

ATRAP newsletter

Action Towards Reducing Aquatic snail-borne Parasitic diseases



Kick off meeting september 2019, Mbarara.

Welcome

It is with great pleasure that we present our first newsletter to all our partners collaborating on the control of snail-borne diseases in Uganda.

With this letter we provide an update on our activities since the official project launch in september 2019. We also want to thank you again for your valuable input during our roundtable discussion. Great progress has been made thanks to a great team of community members ('citizen scientists') working side-by-side with an interdisciplinary team of experts. We also want to reach out to you, to strengthen our collaboration and find new synergies. Only through transdisciplinary collaborations successful intervention strategies can be developed to halt the spread of these debilitating diseases.

We look forward to your feedback and many more years of collaboration with you and other partners. We plan to organise a mid-term meeting in September 2021. So stay tuned, and enjoy the reading.

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, across 750 km², 82 sites, 1500 reports from citizen scientists so far



Figures

16500 snails, 13 abattoir visits, 337 interviews, 35 focus group discussions, and 7 snail surveys by PhD students



Setting up a citizen science network

The first stage of selection was to organise meetings with the community leaders of the different sub-counties in the districts of Kagadi, Ntoroko and Kikuube in October and November 2019. Leaders from the administrative and political level, health officers and representatives of religious or cultural groups were included in order to have an optimal representation of the community. As these leaders know their communities well they are well-placed to indicate who might be interested and able to participate. Also, in this way we want to ensure that the selected citizen scientists (CSs) are trusted and supported by the entire community. After an introduction to the project and its objectives, the leaders were given

a week to jointly preselect and mobilise potential candidates from within their sub-county based on a predefined set of criteria. Through interaction with the preselected participants, a final group of 25 CSs was formed.

The two-day training course consisted of an in-depth explanation on schistosomiasis, its transmission cycle and the importance of the CS's contribution to monitoring the intermediate snail hosts. Furthermore, an introduction to smartphone use and the questionnaire on the KoboCollect application was given. The second day started with practicals in snail identification followed by in-field monitoring sessions. The reports were checked in real-time and adequate feedback was given when necessary.

citizen scientists as champions of control

In March 2020, a total of 25 citizen scientists were recruited. Most of them have been previously involved in voluntary work, like Village Health Teams or Red Cross projects. Equipped with a smart phone, snail scoop and protective gear, they survey 2 to 4 water contact points on a weekly basis. Apart from snail sampling they also report on water exposure behaviour. In a next phase they will also actively communicate on the risks, symptoms and treatment of snail-borne diseases, and inform the communities on preventive measures.



Results

Due to the Covid-19 pandemic all activities were suspended between end of March until end of June. Nevertheless, despite these delays the citizen scientists submitted 1500 reports so far, and collected 15000 *Biomphalaria*, 8500 *Lymnaea*, 2000 *Bulinus* snails. Contrary to expectations, most *Biomphalaria* snails (which transmit bilharzia) were found upland, indicating **new putative transmission sites**.

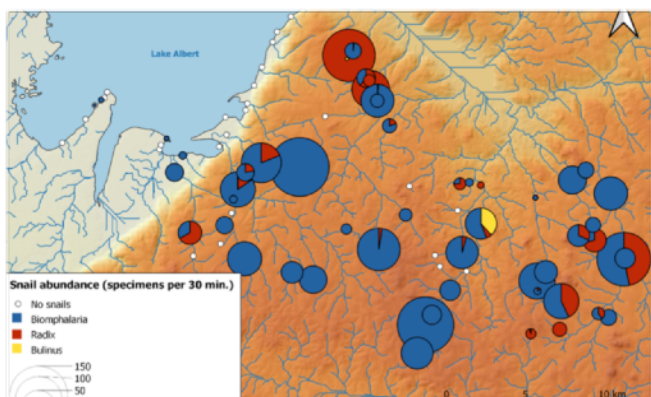
These results correspond with those of the ATRAP biology PhD & Msc students. They conduct monthly snail surveys at the same sites in order to compare citizen-driven data collection with the traditional scientific approach. This also allows regular personal contact between the ATRAP team and the CSs. Visit to the abattoirs revealed that **75% of cows** were infected with **liver flukes**.

The ATRAP sociology PhD & Msc students conducted Knowledge, Attitudes and Practices (KAP's) surveys and collected lived experiences of those that have ever suffered from bilharzia. The results show there are still **myths and misconceptions regarding bilharzia, like the belief that women are the cause of the disease**. Stigma and discrimination occur, and connotations differ according to gender and culture. Also, patients seek medication from traditional sources first before resorting to biomedical sources after symptoms have worsened. Finally, most people who haven't had bilharzia do not consider it a serious disease, while those that have experienced it perceive it as a very serious disease that has to be dealt with at all fronts.

All this information will be used to design **contextualised communication tools** that will be used during the snail-borne diseases awareness interventions in 2021.



The entire citizen scientist team at the training in March 2020



Average number of snails collected by the CSs in March 2020



Cow liver highly infected with liver flukes in Kagadi abattoir



Focus group discussion in Ndaiga sub-county

ATRAP citizen scientists help to inform communities on COVID-19

ATRAP has also contributed towards the fight of COVID-19 transmission by way of offering training to the citizen scientists, who later on created awareness about COVID-19 within their communities. A specialised training was organised by Joshua Ahumuza from the Red Cross on disease symptoms, risk factors and preventive measures to be taken to contain the spread.



Upcoming

- **January:** Refresher training for CSs in Kagadi district
- **September:** Midterm meeting with all stakeholders (more info later).
- **November:** Snail-borne diseases awareness week to inform surrounding communities on bilharzia and liver flukes.

Publications

Ashepet et al. 2020. *Wicked Solution for Wicked Problems: Citizen Science for Vector-Borne Disease Control in Africa*. Trends in Parasitology <https://doi.org/10.1016/j.pt.2020.10.004>

Brees et al. *Potential of citizen-driven monitoring of freshwater snails as hosts for schistosomiasis in challenging environments*. Submitted to Journal of Biogeography.

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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.

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