

# ATRAP newsletter

Action Towards Reducing Aquatic snail-borne Parasitic diseases



Final day of the awareness week, November 2021, Kagadi District.

**Welcome!** It is a great honor and privilege to present our second newsletter to all our partners collaborating in the fight against snail-borne diseases in Uganda.

First, the ATRAP team would like to extend our sincere appreciation to you all for your continued participation in various activities even in such challenging times. A lot has happened since our first newsletter of 23rd December 2020 in all ATRAP fields of operation such as the citizen researchers (CRs) snail and water chemistry data collection, laboratory analysis of snails and parasites DNA at the RMCA, participatory validation/dissemination of findings, community awareness campaigns, and stakeholder dialogues on schistosomiasis prevention.

With such concerted efforts, ATRAP hopes to substantially contribute to the fight against snail-borne diseases. We are committed to this journey, watch the space for more information!

Dr. Casim Tolo & Dr. Tine Huyse on behalf of the entire ATRAP team



## The team

Mbarara University  
of Science &  
Technology, Royal  
Museum for Central  
Africa, KU Leuven



## The area

Southern Lake  
Albert, 750 km<sup>2</sup>  
and 82 sites

## Figures



+53K snails  
+3.7K reports  
4 PhD students  
2 master students



Door to door visits made by the CRs.

## Citizen researchers

Despite the uncertainties generated by the COVID-19, the ATRAP' CRs have made great strides. They received a refresher training in which personalized feedback was provided. This is reflected in the great progress made in the data on snail presence, water parameters, and human-related activities reported. Also they took the lead in the planning and execution of the snail-borne awareness week activities with support from the entire ATRAP team.

In addition, Mr. Bahungirehe Crezestom represented the CRs team at the ISNTD webinar on December 09, 2021, where he shared his experiences with a global audience.

## PhD / master students

The biology students monitored monthly the snail population and the associated parasites using shedding experiments and PCR techniques. Stool samples of livestock and wild mammals were also examined for parasites eggs. They also interviewed a total of 100 livestock owners, veterinary officers, herders, butchers, and game rangers to know their perceptions about animal bilharzia and liver flukes.

On the other hand, the social sciences students conducted in-depth interviews, and focus group discussion sessions in Ndaiga and Kyaterekera to assess the gender roles, stereotypes, and beliefs that influence the spread and control of schistosomiasis. They later on used the world café technique to co-design a contextualized communication strategy and implemented awareness campaigns for behaviour change about schistosomiasis prevention through megaphones, radios, house-to-house visits, drama, songs, dances, and football tournaments. Finally, they held a stakeholders dialogue workshop aimed to generate policy recommendations for possible interventions.

## Figures

**25 CRs** were trained on communication regarding schistosomiasis prevention.

**115 community members and district leaders** participated in the validation of knowledge, attitudes and practices' findings and participatory design of communication strategies.

**+3000 people** attended awareness campaigns of various sorts-house to house visits, community radios, drama, songs, dances and tournaments.





## Results - Biology

More than **3,700 individual reports** by the CRs have been received containing information about more than **53,000 snails** that spread bilharzia and liver flukes. The presence/absence data has been compared with the expert monthly data resulting in considerable agreement (up to 83%). In addition, biology students collected a total of 33,000 snails (*Biomphalaria*, *Bulinus*, and *Radix*). More snails were found in streams and rivers, upland compared to lake sites. However, a **higher prevalence of bilharzia worms was reported at some lake sites in up to 43%** of *Biomphalaria* snails. Snails in the upland sites only had animal bilharzia flukes (11.5% at Mpeefu) after PCR tests.

Among livestock, **prevalence of liver fluke was highest at Mpeefu (57.96%)**, Kanara (57.54%), and lowest at Ndaiga (40.4%). Animal bilharzia was detected in 2.6% and 4.3% cattle from Mpeefu and Ndaiga, however, no wild mammal was positive. For livestock management, 65% to 90% of farmers practice free range on communal land.



ATRAP team during the door to door visits.

## Results - Social sciences

The main socio-cultural risk factors associated with schistosomiasis were identified including: **lack of access to clean and safe water, low latrine coverage leading to open defecation, poor health-seeking behaviours, inadequate drug supply, and lack of testing kits, inadequate knowledge about the disease, myths and misconceptions, stigma, isolation, and domestic violence.** The community dialogue allowed an important avenue for the stakeholders involvement and participation in advocating for schistosomiasis preventive measures taking into account the risk identified with anticipation.

The stakeholders suggested the involvement of cultural and religious leaders to debunk cultural beliefs.



Biology lab used to analyze the type of parasite found in the snails.



Risk factor associated with Schistosomiasis: lack of access to clean water.

## Upcoming

- **February:** Refresher training for CRs in Kagadi district.
- **February:** Participatory process evaluation of citizen science participation in community awareness campaigns regarding schistosomiasis prevention.

## Publications

Ashepet, M. G., Jacobs, L., Van Oudheusden, M., & Huyse, T. (2021). Wicked solution for wicked problems: citizen science for vector-borne disease control in Africa. *Trends in Parasitology*, 37(2), 93-96. <https://doi.org/10.1016/j.pt.2020.10.004>

Brees, J., Huyse, T., Tumusiime, J., Kagoro-Rugunda, G., Namirembe, D., Mugabi, F., Nyakato, V., Anyolitho, M., Tolo, C. & Jacobs, L. (2021). The Potential of Citizen-Driven Monitoring of Freshwater Snails in Schistosomiasis Research. <http://doi.org/10.5334/cstp.388>

Knowledge, attitude, and practices regarding schistosomiasis infection and prevention: a mixed methods Cross-sectional survey among endemic communities of western Uganda (soon to be published)

## Acknowledgements

ATRAP team would like to thank the citizen researchers: Mr. Barisigara Gard, Mr. Tusingwire Henry, Ms. Natabi Specioza, Ms. Nakingi Rose, Mr. Ategeka Rogers, Mr. Kamukama Josias, Mr. Nuwagaba Emmanuel, Mr. Tweheyo Julius, Mr. Bahungirehe Cruzestom, Mr. Alinda Hassan, Mr. Chotum Friday, Mr. Atanasi Marisel, Mr. Opio Isingoma, Mr. Ategeka Augustine, Mr. Bahemuka Bob, Mr. Kisoro Timothy, Mr. Masereka Haruna, Mr. Sebakara Fobious, Ms. Nyamahunge Imelda, Mr. Businge Zabron, Ms. Tumusiime Janet, Mr. Nsenga David, Ms. Night Marygoret, Ms. Kyaligonza Noeline, Mr. Mwesige Robert.

### Project Investigators

Dr. Casim Umba Tolo, Dr. Tine Huyse, Dr. Grace Kagoro, Dr. Lies Jacobs, Dr. Viola Nilah Nyakato, Dr. Olivier Dewitte, Dr. François Kervyn, Dr. Ronald Twongyirwe, Dr. Anton Van Rompaey, Dr. Caroline Michellier.

### PhD Student Researchers

Mr. Julius Tumusiime, Mr. Maxson Kenneth Anyolitho, Ms. Gloria Mercy Ashepet, Ms. Noelia Valderrama Bhraunxs.

### Masters student researchers

Ms. Daisy Namirembe, Ms. Faith Mugabi.

**Project assistant:** Ms. Daisy Namirembe.

**Photographer:** Ms. Linde Raedschelders

## ATRAP project information

The ATRAP project is a collaboration between Mbarara University of Science and Technology (MUST) in Uganda and the Royal Museum for Central Africa (RMCA) and the KU Leuven in Belgium, funded by the Belgium Development Cooperation (DGD). It runs from 2019-2023. Two Ugandan and two Belgian PhD students are trained, in addition to two Ugandan Msc students.

### Contact information:

Dr. Casim Tolo ([tolocas@must.ac.ug](mailto:tolocas@must.ac.ug)) and

Dr. Tine Huyse ([Tine.Huyse@africamuseum.be](mailto:Tine.Huyse@africamuseum.be))

### Website:

<https://www.citizenscienceuganda.info/atrap-project-description.html>

<https://www.africamuseum.be/en/research/discover/news/atrap>

