Crimson Publishers
Wings to the Research

Mini Review

The Legacy of the Flora and Fauna Collection Professor Patricio Sánchez Reyes of the Pontifical Catholic University of Chile

Eduardo PR[1]*, Benito R[1] and Darko DC[1,2]

[1]Faculty of Biological Sciences, Pontifical Catholic University of Chile, Chile

[2]Department of Entomology, California Academy of Sciences, USA

ISSN: 2770-6745

***Corresponding author:** R Eduardo Palma, Faculty of Biological Sciences, Pontifical Catholic University of Chile, Av Libertador Bernardo O Higgins 340, Santiago 833150, Chile

Submission: April 09, 2024
Published: June 28, 2024

Volume 4 - Issue 5

How to cite this article: Eduardo PR*, Benito R and Darko DC. The Legacy of the Flora and Fauna Collection Professor Patricio Sánchez Reyes of the Pontifical Catholic University of Chile. Biodiversity Online J. 4(5). BOJ. 000597. 2024.
DOI: 10.31031/BOJ.2024.04.000597

Abstract

In an era marked by escalating threats to global biodiversity and a surge in species facing extinction, museums and biological collections emerge as vital repositories of our planet's biological heritage. These collections, analogous to 'biodiversity libraries', allow the preservation of specimens, tissues, and genetic materials representing various life forms. They serve as indispensable reservoirs for scientific study and consultation, and need of our collective responsibility to safeguard and expand them. Biological collections, particularly when integrated with academic research centers, play a pivotal role in advancing scientific inquiry and education. Moreover, they serve as invaluable resources for public engagement and education, fostering greater awareness and understanding of biodiversity within communities. Illustrative examples underscore the profound impact of scientific collections, ranging from the discovery of new species to pioneering genetic studies unraveling historical population dynamics. One of these repositories, the Professor Patricio Sánchez Reyes Flora and Fauna Collection housed at the Pontificia Universidad Católica de Chile in Santiago de Chile, stands as a testament to the enduring legacy of its founder's vision. The collection, has not only expanded in size, but has also catalyzed numerous research endeavors, educational initiatives, and public outreach programs. As the faculty of Biological Sciences undergoes transformative changes aimed to reinforce its scientific prominence, the preservation and enhancement of the Patricio Sánchez Reyes Collection emerge as an imperative objective. Its continued support and integration within the university's developmental framework are essential to uphold its stature as a premier hub of natural history collections in Chile and the region, and enhancing the institution's commitment to preserving our biodiversity heritage.

Keywords: Biological collections; Biodiversity; Catholic university; Chile

Introduction

At the present time, in which the biodiversity of our planet suffers enormous threats and the species at risk of extinction increase, the value and usefulness of museums and biological collections is higher than ever. These places represent true "libraries" of biodiversity, where specimens, tissues and genetic material of animals, plants, algae and others are the "books". But, in contrast to real books, there is no only one way to "read" a museum collection. Then, collections serve as a permanent resource for study and consultation material, representing a valuable biodiversity heritage at different geographical and temporal scales. It is therefore our duty as a society, and particularly as naturalists and biologists, to maintain, protect and expand natural history collections [1-3]. The biodiversity represented in these collections is the result of field expeditions and research projects by countless researchers, as well as generations of curators cataloging and safeguarding the specimens.

The value of biological collections expand into multiple dimensions. This is particularly true for those associated with research and teaching centers such as universities. They are relevant for research fields as diverse as taxonomy, systematics, ecology, biogeography, evolutionary biology, among others. Museum specimens can be used to do comparative

studies between geographically distant species, documenting changes in time of natural populations and morphological variations, discovering new species, study changes in diet (isotopic studies), and many other applications depending on the questions and methodologies [4]. Moreover, museum can host the specimens used on a particular study, facilitating the replicability of the same by other researchers at any time, which is an essential part of the scientific method. Along the same line, museums are the only repositories for holotype specimens, and locally or completely extinct species. Then, it is not a surprise that an important part of the knowledge on the areas previously mentioned has been possible thanks to and associated with museums. In recent years, there have been numerous examples about the scientific and social values of scientific collections, and media reports on the value of collections and museums to the knowledge of our biodiversity. These include from the description of new species such as the carnivorous procyonid for South America from taxidermied skins deposited in the Field Museum in Chicago, USA, (the 'olinguito', Bassaricyon neblina after 35 years since the last description of a new species of a carnivorous mammal) [5], to ancient DNA studies comparing the temporal population genetics of museum-samples stored for more than a century in some cases [6,7]. The latter constitutes important information on how one of the components of our biodiversity, as is the genetic diversity of organisms and populations, has fluctuated through time for some taxa in a particular ecogeographic region. It is clear that novel ideas to test, alternative ways of interpreting data and new methodologies will continue harvesting information from biological collections and influencing different areas of our society.

Professor Patricio Sánchez Reyes flora and fauna collection

The Faculty of Biological Sciences (FCB) at the Pontificia Universidad Católica de Chile (Santiago, Chile) houses the Professor Patricio Sánchez Reyes Flora and Fauna Collection. This collection was created in 1960 by Professor Sánchez motivated by his interest in the study of zoological diversity and-according to his own writings 'to serve as a nucleus for the study of nature in Chile'. The Collection, fruit of the vision of its homonymous founder, has been strengthened and grown thanks to the contribution of numerous researchers of the FCB, including four Chilean National Prizes in Natural Sciences from the Faculty of biological bciences, Drs. Juan Carlos Castilla, Bernabé Santelices, Fabián Jaksic, Francisco Bozinovic and Dr. Nibaldo Bahamonde from the Universidad de Chile. Today, it contains more than 20,000 samples of a great diversity of plants, algae, invertebrate and vertebrate animals. The specimens stored in this biological facility at FCB represent samples mainly from the Mediterranean and the southern Temperate Forests ecoregions in Chile, major ecosystems that are part of one of the 25 biodiversity hotspots recognized in the Planet. Among the marine invertebrates the collection includes echinoderms, mollusks, crustaceans and polychaetes, and among vertebrates one of the most comprehensive small mammal collections of Chile. In addition, it contains macroalgae and vascular plant herbaria from the Mediterranean and semi-arid regions of Chile. The collection also has a small representation of specimens from other parts of the world, which provide key comparative material for researchers and students. Faithful to the postulate of Prof Sánchez, the main objectives of the collection are to support scientific research in the areas of ecology, evolution and conservation of biodiversity, as well as to support teaching and outreach activities. It is therefore essential to maintain and promote the professor Patricio Sánchez Reyes Flora and Fauna collection. Throughout its history, this biological facility has supported several research projects allowing the generation of more than 100 publications to date. In addition, it has contributed to the training of undergraduate and graduate students from its host university and other institutions, reflected in numerous theses and research seminars. The Patricio Sánchez collection is constantly requested to participate in a series of activities both, inside and outside the university, exhibitions in schools, museums, scientific fairs, guided tours, etc.

Conclusion

The Faculty of Biological Sciences where the collection is hosted, is undergoing crucial changes with the vision of strengthening its undisputed leadership in the development of science in Chile. The Patricio Sanchez Reyes Collection should be part of this development plan ad-portas, to guarantee and reinforce its presence and mission as one of the greatest natural history collections in central Chile. As other major universities which host biological collections in the support of their scientific research, the Pontificia Universidad Católica de Chile should not be the exception in to keep and strengthen this irreplaceable biodiversity heritage.

Conflict of interest

The authors have no conflict of interest

References

1. D Elía G (2024) Chile's biological collections must be enhanced. Annals of the Patagonia Institute 52: 1-12.
2. Nachman MW, Beckman EJ, Bowie RCK, Cicero C, Conroy CJ, et al. (2023) Specimen collection is essential for modern science. PLoS Biol 21(11): e3002318.
3. Miller SE, Barrow LN, Ehlman SM, Goodheart JA, Greiman SE, et al. (2020) Building natural history collections for the twenty-first century and beyond. Bioscience 70: 674-687.
4. Hilton EJ, Watkins CGJ, Huber SK (2021) The expanding role of natural history collections. Ichthyology & Herpetology 109: 379-391.
5. Helgen KM, Pinto CM, Kays R, Helgen LE, Tsuchiya MTN, et al. (2013) Taxonomic revision of the olingos (*Bassaricyon*), with description of a new species, the Olinguito. Zookeys 324: 1-83.
6. Wandeler P, Hoeck P, Keller LF (2007) Back to the future: Museum specimens in population genetics. Trends in Ecology and Evolution 22: 634-642.
7. Bi K, Linderoth T, Vanderpool D, Good JM, Nielsen R, et al. (2013) Unlocking the vault: Next-generation museum population genomics. Molecular Ecology 22(24): 6018-6032.