Páramos: A checklist of Plant Diversity, Geographical Distribution and Botanical Literature

James L. Luteyn

1999

Keywords: páramos, plant diversity

Reviewed by: Fausto O. Sarmiento, Ph.D.

Finally, a comprehensive work on the páramo plant diversity is available in a checklist form. The need of this type of publication is increasingly acknowledged by the growing number of professionals interested in biodiversity. Indeed, despite its clearly aligned botanical audience, the book can serve to a greater readership because it touches the páramos from different aspects.

It not only presents the alphabetical list of circa 4700 vascular (3399) and non-vascular (1298) plant species to be found in the páramos and associated data - including author, collector and collection site, but it also presents a comprehensive literature review of the state of the knowledge about this important part of the northern Andes, a comprehensive gazetteer of páramo localities in Costa Rica, Colombia, Venezuela, Ecuador and Peru, and a rich bibliographic reference of more than 1570 published works of páramo literature, albeit botanical in nature, but pertaining to 19 different topic areas.

I will yield the analysis of botanical nature for the experts in the field, for whom this book is an essential reference, who may find in Luteyn's contribution a remarkable achievement of synthesis of more than two decades of scholarly work in the field. Himself an authority on Ericaceae, his knowledge of the broader páramo flora is very impressive and deserves the recognition that the New York Botanical Garden has offered him and his contributors in producing this elegant hard-copy of its series Memoirs (Núm. 84), with color plates, black and white photographs, maps, and tables printed in fine paper. An impeccable book, indeed. Considering the dedication to the work of two important late Andeanists, Luis Ruiz (Venezuelan professor in Mérida) and José Cuatrecasas (Spanish scholar in the Smithsonian, the "father of modern páramo studies"), the book starts, as if were, with the right footing. Their views of the Venezuelan and Colombian highlands are revered by most of the followers of botanical work in páramos, for whom the inclusion of rare pictures of "Don José" taken in the late 30's and 40's, show a glimpse of the reality of today localities. My eyes of a much more verdant Ecuadorian reality with a much

longer human imprint makes me comment on the ecological side of the topic covered in the páramos book.

I agree with Mori's foreword that the Andes harbor the richest assemblage of plants and animals in the Neotropics, but have to digress on elevation, rainfall and relative isolation as sole causal factors for such richness. The "crown jewel of the Andes" is the prime example of the human impact that has shaped for millennia the species composition and community structure of the highlands, hence being an important causal factor to consider in the assessment of ecodiversity. Most colleagues have now abandoned the use of the word "páramo ecosystem" to present the new holistic paradigm of the "páramo landscape" with intricate feedbacks of its human inhabitants. Cultural landscape, indeed, is the closest descriptor to the vast anthropogenic grasslands ubiquitous in the "páramos, jalcas and punas", in lieu of the Andean forests species. Luteyn affirms that "perhaps man is the single most important reason why grass páramo exist today, where shrub/three woodlands may have once dominated". Recent data from palinological research provides a much closer assessment of the role of fire, grazing, charcoal extraction, and cultivation in the deforestation of the uplands and highlands of the Northern Andes. The lack of evidence of the interaction of the shifting tree line with glaciation and the use of the paradigm of verticality in the concept of altitudinal belts, to which he clearly adheres, makes his ecological argument outdated or incomplete. His disclaimer with examples from biogeographical basis are not enough to break the convincing argument of a much more extensive transformation of the area by the exploitation purposes, which still continues regardless of the lack of forest cover. As Luteyn points out "whatever the outcome of this discussion, the facts remain that grass páramo currently exists, covers large expanses of the high-elevation Andes, and has great ecological and economic importance".

The book presents several fronts of potentially useful research that require further work. Starting with the name of "páramo" itself, and the lack of local toponimy -in contrast with Jalca and Puna, and ending with the lack of distinction between localities such as "altos, filos, cadenas, cerros, lomas, sierras, páramos o lagunas", there are many veneers to tackle in relation to the terminology of the Tropandean ecoregion. The same is true for the correct evaluation and assessment of available resources in both market and non-market values, of most environmental services provided by the páramos. The scientific challenge of linking plant lists of phenological taxonomy with a more advanced genetic or biochemical systematics is even a greater ambition. Let’s not forget that páramos have always been important in the domestication and radiation of subspecies created by faster mutations responding to the stronger UV-B radiation of the high altitude locations and the perpetual interception of cloudiness and production of liquid water.

I think the biggest contribution of the book is Luteyn's clear spelling of the challenges ahead for the future of the páramos, arguing them from scientific,

economic, educational and ecological approaches of conservation of these man-aged highlands. Its call for governments and NGOs to "preserve and restore the páramo to the state they were observed…" is a major appeal. It is also important to rescue the spirit of the contribution as a result of the author's "labor of love" to the páramo as a living working landscape. I am sure the readers will share the emotion and the motivation to reach for further understanding of the area. I am already awaiting the publication of the full flora offered as a follow-up.

Notes to readers

The book is published by: The New York Botanical Garden, Bronx, New York.

The reviewer may be reached at:

President, Andean Mountains Association (AMA)
Associate Director, Center for Latin American and Caribbean Studies
Adjunct Graduate Faculty, Institute of Ecology
The University of Georgia, Athens, GA. 30602-1619
Tel: 706.542.9079
Fax: 706.542.8432
Email: fsarmien@arches.uga.edu
http://www.uga.edu/clacs/Sarmiento.html

Paramos: A checklist of plant diversity, geographical distribution, and botanical literature. Memoirs of the New York Botanical Garden 84(0): 1-278, 1999. A survey of the plant types of the Rio de Janeiro Botanical Garden: Bignoniaceae. iII. 1977. Botanical diversity of the world potato collection of the Vavilov Institute of Plant Industry (VIR). Sbornik Nauchnykh Trudov po Prikladnoi Botanike, Genetike i Selektsii 115: 4-7, 1987. Amino acid metabolism in plant leaf part 4 the effect of light on ammonium assimilation and glutamine metabolism in the cells isolated from spinach leaves. Plant and Monographs in systematic botany from the Missouri Botanical Garden 93: 1â€“595. ^ IdÃ¡rraga-Piedrahita, A., R. D. C. Ortiz, R. Callejas Posada & M. Merello. (eds.) 2011. Flora de Antioquia: CatÃ¡logo de las Plantas Vasculares 2: 9â€“939. Universidad de Antioquia, MedellÃn. ^ Luteyn, J. L. 1999. PÃ¡ramos, a checklist of plant diversity, geographical distribution, and botanical literature. Memoirs of The New York Botanical Garden 84: viiiâ€“xv, 1â€“278. The World Geographical Scheme for Recording Plant Distributions (WGSRPD) is a biogeographical system developed by the international Biodiversity Information Standards (TDWG) organization, formerly the International Working Group on Taxonomic Databases. The WGSRPD standards, like other standards for data fields in botanical databases, were developed to promote "the wider and more effective dissemination of information about the world's heritage of biological organisms for the benefit of the world at