

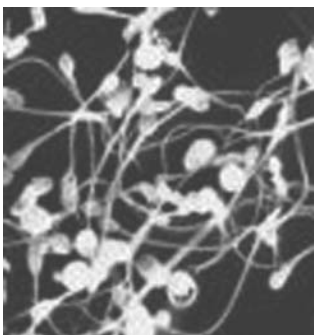
## What We Can and Can't Learn about Biology from Feminism

### Sexual Selections: What We Can and Can't Learn about Sex from Animals.

Marlene Zuk. University of California Press, Berkeley, 2003. 250 pp. \$16.95 (ISBN 0520240758 paper).

The temptation to infer humanlike motivations and thought processes can be hard to resist when watching animals engage in behaviors with seemingly obvious human parallels, such as a courtship rituals. Anthropomorphism, however, can lead to flawed interpretations of animal behavior, particularly when combined with sexist biases and stereotypes. Marlene Zuk, a professor of biology at the University of California, Riverside, argues these points in an engaging, highly readable, and thought-provoking book, *Sexual Selections: What We Can and Can't Learn about Sex from Animals*, now available in paperback. The pitfalls of anthropomorphism are illustrated to great effect with a number of entertaining examples, many of which document a distinct male bias. Zuk argues that feminism can provide anthropomorphist biologists with the intellectual tools needed to cure their bad habits.

In this lively and humorous book, Zuk skillfully highlights the often-missed tendency in biology to view interactions between the sexes from a male perspective. This has led some to the absurd notion that female reproductive concerns are unimportant, or at least uninteresting.



Zuk's book was written to draw attention to this bias, and here the book is at its best, packed with examples of observations by biologists of behavior that challenge sexual stereotypes. This abundance of examples, unfortunately, does rather undercut the other axis of this book—the suggestion that feminism is needed to correct the bias—since many of the contrary observations were made by scientists without an explicitly feminist agenda.

Zuk repeatedly asserts that “feminism has more to offer biology than vice versa,” but the book is not completely persuasive in this respect. It is indeed important, as Zuk suggests, to be “aware of the stereotypes to be able to break them.” Ways of thinking honed by feminists experienced at detecting bias in society at large may be helpful for detecting bias in science. But feminism is an ideology and consequently incorporates not just ways of thinking about problems but also beliefs and biases of its own. So even if, as Zuk suggests, researchers have too often in the past been constrained and biased by male chauvinism, is feminism necessarily the best remedy? Is offsetting one bias with another an aid to objectivity? Zuk showcases the work of many scientists who, like herself, are feminists, but their work is excellent not because they are good feminists but because they are good scientists. Feminism may have helped throw male bias into sharp relief, but biology provided the tools to rectify it.

As for the claim that male chauvinism has hampered progress in biology, some of Zuk's examples are convincing, but others are less so. For example, in chapter 5, “The Care and Management of Sperm,” Zuk examines how research on sperm competition has tended to focus on male adaptations, such as the ability to allocate sperm prudently, rather than female adaptations that might influence the outcome of such postcopulatory competition. In many species, sperm do not seem to survive in the vagina as well as might be expected if sexual reproduc-

tion were an entirely harmonious and cooperative venture. Consequently, some researchers have described the vagina as a “hostile” environment for sperm. Zuk finds this troublesome, and suggests that while it may seem “hostile” from a male perspective, it could equally be described as “selective.” This is not, however, simply a matter of terminology and perspective. “Hostility” can be readily and directly observed, for example, if sperm die more quickly when suspended in vaginal fluid, rather than just seminal fluid. So the vaginal environment may be objectively hostile to sperm, but to describe it as “selective” presumes a function and implies that sperm mortality may be nonrandom with respect to an individual sperm's haplotype or to the male partner's diploid genotype. Selectivity there may very well be, but that is an empirical question that follows from the initial observation of “hostility.”

It is true that not a great deal is known about what happens to sperm inside a female, but the reasons for this, as for many other examples of apparently neglected topics in biology, are probably methodological rather than ideological. It is simply a lot easier to study sperm emitted by, or extracted from, a male than it is to study interactions between, and active manipulation of, sperm within the female reproductive tract. This is most likely why direct evidence of postcopulatory sperm selection by females is scarce across species, and the exceptions tend to emphasize this point. It has been shown that female feral fowl actively eject sperm from lower-ranking males (Pizzari and Birkhead 2000), and there has been some work on the functional significance of the human female orgasm (discussed in chapter 9, “Soccer, Adaptation, and Orgasms”). Not coincidentally, both these phenomena have been studied using as a source of data sperm ejected from females. Sperm are more amenable to study when they are not hidden in ducts and crypts. Some insights into how females

might control sperm usage within their reproductive tracts have been obtained by rapidly freezing insects *in copula* (Hosken and Ward 2000), but such a chilling form of coitus interruptus is obviously not appropriate for all species.

Other supposed examples of male bias may also stem from practicality rather than chauvinism. As Zuk points out, technological innovations such as DNA haplotyping have yielded findings that have challenged the prevailing view that promiscuity is beneficial only for males. This notion grew largely out of observational studies of mating behavior, usually a more important determinant of fitness for males than for females. This does not imply that female behavior is unimportant, but merely that it is more convenient to study overt behavior by males than covert paternity allocation inside females. Developments in methodology have provided the evidence that females do have something to gain from mating with multiple males. For example, there are

possible benefits of extrapair paternity in socially monogamous species, such as “good genes” for offspring or genotypic diversification as a hedge against environmental unpredictability. Feminist scientists like Zuk may be entitled to say “we told you so,” but developments in science, not ideology, have made it possible for them to say it.

Ultimately, although Zuk draws attention effectively to the dangers of anthropomorphism, her message on the role of ideology in scientific research is rather confused. On the one hand, she asserts repeatedly that “feminism has more to offer biology than vice versa,” since it can, for example, help keep science “honest” (by ensuring that it focuses on phenomena that are not merely “sexist spandrels”). On the other hand, she acknowledges that “taking an ideological stance” can actually *prevent* researchers from asking interesting questions. With the benefit of hindsight, we see that male behavior is only half the

story, but it does not follow that what science needed all along was a healthy dose of feminism. In the end, it isn't clear in which direction the majority of insight has flowed. Feminism seems to have more to offer to biologists than to biology itself, but biology clearly has a great deal to offer feminism.

NICHOLAS POUND

*Centre for Cognition  
and Neuroimaging  
School of Social Sciences and Law  
Brunel University  
Uxbridge, UB8 3PH  
United Kingdom*

STEVEN C. JOSEPHSON

*Department of Anthropology  
University of Utah  
Salt Lake City, UT 84112*

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### DO ANIMALS HAVE GENDER?

**Evolution's Rainbow: Diversity, Gender, and Sexuality in Nature and People.** Joan Roughgarden. University of California Press, Berkeley, 2004. 474 pp. \$27.50 (ISBN 0520240731 cloth).

Soon after transitioning as a transgendered woman, Joan Roughgarden, professor of biological sciences at Stanford University, undertook a book-writing project to celebrate and explain diversity in sexual presentation. To do so, she explored all aspects of sexual reproduction, including the sexual behavior of animals, the development of human sex differences, and the varied role that gender plays in world cultures. As she became deeply engrossed, how-