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Book Review

Book Rewiew; Methods and Techniques in Ethnobiology and Ethnoecology

Albuquerque, U. P., da Cunha, L. V. F. C., De Lucena, R. F. P. and Alves, R. R. N. (Eds.) Springer New York, 2019. pp. 1537. 119.99 € (Softcover) ISBN 978-1-4939-5452-0, 199.99 € (Hardcover) ISBN 978-1-4614-8635-0, 96.29 € (eBook) ISBN 978-1-4614-8636-7.

BOOK REVIEW

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Ethnobiology, first coined by Edward Castetter in 1935 is the study of the biological knowledge of particular ethnic groups - cultural knowledge about plants and animals and their interrelationships (Anderson, 2011; D'Ambrosio, 2014). It is therefore was used to integrate two well established ethnoscience fields - ethnobotany and ethnozoology. Ethnobiology in general, and ethnobotany and ethnozoology, sometimes with ethnoecology, ethnoveterinary, ethnomedicine, ethnomicrobiology as related fields, in particular have recently been popular and a great deal of published data is available both online and printed. Although ethnobiological studies have initially been characterized by descriptive approaches and documentation related with the uses of plants and animals in daily life, it is currently considered to be in an interdisciplinary stage, where the cooperative approaches among researchers from different fields of biological and social areas is sought in order to handle more complex problems that can affect biological and cultural diversity (Sobral and Albuquerque, 2016).

Since its foundation, major advances occurred in ethnobiology but it is still a need for books that can serve as references for most popular and usual approaches as well as the methods of disciplines that interact with ethnobiology. Researchers interested in ethnobiology currently have the opportunity to reach a well-organized reference guide after the publish of the 2nd edition of "Methods and Techniques in Ethnobiology and Ethnoecology" edited by Albuquerque, U. P., da Cunha, L. V. F. C., De Lucena, R. F. P., & Alves, R. R. N. which was built on the 1st edition published in 2014 to fill some of the gaps not covered here. The editors say in their foreword that their intention was that "*each chapter should be a script that would allow the researcher to know each of the methods described in the literature as well as to make the best choices for their own research*".

The book was published to cover a total of 21 chapters organized in 4 parts as ***i)*** Methods and Qualitative Techniques, ***ii)*** Methods and Quantitative Techniques, ***iii)*** Methodological and Theoretical Challenges and ***iv)*** Methods and Techniques of Related Areas with contribution of 78 researchers mainly from Brazil. Brazil and Latin America in whole can be considered the lead in ethnobiological studies, at least in the comparison between Latin America and Asia reported by Sobral and Albuquerque (2016). The authors reports the numerical distribution of studies from 1960s to 2016 and the ratio of Brazil in Latin America studies is 41% with 289 studies, which is very close to the total number of studies in Asia (365 studies).

The first part of the book gives methods and techniques in qualitative research and starts

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with a chapter devoted to a brief discussion about qualitative research, an approach widely used in social sciences to understand the phenomena that involve humans. The rest of the first part continues with topics in designation, quality control and review of a research protocol among which the latter was given a special importance because review of a protocol helps the researcher in understanding if its protocol is appropriate to cover the entire phenomenon that is intended to study. The use of field journals, personal document consisting in recording observations, comments, and reflections for the researcher's individual use, audio and video recording techniques for ethnobiological research, qualitative data analysis and the method of organization and tabulation of qualitative data in ethnobiological research can also be found in this part.

The second part of the book is a detailed reference guide for researchers in Ethnobiology who will find a discussion of quantitative approaches on the use of hypothetico-deductive method (HDM) and univariate and multivariate statistical approaches in ethnobiology research. This part starts with a chapter built upon the idea that practice without theory is blind and unpredictable. The chapter is devoted to provide the way to combine the HDM with statistical thinking to create a diagram that links variables by causal links. The authors of the chapter underline the importance of this in improvement of the scientific method and statistical literacy. The following chapter on multidimensional analyses for testing ecological, ethnobiological, and conservation hypotheses encourages students and researchers to move from a description-based multidimensional analysis to an explicit hypothesis-testing framework that can greatly improve learning and research programs. The rest of this part deals with the use of multivariate tools in studies of traditional ecological knowledge and management systems, the spatiotemporal scale of Ethnobiology and collection and analysis of environmental risk perception data. Within the scope of multivariate tools, the readers can find details of constructing a matrix of ethnoecological data, types and principles of multivariate analyses with special attention to Principal Component Analysis (PCA), Correspondence Analysis (CA), Non-Metric Multidimensional Scaling (NMDS) and Principle Coordinate Analysis (PCoA). It is known that ethnobiological data study at different spatiotemporal scales allows researchers to define the social-ecological patterns and the variables that originate them. The chapter focused on the spatiotemporal scale of ethnobiology lists the newly emerged research perspectives as a result of the conceptual growth at different spatiotemporal scales of ethnobiology and details two of these new perspectives, the application of Meta-Analysis or Meta-Analytical Approach and the Macro-Ethnobiological approach. The second part lasts with collection and analysis of environmental risk perception data, a title which was considered a very useful tool in ethnobiological studies particularly in search for a better understanding of environmental problems perceived and faced locally.

The third part of the book convers chapters on methodological and theoretical challenges of ethnobiology. The first chapter describes the scientific study of relationships which are said to be complex between people and their environment and terms it biocultural ecology as a specific ecological domain. In addition to biocultural ecology, readers can find a discussion about presuppositions about ecology, ethnoecology and about the dissociation between nature and culture, the links between knowledge and actions. The following chapter written with the contribution of ethnobiologists, botanists, ecologists, and archaeologists from several institutions working in the Amazon basin integrates archaeology and ethnobiology. The guidelines and suggestions, and the given examples, for the application of ethnobotanical and ethnoecological methods in archaeological sites are absolutely interesting for all readers. The rest of this part continues with a discussion on methodological challenges

and difficulties in ethnozoological researches and points out suggestions that could be considered on minimization of such difficulties. Bioculture can be regarded as a component of biodiversity which should be paid special attention. The end of the third part starts with a chapter on biocultural collections by which one can document human–nature interactions through plant and animal-based artifacts, raw materials, herbarium voucher collections, and varied forms of documentation. The importance of such collections especially on biocultural conservation, preserving and enhancing traditional knowledge, livelihoods, and the environment is highlighted. The closing chapter is on protocols and ethical considerations in ethnobiological research development and provides an excellent insight about legal and ethical issues through international and national frameworks.

The latter part of the book provides readers a description of methods used in other disciplines such as phytochemistry, ecology, zoology, and conservation biology. Considering the fact that isolation and the study of bioactive natural products is an important interest area in pharmacological studies, the most recent and advanced techniques for extraction, isolation, and analysis of natural products from medicinal plants were given. Animals as zootherapeutic resources for ethnoveterinary practices are listed with related methodological details. The readers, in the rest of the last part, will have the opportunity to find the most appropriate methodology for their special objectives on extractive practices on exploited plant populations. Noninvasive sampling techniques for vertebrate fauna and techniques to evaluate hunting sustainability are the last topics of this part with which a brief summary on the main available noninvasive techniques for vertebrate sampling and the main protocols used in research for the evaluation of how hunting impacts on the populations of target animals was given.

In conclusion, the book "Methods and Techniques in Ethnobiology and Ethnoecology" provides an insightful understanding of ethnobiological methods described in literature by presenting various methods covered in each chapter in addition to the extensive bibliography that details the current literature available in the field. It is for sure that the book is useful for a wide range of readers including both students and scholars from different disciplines. It is a pleasure to read such a well-written book that successfully integrates different fields of science in ethnobiology as a junction point. As stated in Wolverton (2013), ethnobiology should be regarded a field of science where researchers can address biocultural conservation, environmental co-management, environmental ethics, respect for the intellectual property rights of indigenous and local peoples, and other relevant issues, such as climate change, to solve modern local, regional, and global environmental and cultural issues.

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