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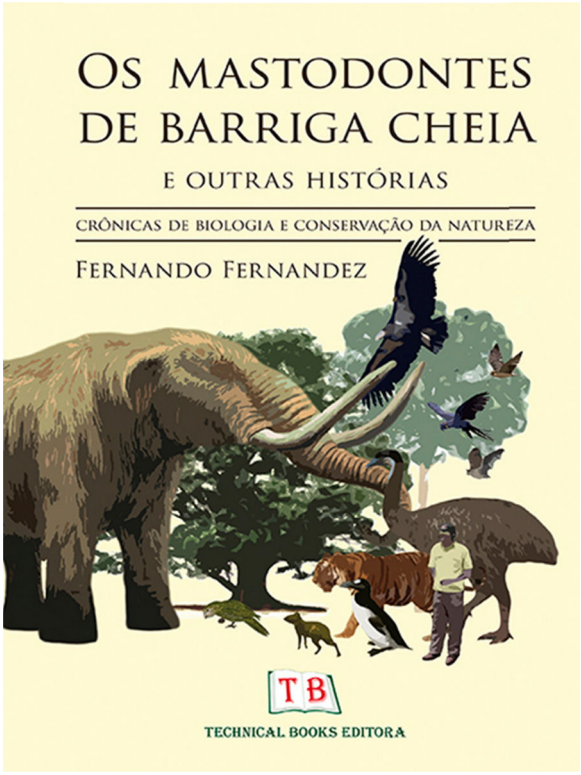
Book Review

So many to so few: new conservation stories and life history tales☆

Fernandez, F. 2016 "Os mastodontes de barriga cheia e outras histórias", Technical Books Editora, Rio de Janeiro (2016). 279 pp., ISBN: 978-85-61368-53-1



It is worldwide acknowledged that popular science writing is quite important to develop young people's curiosity and, thus, stimulate an entire new generation of scientists. Paradoxically, there seems to be not much interest in the scientific community in working along this line, although some changes have been observed in the last few years. Indeed, it is curious that very first attempts to increase popular science writing more than 30 years ago, mainly by Carl Sagan (1934–1996), were academically downgraded, creating what have been even called "Sagan effect": a scientist starts working in popular science writing becomes less and less "productive", reducing the number of papers he or she publishes in top scientific journals (see Martinez-Conde, 2016 for a recent review and discussion on this topic). This would be expected by considering the time necessary to successfully invest in popular science writing to overcome many of our formation and stylistic shortfalls to translate complex scientific topics into understandable and interesting issues. Most of all, of course, one must have talent to do it (as my colleague Rafael Loyola pointed out when kindly reviewing this piece!). Anyway, because popular science writing and outreach will not be well graded in most academic evaluations, afraid of "Sagan effect" may be one of the main reasons why most scientists do not want to "waste time" working on these issues.

However, better than asking if the "Sagan effect" applies or not to a given scientist that becomes interested in science communication and outreach, one should ask whether the cost-benefit of this effect (if it really exists...) is positive or not to the society. Perhaps the benefit to science, in terms of the impact in current and future generation of scientists, will be in some cases higher than the scientific contribution "per se" (i.e. published papers). This is not easy to measure, but it may be worth thinking about.

In Ecology and Evolution, we cannot complain about popular science writing, because we have a nice set of important researchers, many of whom did landmark work in the past that gradually became more and more dedicated to these popularization issues. Stephen J. Gould, Richard Dawkins, Matt Ridley, Peter Ward, Carl Zimmer, Edward. O. Wilson and Jared Diamond, for example, made very important contributions to their research field and, at the same time, wrote books, essays, chronicles, and articles that have been read by several generations of students and researchers worldwide. Of course, there have been some important examples of popular science writing in Brazil (Alexander Kellner in Paleontology, Marcelo Gleiser in cosmology and overall scientific issues, as well as Francisco Salzano and Newton Freire-Maia, two of the fathers of human evolutionary genetics in Brazil, to name just

☆ Review of "Os mastodontes de barriga cheia e outras histórias", by Fernando Fernandez.

a few). It is a pleasure to say that we can definitely add one more Brazilian name to this honorable list, my colleague from the Universidade Federal do Rio de Janeiro (UFRJ), Fernando Fernandez.

Fernando's official debut in science popularization was more than 15 years ago, with the publication "Poema Imperfeito: crônicas de biologia, conservação da natureza e seus heróis" (Editora UFPR/Fundação Boticario de Proteção à Natureza), now in its 3rd edition (Fernandez, 2011). The book had an unexpected success (to use Fernando's own words), suggesting that our society is also eager for novelties and curiosities in ecology, evolution and natural history. The new book by Fernando, "Os mastodontes de barriga cheia e outras histórias" (Technical Books, Rio de Janeiro), confirms his ability and competence in science popularization. In his best "Gouldian" style (and this is a compliment), the book is composed by 30 short essays, divided into six sections ("Históricas", "Conservacionistas", "Gouldianas", "Filosóficas", "Biofílicas" and "Utópicas"), covering a wide range of subjects in ecology, evolutionary biology and biodiversity conservation. The book was published in Portuguese, but it would be wonderful if it could be translated to Spanish and English as soon as possible, increasing the number of potential readers.

By the titles of the section one can see at once the wide range of issues discussed in the essays. It is impossible for me to cover them all, of course, but highlighting some ideas may be helpful here (and it would not be a trivial task to decide which essays to cover anyway). Because of my own research preferences, I am suspicious to talk about the essay that entitles the book, in which Fernando talks about the histological inferences on "demographic health" of the mastodons, reinforcing the overkill hypothesis (i.e. human hunting) to account for the extinction of Pleistocene megafauna. This opening essay sets the tune of the book, showing that conservation issues are not a new stuff and are not only related to our current technological civilization. Paradoxically, for some careless readers, despite the elaborated prose and refined humor in many parts, it is of course not a book with a happy end. The message is clear and the many "case studies" discussed, when integrated across the essays, reveal the current poor state of biodiversity. Evolution is also a topic permeating the essays, particularly strong in the "Gouldian" section (of course), mainly reinforcing that we (*Homo sapiens*) are part of nature ("Nós e eles: Darwin e a conservação" is an excellent example, as well as a chapter on climate change, "As mudanças climáticas e o outrismo"). Two essays challenge the generalized believe in the miracles of sustainable development, and hopefully will make clear to the society that it is not working so well in practice and so it cannot be (at least in its current form) the main, or unique, avenue to solve all problems in biodiversity conservation.

Besides the technical quality of the essays, the book is full of references to classical and popular literature and cultural icons and, of course, fine stories (strongly revealing Gould's influence on Fernando's writing style). I loved to read about the epic travels of Douglas Adams (who is better known by his classic series of books on "The Hitchhiker's Guide to the Galaxy") that resulted in a book, and later in a TV show, about highly endangered species (Adams and Carwardine, 1992), and, moreover, to learn that D. Adams was a good friend of and played with David Gilmour, the famous Pink Floyd guitarist ("Última chance para ler"). At the same time, Fernando goes many times into deep humanistic issues, recalling us that it is impossible to separate biological sciences, economy and humanities when talking about nature conservation. I was particularly impressed by his discussion on José Samarago's perception of nature (in "Concordando em parte com Saramago"), highlighting again the important issue of man's place in nature and leading us to the discussion that to be effective in biological conservation we should move beyond humanism and avoid speciesism (i.e., a term originally coined in the 1970s by the British psychologist and animal rights advocate Richard Ryder, and elaborated in a more evolutionary context by Richard Dawkins) (see also Harari, 2015). In short, what is good for humanity, in a sociological context, is not necessarily and automatically good for nature in general, and we desperate need a better compromise between these "hierarchical" levels to conserve nature. Thinking in the evolutionary continuum is a good way to go!

An important thing to note is that many of the essays in the book are directly linked or based on original research by Fernando's group. Thus, it is safe to say that Fernando did not suffer from the "Sagan effect" (actually, it appears that neither Carl Sagan himself, nor Stephen Gould, suffer from this effect – see Shermer, 2002; Martinez-Conde, 2016). He was just promoted to Full Professor at UFRJ, and keeps working, teaching, publishing high-level scientific papers and supervising graduate and undergraduate students. Currently, he wrote this book when was Head of the Ecology Department at UFRJ. He also gives many talks to different and variable publics, promoting Ecology and Biodiversity Conservation. This observation just reinforces that, despite all difficulties related to pursuing an academic career in Brazil and the little recognition that the government (and sometimes, society as a whole, unfortunately...) gives to professors and researchers, some of our colleagues, not happy only with teaching and doing research, dedicate part of their time to popular science writing and try to publish books or papers whose purpose is to communicate science to the general public.

We must recognize and applaud these scientists that devote part of their precious time to do things like Fernando. If popular science writing has the impact we believe it has in future generations of researchers, I believe we are in debt to Gould, Dawkins, Ward, Wilson, Diamond and all others and, why not, to Fernando. Indeed, it would be fair to apply one of Winston Churchill's famous quotes in this case: "Never was so much owed by so many to so few". I am sure Fernando will appreciate the quote – but that is another story.

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