

# Glass Ceilings and Institutional Biases

A CLOSER LOOK AT BARRIERS FACING WOMEN IN SCIENCE AND TECHNICAL FIELDS

By Jessica A. Homyack, Sara H. Schweitzer, and Tabitha Graves



Credit: Michelle Salsman

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In a recent study, researchers asked faculty in the sciences to review an application package for a student applying for a lab manager position. The reviewers rated packages that were identical, with one exception—the name of the applicant, which was either “John” or “Jennifer.” Reviewers were more likely to hire, collaborate with, and mentor “John” regardless of reviewer gender (Moss-Racusin et al. 2012). They would also offer “John” a higher starting salary. These results, and similar studies from other fields, illustrate the subtle biases women face in the workplace from both men and women. They also reveal inherent biases we all possess, while providing suggestions to overcome obstacles that keep women from advancing into leadership positions in the wildlife profession.

## What Research Tells Us

When we began exploring literature about women in wildlife and other closely related professions such as zoology and biology, we identified several barriers

in our profession—many of which we had faced. From receiving limited institutional support during and following pregnancy to facing a challenging transition in becoming a working parent, some situations were not only stressful but even precipitated a change in position. Still, we love our chosen career and strive to improve conditions.

As scientists, we decided to address the issue by reviewing the literature—rather than relying on anecdotes—and summarizing the latest research on biases and barriers to women in wildlife and closely associated professions across employers. The amount and depth of research on the topic varied widely across institutions. Research was particularly sparse for non-governmental organizations, state agencies, and consulting firms. Most research also assessed broader groups such as women in science rather than specific institutions within wildlife biology such as academia or a particular federal agency. We combined these and examined [64 relevant published reports and peer-reviewed papers](#). Below are highlights of our findings:

**Salary and Leadership.** In our research we found that although reports of overt discrimination have decreased over time (Ceci and Williams 2011), gaps between men and women still exist, particularly relative to salary and representation in leadership positions (McGuire et al. 2012). Across all institutions, women, on average, have lower salaries than men, but salaries are more equitable in state and federal agencies where this information is public and often available online or in libraries (GAO 2002, Reese and Warner 2012). Negotiating for a fair salary is more difficult when you don’t know what your peers are being paid.

Further, although more women than ever are obtaining Ph.D.s, those in upper leadership positions such as department heads, deans, and agency directors are few and far between (Kerr et al. 2002). This pattern also exists in The Wildlife Society (TWS), which has had only two female presidents

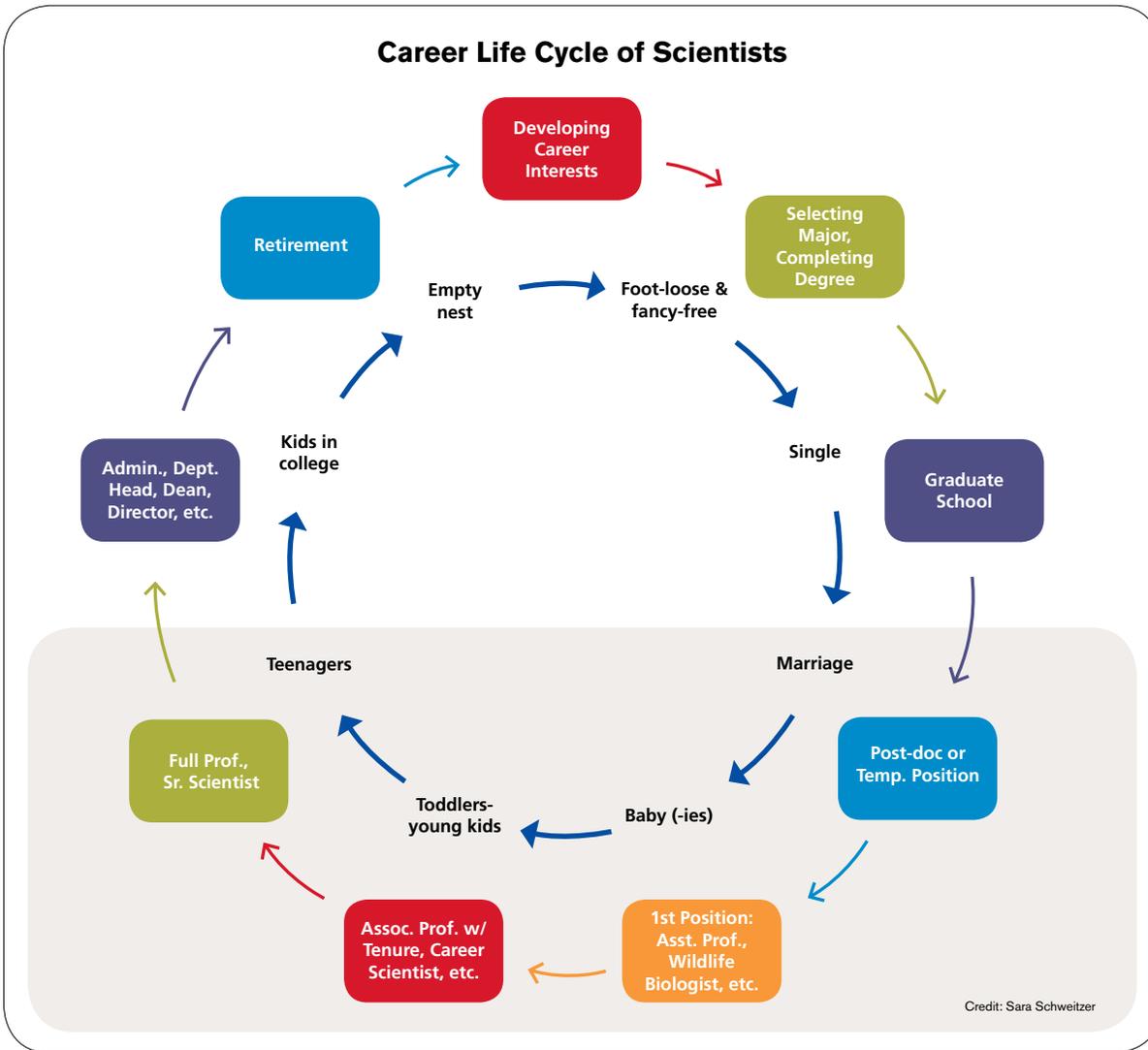


Credit: Jessica A. Homyack

Post-doctoral research assistant Kristen Lucia-Simmons studies the effects of biofuel production on rodents. Women in academia often face challenges when starting a family: For post-docs, only 23 percent of surveyed research universities provide unrestricted, paid maternity leave while 12 percent provide subsidized childcare (Ehm and Johnson 2013).



## Career Life Cycle of Scientists



Overlap between career development and major life events occurs throughout the life of a wildlife biologist, but some of the greatest tension between the two occurs in early- to mid-professional stages. For example, as young professionals begin to start families, they're often offered their first jobs as assistant professors or wildlife biologists—demanding roles. Research shows that household chores still fall disproportionately to women, often limiting their ability to advance in their careers.

and only 10 percent female TWS fellows. However, numbers of women in TWS leadership positions are increasing, with three women serving as section representatives and two of three editor-in-chief positions currently filled by women. We view this increase as a great improvement, but recognize that a gender discrepancy exists in the membership (Nicholson et al. 2008).

In some cases, women are now facing a glass wall instead of a glass ceiling, where movement upward is inhibited by the challenge of getting a breadth of experience that comes from working on many different projects, potentially in multiple roles or in different locations (U.S. Merit Systems Protection Board 2011). For example, women may not be recruited, asked to change positions, or gain managerial experience, which further limits future professional growth. In addition to not being offered opportunities as a result of implicit biases, women often do not see or accept advancement opportunities that are readily available to them, sometimes because of real or perceived

conflicts with family life, lack of self-confidence in abilities, or because of lack of knowledge about available options. In her best selling book "Lean In," Facebook Chief Operating Officer Sheryl Sandberg urges women to think of their career paths as a jungle gym rather than a ladder, with multiple, nonlinear pathways leading to the corner office (Sandberg 2013).

**Family Life.** The literature we reviewed identified limited opportunities for advancement and significant life events as two primary drivers slowing progress of women in the workplace. The study that had reviewers rate job applications illustrates one key factor limiting opportunities for advancement of women—implicit biases. Most of us grow up associating women with family and men with career. Even if we value equality, both women and men can unintentionally make decisions that play into these implicit biases and limit women's opportunities for advancement. Shelley Correll, a professor at Stanford University's Department of Sociology, says stereotypes like these are a natural shortcut to

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help us make decisions more quickly, but can lead to poor decision making, particularly if we choose a less qualified individual over a more qualified individual for employment or collaboration.

Many studies also reported that significant life events such as having and raising children are well-described barriers to both recruiting and retaining women in the sciences including the wildlife profession (Ceci and Williams 2011, Ehm and Johnson

to embark on marriage and starting a family (see graphic on page 49). Hence, stresses of concomitant demands often result in nascent professionals dropping out of the career track completely or for an extended period of time.

Parenthood comes with a greater cost to women than men. Women with children were less likely than men with or without children to obtain tenure in academia or be promoted to higher, leadership positions (Ceci and Williams 2011, Goulden et al. 2011). Women who remain employed often face declining fertility and have fewer children than planned, particularly when they wait to begin a family until after obtaining tenure, career status, or other promotions. Although many organizations are slowly incorporating more family friendly policies into their structure—such as paid parental leave and flexible work hours—women generally provide the greatest amount of care for children or elderly parents in the household. Housekeeping, shopping, and other errands also continue to fall disproportionately on women’s shoulders (Schiebinger and Gilmartin 2010).

**Dual Careers.** Women in natural resources were also more likely to have a spouse in the same field or profession (Kennedy and Mincolla 1985, Primack and O’Leary 1993). Trying to find two rewarding and challenging positions in the wildlife field in the same location can be extremely difficult, particularly in rural areas where job opportunities are limited. Often, women trail their spouse, potentially accepting temporary or non-tenure track positions, or even dropping out of the profession. Institutional support for dual careers is rare outside of academia, and can be frowned upon as nepotism in the private world. For many couples, dual-career issues arise even before the first professional job as they search for graduate programs that meet both of their needs. Unfortunately, graduate students and sometimes post-doctoral researchers rarely have access to institutional faculty resources, although strategies exist for partners to sell themselves as an opportunity rather than a “two-body problem” (Homyack and Gorman 2009, Ehm and Johnson 2013). Wini Kessler, one of two former female presidents of TWS, suggests that the term “dual-career family” is often a misnomer. “Many of my peers have dual careers as homemaker and wildlife professional, and their spouse has a job too,” she says. “That’s a tri-career family!”



Credit: The Kalcounis-Rueppell Lab

Matina Kalcounis-Rueppell (left)—a biology professor at the University of North Carolina-Greensboro—and graduate student Melissa Vindigni remove a bat from a mist net during research on bats and water sources. Research on pay across scientific disciplines shows salaries for men being nearly a third higher than for women across institutions and tenure status (Holden 2001).

2013). We have seen and experienced the difficulties of managing parenthood with a demanding career, particularly in academic departments where female biologists with children are rare. From conducting remote fieldwork while pregnant to finding a way to nurse an infant despite frequent travel, some challenges biologically affect women more than men. As children mature, demands of childrearing change, but remain. Extra-curricular activities, sick days, and assistance with homework replace diapers and bottles and exemplify why a flexible work schedule can be so important to parents. Further, many of these life event challenges occur during the time of greatest professional growth. For instance, the period of time from graduate school to the first large promotion, such as receiving tenure, can have a great effect on future salary as well as the professional track taken, and this time period occurs when a person is likely



### Professional Relationships.

Within the workplace, networking and collegiality among co-workers and colleagues builds important connections that help with knowledge transfer, grantsmanship, and promotion to new positions. Some studies have shown that women, already minorities in the wildlife profession, felt excluded from formal events, such as professional conferences, and informal networking opportunities (Etzkowitz et al. 1994, Mason and Golden 2002, Sabharwal 2013). Often such gatherings were golfing outings, hunting trips, or fishing trips to which women were not invited, or that would be difficult to attend due to family commitments.

### Potential Solutions

Reviewing literature on implicit biases allowed us to reflect on why institutions function the way they do and helped identify potential solutions. These include:

**Recognizing biases.** Research suggests we can train ourselves to overcome biases by asking ourselves a few hard questions when choosing someone to work with in any capacity. The trick is to make the decision process transparent by first identifying the qualifications we want in a person for a particular activity, then evaluating people based strictly on those qualifications rather than relying only on our gut feelings about a particular person. One way to learn about the degree of your personal biases about women and science is to complete online evaluations through [Project Implicit](#), a Harvard research project designed to advance understanding of gender and diversity. Our own results suggested we saw stronger associations between women and family than with science and work. Incorporating these types of tests into institutional diversity training, followed by discussions, can build awareness and lead to less biased decisions.

At the institutional level, managers need to remember that their organization's goals can be seen as a business plan. All organizations have a product to produce, whether it is numbers of acres to place in conservation easements, numbers of large grants obtained, or numbers of students graduated. To achieve these goals, we need the best-qualified and



Credit: The Wildlife Society

appropriately trained people on the task. Managers will only have the best and brightest by selecting from the entire pool of people, not a subset created by implicit or overt biases. One successful approach has been to make the decision-making process blind where possible. Malcolm Gladwell, author of the book *Blink*, which addresses various components of decision making, noted that in the classical music world, orchestras went from five to nearly 50 percent women simply by putting up screens during auditions (Rouse and Goldin 2000). A double-blind review process in our wildlife journals would help reduce implicit bias in publishing by removing the structural context for it (Darling 2014).

To attract and keep the best people, institutions and agencies need to provide an environment that promotes their productivity and removes extraneous stressors. Goulden et al. (2009) discussed several family-responsive policies, benefits, and resources some institutions have begun to implement to remove challenges and stumbling blocks or stressors affecting their bright employees and their productivity. Retention-focused policies include incorporating flexibility into work schedules and promotional structure, such as stop-the-clock timelines for life events, as well as on-site and emergency childcare. All of these actions cannot be implemented everywhere, but both men and women would benefit from their availability and would

Wildlife professionals mingle at The Wildlife Society's Women of Wildlife event during the 2011 annual conference in Waikoloa, Hawaii. Such networking opportunities allow women to share experiences with peers and generate professional contacts.



likely experience less stress, be more productive, and be more likely to stay with the institution for the long term, which should benefit institutions in achieving their ultimate goals and objectives.

**Turning to Mentors.** One way to help increase women’s perceived and actual opportunities for advancement can be to provide well-trained and established mentors for new and early-career employees. Mentors can help hone career goals by providing their mentees with valuable professional tips such as negotiation and conflict resolution as well as effective ways to discuss salary and promotions. Mentors and those in institutions’ administration should be well-read in gender studies literature and understand how the sociology of work affects productivity and achievement of goals.

**More research.** We also need well-designed and thorough investigative studies to better understand gender dynamics in NGOs, state agencies, consulting firms, and other institutions that lack research on bias and barriers to women. At the Association of Fish and Wildlife Agencies 2009 conference, state

wildlife directors approved a position statement on diversity needs, prepared by the association’s Diversity Working Group of the Education, Outreach, and Diversity Committee. The statement acknowledged that workforce composition in agencies no longer reflects states’ citizenry, and that diversity of opinion and perspective will make decision-making richer and more effective. The committee is working on a white paper that will provide a well-prepared value and paradigm foundation for diversity in the workplace. Researchers must report similar initiatives so we can better understand diversification efforts and learn about actions that work.

**Networking Opportunities.** Building professional relationships is critical for young professionals learning to navigate advisors, job searches, publishing, and interviews. Groups such as The Wildlife Society’s Women of Wildlife (WOW)—which we’re all a part of—provide mentorship through networking events and other professional activities. WOW has hosted hundreds of people at their events at TWS annual conferences, and in 2013 held a workshop and a symposium where we presented our review of the literature on biases and barriers. We talked about how even small actions—such as complimenting, supporting, and promoting female colleagues—subtly remind us all that women are an integral and talented pool of individuals in the profession. After the symposium several people asked us for guidance and advice about difficult work situations. Additionally, looking around the room at WOW events and seeing our male colleagues and supervisors sent a powerful message that many wildlifera are committed to gender equality and equity.

### Removing Roadblocks

Although barriers still exist for women and other minorities in the wildlife field, we hope that continued progress towards equality in the sciences will speed up as more of us learn how to remove barriers and both individual and institutional changes are implemented. We anticipate that the continued growth of WOW, ongoing projects of the Ethnic and Gender Diversity Working Group, and strong commitment from TWS leadership to adapt to evolving membership will accelerate positive changes within TWS and the profession as a whole. In the words of Maya Angelou, “Ask for what you want and be prepared to get it.” ■

*This article has been reviewed by a subject-matter expert.*

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