

populated when they begin to industrialize rapidly, three things happen in quick succession to make them heavily dependent on grain imports: grain consumption climbs as incomes rise, grainland area shrinks, and grain production falls...Within a few decades, countries can go from being essentially self-sufficient to importing 70 percent or more of their grain" (p. 11-12). This has already occurred in Japan, South Korea and Taiwan. If the same trends hold true for the nations that contain a good proportion of the world's population, namely, India and China, it is difficult to see where the necessary food will come from. Alarming, China's grain harvests have fallen 70 million tons between 1998 and 2003—a fall in grain production larger than the entire grain harvest of Canada (p. 15).

But the news isn't all bad. There are ways that we can slow or reverse current trends through increased use of alternative energy, slowed population growth through empowerment of women and the eradication of poverty, and by developing new sources of protein. The US can cut gasoline consumption in half over the next 10 years by switching to hybrid engines that are already on the road (p. 127). Wind energy can provide all of the world's energy, and "...North Dakota, Kansas and Texas alone [have] enough harnessable wind energy to satisfy national electricity needs" (p. 129). Unfortunately, efforts to implement necessary changes are occurring unacceptably slow, and government agencies must learn to work together to solve these problems.

I thoroughly enjoyed this book. The author has a clear and concise writing style, and while the book is chock full of facts, the numbers, charts, and examples back up the author's points without overwhelming the reader. An interdisciplinary discussion of ecology, economics, sociology, politics, and history, **Outgrowing the Earth** explores an issue that is of interest to all people, namely, the stability of our food supply. Each chapter focuses on a specific issue such as climate change, population growth or water usage, and

therefore teachers could utilize individual chapters on topics relevant to their class. I would recommend this book for an environmental studies class for college or advanced high school students. It would also be relevant to a global economics class, or for anyone interested in learning about how their food is produced and the problems farmers and politicians will face in the coming years.



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ANIMAL BEHAVIOR

Dr. Tatiana's Sex Advice to All Creation. By Olivia Judson. 2003. Owl Books (ISBN 0-8050-6332-3). 308 pp. Paperback. \$14.00.

Dr. Tatiana's Sex Advice to All Creation by Olivia Judson is a delightful collection of information about the sex habits of many and varied creatures. Judson includes organisms from all kingdoms and branches out to include many different species. This book is not for the stuffy and straight-laced person. It is not politically correct. It IS very informative and quite fun. Judson blends a wonderful alliterative writing style with a great deal of research into her topic.

The book is organized into a series of answers to questions about sex from a variety of different creatures. Answers on several related subjects appear in each chapter. For instance, Chapter One, called "A Sketch of the Battlefield," includes copulation time in stick insects, penis shape in golden pottos, and the sexual antics of bees. Through these three answers, Judson displays some of the varied ways males of different species approach the battle of the sexes. She also includes in each section applicable anecdotes from other species on the same topics. This goes on for 12 chapters.

The last chapter in the book is quite a different format. Until Chapter

13, called "Wholly Virgin", the book was a recreation of articles Judson has written for *The Economist*. The last chapter deals with a fictional television program titled "Under the Microscope—The Deviant Lifestyle Show." This chapter explores the fact that bdelloid rotifers are asexual creatures. The amount of outrage exhibited by the organism audience members brings to mind the *Jerry Springer Show*, which I am sure is what she is modeling this retelling after. It is interesting that she brings in creatures from all walks of life to explain their views on asexual behavior. At one point several *Escherichia coli* expound their views: "For us bacteria, reproduction is reproduction and sex is sex. Unlike you 'higher' creatures, we're not so vulgar as to do both as once" (p. 217). Many other creatures give their views in this segment as well.

This book is not for children. Not, perhaps, even for high school age students. For older college students, it would be fine. But the prospect of having someone be offended by this book is a real one. The book contains information on all subjects involved in sex. At times Judson's language is not at all delicate. For instance, speaking about green-veined white butterflies: "...if their lovers are not virgins, females are even more inclined to promiscuity. Males who've already mated cannot come up with the goods: their sperm packet is a mere half the size of their virgin glory. Females compensate for the loss of nutrients by copulating with other fellows all the more" (p. 43).

If you are in the mood for a well written, informative book about the seamier side of life, this one's for you. I would not recommend it for use in the classroom, especially for younger students. The information is not arranged in such a way as to be useful for research, but it does contain 25 pages of notes and a bibliography that is 36 pages long. Judson does not annotate the chapters in the normal scientific manner; instead she details each piece of information in her notes section.



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