Editorial

Conservation Science in Brazil: Challenges for the 21st Century

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Conservation Biology, and conservation science in general, is widely recognized as a crisis discipline. In crisis disciplines, urgent actions often need to be taken before full knowledge of facts, so that decisions requires both intuition and best information available (Soulé 1986). This imposes several constraints and creates peculiar characteristics for scientific activities in conservation, which include even the epistemological discussion on how conservation biology can be viewed as science. Assuming that this basic philosophical issue is dealt with, the challenges for conservation scientists include communicating scientific research to stakeholders and decision-makers, and establishing research priorities (and translating those into conservation priorities and policy) that produce relevant and direct impacts on biodiversity conservation.

At the same time, it is clear today that conflicts between conservation and human development must be minimized and compromise solutions are urgently needed (Balmford *et al.* 2001). Conservation challenges become even more demanding when basic conditions to solve these conflicts are not met, such as in developing countries with incipient research traditions and additional restrictions in the application of research results due to political and socioeconomic constraints. Somewhat paradoxically, these countries are usually in tropical regions, in which conservation efforts should be maximized due to a combination of impressive endemic biodiversity and ecosystem threats (Myers *et al.* 2000).

It is also clear that improving conservation will require actions from multiple sectors of society, including the academy, government (at all levels of organizational hierarchy), and the organized society (especially NGOs). For scientists, one of the key questions is how to communicate the results of scientific research with enough background to satisfy the requirements of academic publication and, at the same time, provide the appropriate basis for an open debate between the academy and society.

The scientific journal "*Natureza & Conservação*" (the "Brazilian Journal of Nature Conservation", N&C henceforth) was first published in 2003, focusing on the scientific evaluation of nature conservation and on natural protected areas. Because it was conceived within an NGO (the "Boticário" Foundation for Nature Protection), this interchange was expected to be easily accomplished. Indeed, the journal started to grow and gradually attracted the attention of the scientific community, being indexed in the ISI-Web of Science/JCR in 2008 and now receiving its first Impact Factor (IF = 0.227, in 2010). Despite discussions on the scientometric approach, this is frequently considered one of the most important steps towards achieving good reputation as an international scientific journal.

Now, seven years after its conception, N&C becomes an official journal of the new Brazilian scientific society, ABECO ("Associação Brasileira de Ciência Ecológica e Conservação", the Brazilian Society for Ecological Science and Conservation - www.abecol.org.br). The reformulation of the journal is also combined with a significant change in the journal profile and a reorganization of the editorial board. The main change, however, is the broadening of the scope of the journal, from particular conservation studies and actions applied to protected areas, to scientific studies on conservation at all scales focused on multiple aspects of biodiversity. The new profile of the journal prioritizes publication of studies that use general scientific principles and are of broad conservation interest (rather than descriptive case studies), promoting the integration among researchers working with different environments, groups of organisms and geographical and hierarchical levels, and thus intending to attract attention of readers and contributors worldwide. Our goal is to ensure that papers published in N&C are scientifically sound and, hopefully, may provide solid background for decision-makers

and effective conservation practice. In this new profile, we welcome studies focusing on all levels of biodiversity, ranging from genetic variability to ecosystem and functional levels, and how these can be used in establishing conservation actions integrated in spatial conservation prioritization at distinct geographical scales. Some, indeed most, of these topics are spanned in the papers published in the current issue of N&C.

Of course, it is necessary to move on, and we challenge researchers to show how different levels of biodiversity can be integrated (for instance, how reduction of genetic variability in populations living in a region can trigger more profound biodiversity collapses or affect ecosystem function; or how GIS techniques can be used to find patterns that are good surrogates of some local processes driving biodiversity at multiple levels), and how they can become important in practical conservation decisions and reserve selection. At the same time, it is now more and more important to build scenarios for the future (i.e., climate and other global changes and agricultural expansion), but it is not straightforward to incorporate this dynamic view of the world into spatial conservation prioritization (Araújo, 2009). Hence, we believe future papers published by N&C will develop recommendations for local communities, government and the private sector on conservation strategies that are most capable of enhancing ecosystem services and protecting biodiversity, while at the same time alleviating poverty and providing food security. Papers should propose methods for policy makers to assess socioeconomic and biological impacts of climate and land-use change, development decisions on ecosystems and the people who depend on them, but whenever possible dealing with the trade-offs that may arise when trying to accomplish multiple goals. These are only a few examples of the scientific challenges we think are important in the current days, although additional challenges certainly exist. Investigating such challenges must be among the top priority of scientific research in conservation (see Sutherland *et al.*, 2009), both because they can enhance more of what we know on nature patterns and processes, and because they can be helpful in defining conservation strategies that can protect biodiversity, alleviate poverty and improve life quality for future generations.

To achieve these scientific purposes, we expect that researchers worldwide take note of papers published in N&C, and because of the generality of conservation science published they should be viewed not as case studies of local interest, but rather as examples and models that can be tested or replicated elsewhere. Under this principle, there is no doubt that today scientific papers must be published in English. However, with the mission of integrating different components of the society, N&C will also publish a substantial forum section that will promote discussion of regional conservation topics, and therefore will be published in Portuguese. The forum section will have a relatively short time between submission and publication (something quite important today), and will allow N&C to trigger discussions that are important for our society, such as the one about Brazilian laws and regulations on nature conservation (e.g., Metzger 2010). If authors provide them, English versions of forum papers will be available in the journal's web archival site, and likewise for Portuguese or Spanish versions of scientific papers.

We hope the new profile of N&C will achieve an effective combination of good science and good practice. At least, we hope scientific research published in our journal will stimulate the growth of scientific perception of conservation in society and provide a place for an open intellectual debate on how to improve integration between multiple components of biodiversity and environmental conservation.

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