

LETTERS TO THE EDITOR

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Venezuelan Crisis Takes Toll on Natural History Museum

The current political and economic crisis in Venezuela has created unprecedented shortages of food and medicine besides alarming levels of crime. Academia is suffering massive brain drain and severe resource restrictions that are destroying decades of progress (Fraser 2016; Requena 2016). Natural history collections are also in dire straits and particularly troubling is the negligence bedeviling the *Museo de la Estación Biológica de Rancho Grande*.

This significant zoological museum houses more than 127,000 specimens of mostly vertebrates, including 50 holotypes (44 of which are reptiles or amphibians). Many specimens are an irreplaceable representation of the country's biodiversity from extremely remote sites now either destroyed or inaccessible due to crime.

Just ten years ago the museum had six research staff and five technicians whose work guaranteed specimen preservation and availability. Today stewardship and maintenance of the museum depends upon just two employees as the ministry in charge ("*Ministerio del Poder Popular para Ecosocialismo y Aguas*") has failed to replace personnel that have retired, relocated or passed away. Research has stopped, availability of specimens for study is practically impossible, and the welfare of all specimens and associated data are under grave danger. The size, complexity, and importance of the museum's holdings demand a team of scientists with curatorial experience to prevent loss of the collections, a very real threat given their location in a valley with elevated humidity, sporadic flooding, and frequent electrical blackouts followed by surges that fry A/C and dehumidifiers. The Venezuelan government must take immediate action to hire qualified personnel and provide them with resources to adequately maintain the material housed in these collections before irreversible damage commences. Initiatives by the global community to call for such action are welcome and might include communications by professional societies and individual colleagues directed to the "*Dirección General de Diversidad Biológica*" (see contact information below) as well as wide dissemination of this letter describing the emergency facing the museum.

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The aforementioned situation is an extreme example of the global phenomenon of the abandonment of natural history collections by governmental agencies (Kemp 2015). Natural history museums are critical assets for biodiversity studies and research with high impact on public health, food availability, and the effects of climate change on these areas (Suarez and Tsutsui 2004). This is especially important for Venezuela given the collapse of the country's agriculture, the dramatic rise in vector transmitted diseases, and the recent approval of a large series of mining projects in pristine environments with no regard to their environmental impact. Intergovernmental and non-governmental organizations must work with the global scientific community to prevent the loss of biological material key for our species to surmount the challenges of the Anthropocene.

Natural history collections are at risk from any number of dangers and curators generally try to keep these possibilities in mind when designing conservation plans and protocols. Humidity, theft, pests, chemical reagents, and other environmental hazards are readily identifiable and provisions may be formulated. Even some natural catastrophes such as floods, earthquakes, and storms may be accounted for in procedural manuals, but unfortunately countless collections have been destroyed as collateral damage from social, economic, and political upheavals. These occur at irregular intervals and affect not just the institutions but also their staff at all levels. Such calamities are rarely, if ever accounted for in planning, and their occurrence may be so intertwined with institutional and external complications that rescue of the collections can become unviable. Stemming from events that range from acts of war to political extremism or economic disasters that make life unbearable, the demise of a collection may be instantaneous or prolong itself during a variable length of time as material and human resources evaporate. Salvaging specimens may or may not be possible depending upon the circumstances. In some cases legal, political, and even ideological barriers may prevent any action from being taken, thus assuring the deterioration of collections ironically considered national patrimonies. Clearly where governance and institutionalism is weakest, and general levels of education are substandard, natural history collections generally are at greatest risk. Unfortunately such conditions all too frequently coincide with countries richest in biodiversity but with few resources dedicated to their study and conservation. The incurred and potential losses are mind-boggling and must deserve some time to sort out and consider how to mitigate or avoid damage and salvage collections when possible. Which are most at risk? Which are the most valuable? What can be done? What cannot be done? When cranking up the A/C or replenishing formaldehyde just isn't enough.

In this case at least let us raise our voices in polite, but firm expressions of concern.

LITERATURE CITED

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- SUAREZ, A. V., AND N. D. TSUTSUI. 2004. The value of museum collections for research and society. *BioScience* 54:66–74.

APPENDIX

Contact information for the Dirección General de Diversidad Biológica:

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