

LIVING WORLD

Journal of the Trinidad and Tobago
Field Naturalists' Club

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ISSN 1029-3299



Guest Editorial: Using the Dead to Inform the Living: Investing in Biological Collections

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Baksh-Comeau, Y.S. 2012. Guest Editorial: Using the Dead to Inform the Living: Investing in Biological Collections. *Living World, Journal of The Trinidad and Tobago Field Naturalists' Club*, 2012, iv.

Guest Editorial: Using the Dead to Inform the Living: Investing in Biological Collections

Biological collections preserved as dried or wet plant or animal specimens stored in herbaria or museum cupboards, jars or display cabinets represent a snapshot of a particular moment in time which can tell a story or solve a problem. These seemingly *dead* specimens, if well maintained, serve as a valuable ‘biological clock’ linking the past with the present and the future.

Trinidad and Tobago have a long recorded history of plant exploration dating from the arrival of Christopher Columbus in 1498. Over the centuries, countless specimens from Trinidad and Tobago have been removed and deposited in major herbaria in Europe and North America. It is this historical propensity for collecting and documenting specimens that gave rise to the National Herbarium of Trinidad and Tobago (TRIN) which originated with the Royal Botanic Gardens, Port-of-Spain established in 1818. J. H. Hart, fifth Superintendent of the Botanic Gardens, formalised the herbarium in 1887 by salvaging some of the specimens from his predecessors. The earliest specimens rescued from these early collectors dating from 1842 are integrated with the extant collection.

The vascular flora of Trinidad and Tobago dominates the collections with a smaller regional sample. There are good representative samples of marine algae, mosses and liverworts. The fungi and lichens are underrepresented, but research is in progress on lichens as bio-indicators of forest health. These sampled specimens (vouchers) will become the primary reference collection for future research. The *value* of all these collections can be readily assessed by (i) the extent to which they have been consulted by researchers, students and the general public seeking information on the flora followed by (ii) dissemination of this knowledge through scholarly publications, popular writings and/or oral presentations to reach the widest audience.

The herbarium provides a plant identification and information service. Identifying over 6,800 specimens for the public over the last ten years (2002-2012), it involves challenges such as: identification of seeds on a victim’s clothing or endorsing marijuana plants (*Cannabis sativa*) seized by the police; a medical practitioner having a sick child ingesting unfamiliar seeds and subsequently identified as rubber seeds (*Hevea brasiliensis*) was treated for probable cyanide poisoning; and checking a packet of finely powdered Cat’s Claw tea from The Food & Drug Division of the Ministry of Health are examples of the work of the herbarium. Scholars worldwide, in any field involving plants, must seek out a herbarium. Similarly, two local publications come to mind, *Medicinal Plants of Trinidad and Tobago* (Seaforth *et al.* 1982) and *Dictionary of the English/Creole of Trinidad and Tobago* (Winer 2009) relied heavily on our herbarium.

Our recent research involved a botanical inventory

undertaken from 2005-2008 to develop a **Biodiversity Monitoring System for Trinidad and Tobago**, in collaboration with Oxford University, U.K. and the Forestry Division, under the Darwin Initiative (this was done concurrently with refurbishment of the herbarium). This botanical survey produced over 22,000 specimens of which 90% were identified using the reference collection. The results of this comprehensive study, soon to be published, have (i) identified biodiversity ‘hot spot’ areas, (ii) assessed the status of rare, threatened and endemic species, and (iii) formed the basis for a new vegetation classification for Trinidad and Tobago.

In 2009, we initiated a *student internship programme* with the University of the Southern Caribbean (USC) Maracas, Trinidad. This programme is designed to give students an opportunity to volunteer their time while gaining hands on experience working in the herbarium. Thirty-one students have participated in the programme mounting over 3,000 specimens from the huge backlog of specimens accumulated over the years. The impact on USC students’ learning has been twofold: increasing awareness of the richness of the local flora and leaving a legacy behind with their mounted specimens. A long standing partnership continues with *The Trinidad and Tobago Field Naturalists’ Club* whose membership is dedicated to the study of our natural history. Members have made good use of the herbarium to identify plants from their field trips and have added valuable specimens to the collection.

Visitor records from 1970-1979 amounted to merely 256 compared to 1980 to 1990 totalling 1568, increasing to 1821 between 2002 and 2012. Our visitor’s book clearly shows an increasing trend particularly school groups ranging from kindergarten to tertiary level institutions requesting lectures and a tour of the facilities.

More importantly, our herbarium is supported as ‘a national asset’ by the Government of Trinidad and Tobago. Today the collection is approximately 70,000 specimens and is projected to increase to 100,000 in the next five years, if research in ecology, conservation and monitoring of our biodiversity continues to be supported and funded at the present rate. According to Pyke and Ehrlich (2010) “.....*the level of research attempting to use biological collections in museums or herbaria in an ecological/environmental context has risen dramatically during about the last twenty years.*” We concur with this observation where research activities and public awareness have increased access to our collection aimed at conservation of our biodiversity.

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