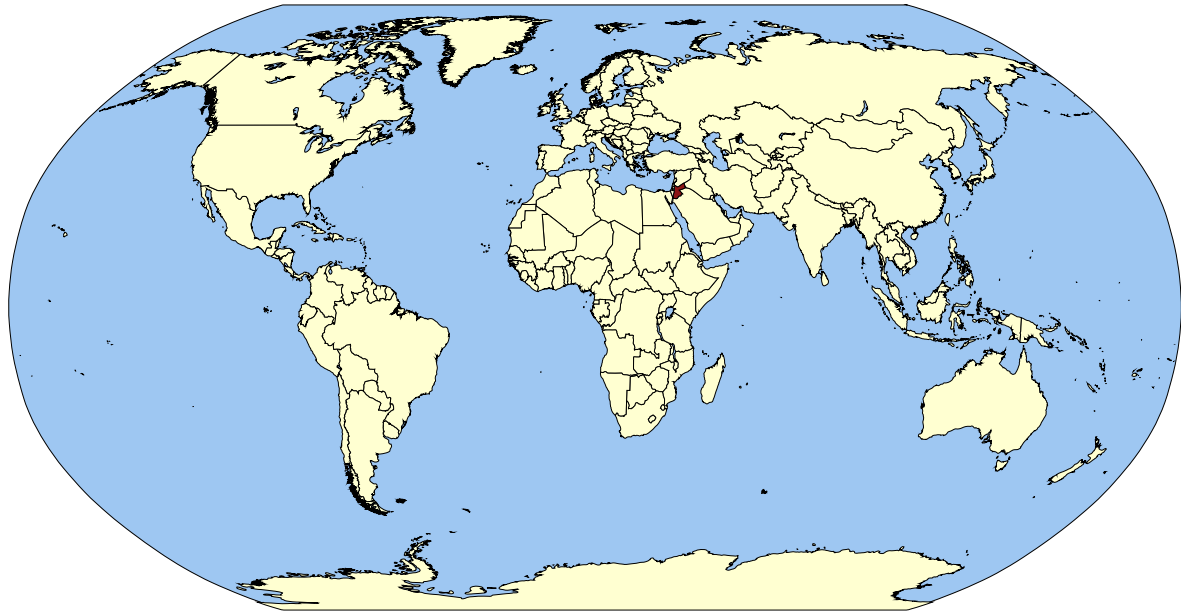


Jordan



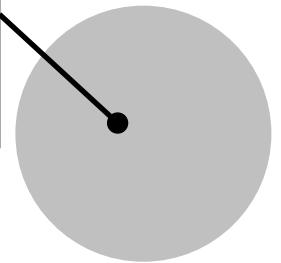
The History of Schistosomiasis in Jordan

The Hashemite Kingdom of Jordan has experienced sporadic and generally isolated outbreaks of schistosomiasis since the first case of the disease was reported in the early 1950's. The first cases of schistosomiasis were all reported in refugee camps. In response, regional streams and springs in the northern part of the country, especially in agricultural areas, were searched for snail vectors. None were found in these early searches, leading to the conclusion that individuals were infected before entering Jordan [1].

The first autochthonous case of the disease was reported in 1975, a case that seems to have instigated an effort to investigate the susceptibility of the country's riparian systems and snail fauna to harbor *S. haematobium* or *S. mansoni* [2]. In response, between 1981 and 1984, the University of Jordan completed a USAID supported project entitled "Identification, Distribution, and Ecology of the Snail Fauna in Jordan."

Schistosomiasis in Jordan

Schistosomiasis
eliminated
due to low endemicity
and successful
snail control



Overview of Jordan [9]

- » Population in 2015: 8,117,564
- » Official Language: Arabic
- » Capital: Amman
- » Constitutional Monarchy
- » Percentage of Population with Access to Improved Drinking Water in 2012: 96.1%
- » Percentage of Population with Access to Improved Sanitation in 2011: 98.1%

The USAID Project, Schistosome Endemicity, and Water Usage

The primary goal of the “Identification, Distribution, and Ecology of Snail Fauna in Jordan” project was threefold: to monitor and contain transmission of urinary schistosomiasis in Jordan; create “A Handbook for Schistosomiasis and other Snail-Mediated Diseases in Jordan” to be used in the field; and, to host control training programs. The professional training program, however, was never completed [2]. Evaluations of schistosomiasis control by the World Health Organization and case studies reported by the National Institutes of Health suggest that human schistosomiasis infections had been, and continued to be, treated on a case-by-case basis with praziquantel. The molluscicide Bayluscide was used focally by the Ministry of Health to control snail populations in response to the detection of cases and identification of their sources [3]. After 1975, *Bulinus truncatus* snail species could be found in 8 of 12 provinces in Jordan, primarily in irrigation pools [2].

Since the first autochthonous case detected in the Jordan Valley in 1975, few transmission outbreaks have been reported. Notable outbreaks include 8 children infected in 1995 in the southern Jordan Valley [2]. Infection of all of these individuals was traced to a single irrigation pool in Ramah in the Southern Jordan Valley [4]. In 1998, 32 individuals were infected in the Karak Lowlands of Jordan [5]. The vulnerability of Jordan’s population to schistosomiasis resides in the rapid expansion of irrigated agricultural land, broadening areas of suitable habitat for *B. truncatus*. In a country where only about 2% of land is arable and water is extremely scarce, irrigation is expanding agricultural production, as well as snail habitat. In 2004, 7.3% of agricultural land was irrigated, a percent that rose to 9.6% in 2011 [6].

Overall Success

The historical lack of water in this desert region and the scarce and isolated snail habitats probably contribute to why few autochthonous cases have ever been detected in Jordan, with most human infections attributed to refugees and foreign migratory workers. In 1976, Jordan experienced an influx of foreign workers from endemic areas, primarily Egypt, during a period of time when Jordan lacked domestic labor sources due to its young age structure and exclusion of women from the workforce and therefore favored immigration of unskilled and semi-skilled professionals [7,8]. Jordan’s categorization as a country that has been “successful” in eliminating schistosomiasis should be interpreted in light of the low endemicity of the disease to begin with and the high standard of living of most Jordanians. 91% of rural communities having access to improved drinking water, and 98% of all Jordanians with access to improved sanitation facilities as of 2012 [9].

References

1. ABDEL-AZIM, M. & GISMANN, A. Bilharziasis survey in south-western Asia; covering Iraq, Israel, Jordan, Lebanon, Sa’udi Arabia, and Syria: 1950-51. *Bull. World Health Organ.* 14, 403-56 (1956).
2. Inter-country Meeting on Strategies to Eliminate Schistosomiasis from the Eastern Mediterranean Region. *World Heal. Organ. EMR* (2007). at <http://www.who.int/schistosomiasis/resources/EMRO_report_Schistosomiasis.pdf>
3. Evaluation of Schistosomiasis Activities in the Hashemite Kingdom of Jordan. *USAID* (1985). at <http://pdf.usaid.gov/pdf_docs/PDAAR642.pdf>
4. Southern, T. H. E. *et al.* URINARY SCHISTOSOMIASIS CONTRACTED FROM AN IRRIGATION POOL IN. 57, 158-161 (1997).
5. Arbaji, A. *et al.* New sites of *Bulinus truncatus* and indigenous cases of urinary schistosomiasis in Jordan. *Parasite* 5, 379-382 (1998).
6. Jordan World Bank Data. at <<http://data.worldbank.org/country/jordan>>
7. Chatelard, G. Jordan: A Refugee Haven | migrationpolicy.org. (2010). at <<http://www.migrationpolicy.org/article/jordan-refugee-haven/>>
8. Saliba, E.K., Abdel-Hafez, S.K., Tawfiq, M. R. Schistosomiasis in Jordan : An Unwelcomed Guest. *Parasitol. Today* 2, 91-93 (1986).
9. Central Intelligence Agency. (2014). Jordan. In *The World Factbook*. at <<https://www.cia.gov/library/publications/the-world-factbook/geos/jo.html>>