy^q, Catrin Westphal^b, Anne Toomey^{r s}, Sheherazade^t, Yolanda Chirango^u...Bea Maas^{a v}

Ocampo-Ariza et al, 2023 – Persp. Ecol. Cons.

- Limited Global South participation and parachute science hampers tropical ecology
- Tropical conservation practices must be led by local researchers and stakeholders
- International research must provide equitable workloads and recognition to Global South researchers



→ Recognition of science in the Global South may improve through outreach.



“To address these complex challenges and optimize use of related opportunities, we need to promote not only cross-disciplinary research, but also diversity and inclusion in science and society.”

INVITED VIEWS IN BASIC AND APPLIED ECOLOGY

Cross-disciplinary approaches for better research: The case of birds and bats

Bea Maas ^{a, b, ✉}, Carolina Ocampo-Ariza ^{b, c}, Christopher J. Whelan ^d

Individual success

(e.g., Individual scientists, practitioners, and stakeholders)

- Ind. with different interests and perspectives feel their expertise and experience is valued and included in sustainable development
- Ind. have higher motivation to contribute to processes
- Ind. benefit from internal and external successes of cooperation

Internal success

(e.g., Universities, NGO's and other organizations)

- Improved supportive relationships between disciplines
- Common integrated project goals and results, enhancing long-term lasting collaborations
- Mutual respect, shared understanding & improved inclusion

External success

(e.g., Funders, press, local and public communities)

- Increased awareness towards disciplinary values and evidence through more effective communication between disciplines
- Improved designs to achieve sustainability synergies through the integration of multiple disciplinary methods and project goals
- Enhanced quality, applicability and impact of results due to higher individual motivations and related internal benefits
- Expanded opportunities for funding across different disciplines

Increased level of integration

Transdisciplinary
Interdisciplinary
Multidisciplinary
Disciplinary



Nash et al.,
2019 -
OneEarth



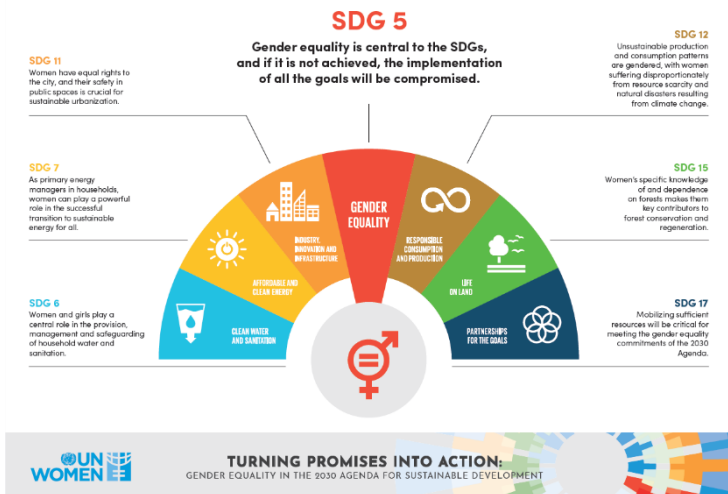
Maas, Ocampo-Ariza & Whelan, 2022 - BAAE

Career advise?!

- Believe in and develop your own profile
- Combine focus and flexibility
- Know your possibilities and rights
- Act professionally and stay true to yourself
- Pay attention to diversity at all levels



Maas et al. – Nature EE – 2020



"Describe what you can bring to this company."

THANK YOU!

Looking forward to your questions

Contact:

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- Assoc. Editor at BIOC & PECON

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