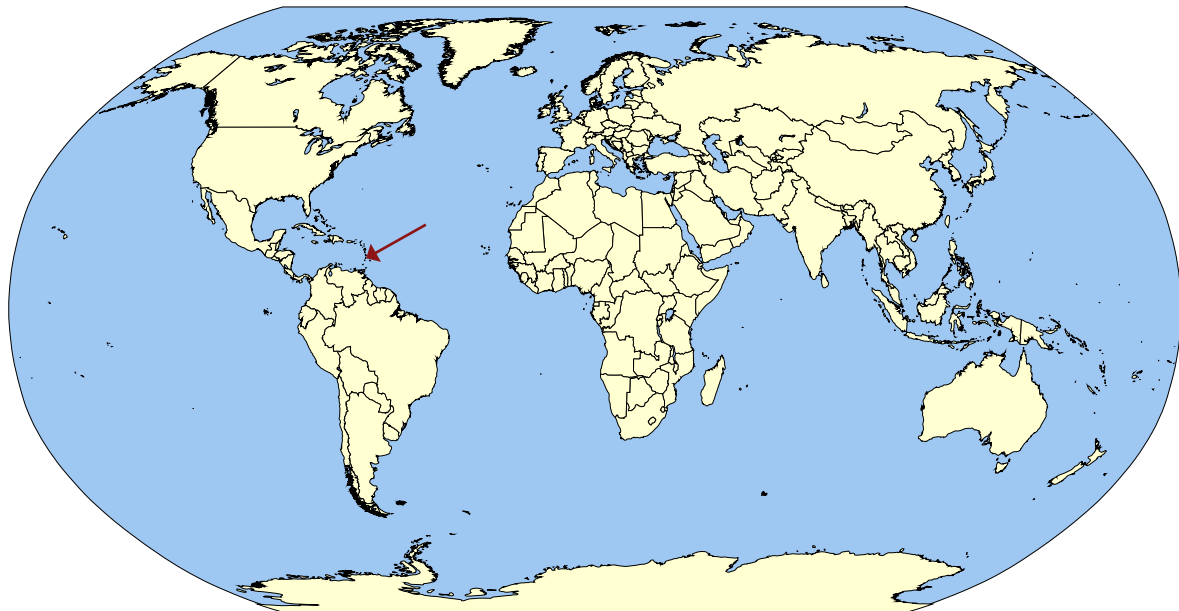


St. Lucia

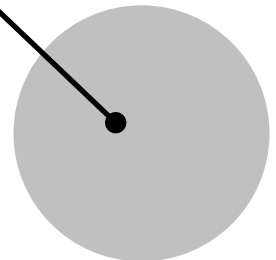


Schistosomiasis Research and Control in St. Lucia

The first autochthonous case of schistosomiasis in St. Lucia was recorded in 1924, but it wasn't until the late 1950s that transmission rates significantly increased. This coincided with a shift from a sugar to a banana-based economy that resulted in expansion of suitable snail habitat near inefficient banana drains [1]. Compounding the problem was the low level of sanitation and frequent human contact with infested water during the 1950's [1]. By 1961, the estimated national prevalence was 17%, and it was clear that *S. mansoni* had spread to most parts of the island [1]. Following this finding, WHO consultants surveyed the island and officially declared the need for a control program. At the same time, the Rockefeller Foundation had noted the mounting global need for a natural laboratory setting to conduct careful research on all facets of schistosomiasis, including the biology of the snail vector, possible treatment regimes for humans, and best transmission control methods [1].

Schistosomiasis in St. Lucia

Very little or no schistosomiasis cases remain -- confirmation required to declare elimination



Overview of St. Lucia [7]

- » Population in 2015: 163,922
- » Official Language: English
- » Capital: Castries
- » Parliamentary Democracy
- » Percentage of Population with Access to Improved Drinking Water in 2015: 96.3%
- » Percentage of Population with Access to Improved Sanitation in 2015: 990.5%

Addressing Schistosomiasis

In 1964, The Ministry of Health (MoH) in St. Lucia approached the Rockefeller Foundation for funding to address several existing health problems on the island, including schistosomiasis. Together the St. Lucia MoH and The Rockefeller Foundation declared St. Lucia as the official site of a program meant to (i) further health services on the island, and (ii) to provide a home base for natural laboratory schistosomiasis research in the Americas [1]. The collaborative St. Lucia Research and Control Project was borne of this agreement and operated between 1966 and 1981 [2].

The Results of Coordinated Control

The project consisted of intensive experimental programs focusing on snail control, chemotherapy, and provision of clean water supplies in discrete studies throughout the island [1]. Experimental methods at different sites throughout the island were: 1) provision of piping and clean water sources, 2) mollusciciding, 3) intentional introduction of the exotic competitor snail, *Melanoides tuberculata* in 1978, and 4) chemotherapy, first with hycanthone in the early 1970's and then with oxamniquine after 1975 [1,3]. The introduced snail species *M. tuberculata* quickly colonized water bodies on the island and remains widespread in St. Lucia; by 1992 the snail species was found in most water bodies on the island. *M. tuberculata* was introduced to the whole hydrographic system from 1981-1986 after it had been shown that invasion on other Caribbean islands had resulted in significant reductions in schistosomiasis disease. Intentional introduction of an exotic species was rationalized by the idea that invasion was inevitable, and therefore commanding invasion for disease control purposes was justified [4]. The island-wide schistosomiasis prevalence had dropped from 17% in 1961, prior to any coordinated control program, to <2% by 1981, and results were comparable among the various methods employed [1]. Ultimately, the cooperative, financially backed, multi-faceted research program resulted in prevalence reduction throughout the island. As a pilot research site, St. Lucia became the prototype for the integrated approach to schistosomiasis control.

The Current Situation

A recent 2005 estimate shows that schistosomiasis has not been officially eliminated from the island and a low prevalence of 0.3% still exists [5]. In addition, there has been no other recent parasite control program other than that conducted by the joint St. Lucia MoH and Rockefeller initiative, and there is no current data past 2005. As a result, a 2012 WHO report notes the current need for an updated survey of schistosomiasis prevalence and the case for elimination on the island [6]. It appears that early success did lead to a precipitous decrease in prevalence as a result of a highly integrated program backed by the Rockefeller foundation. The long-lasting effects of control can be attributed to the program's focus on interrupting transmission through snail control. In order to completely eliminate the low smoldering prevalence rates on the island, further evaluation and continued vigilance in control measures is needed.

References

1. Jordan, P. *Schistosomiasis: The St. Lucia Project*. (Cambridge University Press, 1985).
2. Rollinson, D. *et al*. Time to set the agenda for schistosomiasis elimination. *Acta Trop*. **128**, 423-440 (2013).
3. Pointier, J., David, P. & Jarne, P. in *Biomphalaria Snails and Larval Trematodes* (Toledo, R. & Fried, B.) 215-38 (Springer New York, 2011). doi:10.1007/978-1-4419-7028-2
4. Pointier, J. P. The introduction of *Melanoides tuberculata* (Mollusca: Thiaridae) to the island of Saint Lucia (West Indies) and its role in the decline of *Biomphalaria glabrata*, the snail intermediate host of *Schistosoma mansoni*. *Acta Trop*. **54**, 13-18 (1993).
5. Kurup, R. & Hunjan, G. S. Intestinal parasites in St Lucia: a retrospective, laboratory-based study. *J. Rural Trop. Public Heal*. **9**, 24-30 (2010).
6. WHO *Schistosomiasis Progress report 2001-2011 and strategic plan 2012-2020*. (2010).
7. Central Intelligence Agency. (2015). St. Lucia. In *The World Factbook*. at <<https://www.cia.gov/library/publications/the-world-factbook/geos/st.html>>

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