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Council for Tropical and Subtropical Agricultural Research

ATSAF - CGIAR++ Junior Scientists Program Final Report

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Country: Kenya
Supervisor at IARC: Dr. Celine Termote
Start and end date of stay at IARC: -
Start and end date of remotely supervised project: 01 May 2020 - 30 Nov 2020
Title: Underutilised wild plants consumption in Turkana and potential utilisation in Kenya's food system

Justin Whittle: Reflection from CGIAR Scholar at The Alliance

My name is Justin Whittle, I am a graduate student from school from University of Goettingen studying a Masters in Sustainable International Agriculture (International Agribusiness and Rural Development Economics). I am a recipient of the ATSAF CGIAR Junior Scholar Program. For the past 6 months I have been working with The Alliance of Bioversity International and CIAT on my research, *'Underutilised wild plants consumption in Turkana and potential utilisation in Kenya's food system'*.

I feel very honoured and humbled to be a recipient of the ATSAF CGIAR Scholar Program as it has been my greatest achievement and highlight in my masters program. After developing a masters thesis proposal with Bioversity International for two month with my university supervisor Dr. Gudrun Keding – the following acceptance by ATSAF was a great achievement. Although this project was a new challenge for me working with many different interdisciplinary actors and stakeholders- I was ready for the challenge. It was really helpful for me because prior to this I had developed almost 5 proposals for my thesis over the year – all being rejected or compromised due to COVID 19. Hence working with CGIAR's secondary data to look in-depth into agro-biodiverity in Turkana, Kenya was warmly welcomed.

For the past 7 years I have been researching agriculture in academia and very passionate about the knowledge and breakthroughs science can make. I have always dreamed to one day work in a IARD or CGIAR to develop practical knowledge that can have tangible impacts for rural developed and food security. My particular field of interest is in niche, novel and underutalised food systems that show promise for a hotter and drier climate in the future. I am also particular interested in climate smart food systems which is a top agenda of the CGIAR. Being a CGIAR scholar has been a really a great stepping for networking and a building new bridges to begin a future career in research.

This is supported by our collaborating partner Dr Céline Termote who acts as the Africa Team Leader for the Food Environment and Consumer Behaviour Lever for The Alliance, Nairobi, Kenya. Dr Termote is an established researcher on ethno-botany which is fascinating and interesting field of research for me. From the research connections Dr. Keding (supervisor from Goettingen University) was able to coordinate a research topic with her former colleague Dr Termote who had a data set that Bioversity International

collected which has not been analysed in depth. Neither had the data been been published which was an objective why we wanted to work together. It was apparent to me after this experience actually a lot of CGIAR centres have a lot of data that is sometimes not looked in-depth due to numerous reasons however time, resources and money seemed to be large contributors. Hence there was strong enthusiasm from all parties to collaborate and work on this project together.

The data set contains knowledge of wild foods (animals and plants) collected from agro-pastoralists and pastoralists in Turkana, Kenya. The data set was a large qualitative sample of focal group discussions which was cleaned only to look at Vegetables, Legumes & Seeds, and Fruits. However the original data contained a lot of other categories including; meat and other condiments (spices and tea). The main objectives of the overall study are listed below;

- To document **local knowledge** on available **food biodiversity** at the community level (sub location level) wild plant food specie.

- To provide insights into **availability, access and use** of agricultural biodiversity of wild species based on gender and agro-pastoralists and pastoralists.

- Rank a priority botanical species list of wild species that may be underdeveloped or hold opportunity greater investment for CGIAR to consider.

Data Collection:

The data was collected by Bioversity International related to the BMZ/GIZ funded project "Innovative, participatory tools for dietary assessment and nutrition education considering local agrobiodiversity in Turkana County, Kenya". In Kenya they collected data in 6 locations in the Turkana Region: Kablokor, Lobei, Lokiriama, Lorugum, Nadapal, Namoruputh. In each of these regions two FDGs were conducted with 10 participants each, a total of 20 participants where involved in the study per location having a total sample of 120. Each location were gender segregated into male and female FGDs having the data recorded by the CGIAR centre extension officers.

My Thesis in Covid19 Pandemic.

We had all plans to visit Turkana in August 2020 with CGIAR to go to the field to collect more data on this particular topic. However we were not able to dues to Kenya lock down and the CGIAR centre was also placed into home office for most of the year. Dr. Termote also began working remotely after travelling to Europe wait for the situation to improve. Hence there was a lot of collaboration with the other national workers and others who were still in Kenya.

This was a challenge to work on a data set with no prior contextual experience on the data collection or environment, however we did our best to conduct the results. And possible when COVID19 is under control there maybe the opportunity visit to assist the centre. Working online remotely from office is also a new challenge because communication can be slow. COVID19 also has a large impact on my mental health which also slowed progress on my thesis.

For me I learnt a lot of new methodologies including analysing qualitative data, coding data, using a similarity index (Sorensen Dice SD*), participatory gender focal group discussions, data visualisation, utilising food calendars, and 4 cell analysis. These all were new learning curves for me to understand as I am more used to quantitative methods. In my research I was very excited to learn more about the east African traditional food crops, the multipurpose aspects of crops and differences in gender in terms of responses. Analysing the data on participatory focal groups discussions was a challenge and I realised that they only give one perspective of agro-biodiverity in the region. It is very good to understand what preferences and perspectives there are at the local level in an area however the following research is very site specific based.

Results

The following results of the paper will soon to be published however in summary, there was not a significance difference in similarity between gender or agropastoral and pastoralists. The number of responses however differed in terms of food groups with legumes and seeds, and staple crops which were mostly responded by men (shown in Table 1).

Table 1: Wild botanicals identified from Turkana villages* (Women 13 / Men 22 Unidentified Species)

Land use	Agro- Pastoral (AP)						Pastoral (P)					
Village	Kablokor		Lobei		Nadapal		Lokiriama		Lorugum		Namoruputh	
GENGER Female (F); Male (M)	F	M	F	M	F	M	F	M	F	M	F	M
VEG	7	9	8	4	9	5	12	6	7	8	6	6
FRUIT	9	15	20	15	12	8	16	23	11	12	10	15
SEEDS, LEGUME	-	1	-	2	-	6	-	5	1	5	-	8
STAPLE	-	-	3	1	-	1	5	3	-	2	1	1
Total	16	25	31	22	21	20	33	37	19	27	17	30

*Male 161 entries, (56 plant species), Women 137 (50 plant species). (AP-135, P – 163) t- 298
AP- Species 48 P- 41

Almost 70% of the wild plants were annual plants portrayed in Figure 1. Out of the 56 wild plants, the most identified families responded included with a score over 25 were plants coming from Zygophyllaceae, Rhamnaceae, Malvaceae and Leguminosae families.

Figure 1: Annual and Perennial wild food plants in Turkana.
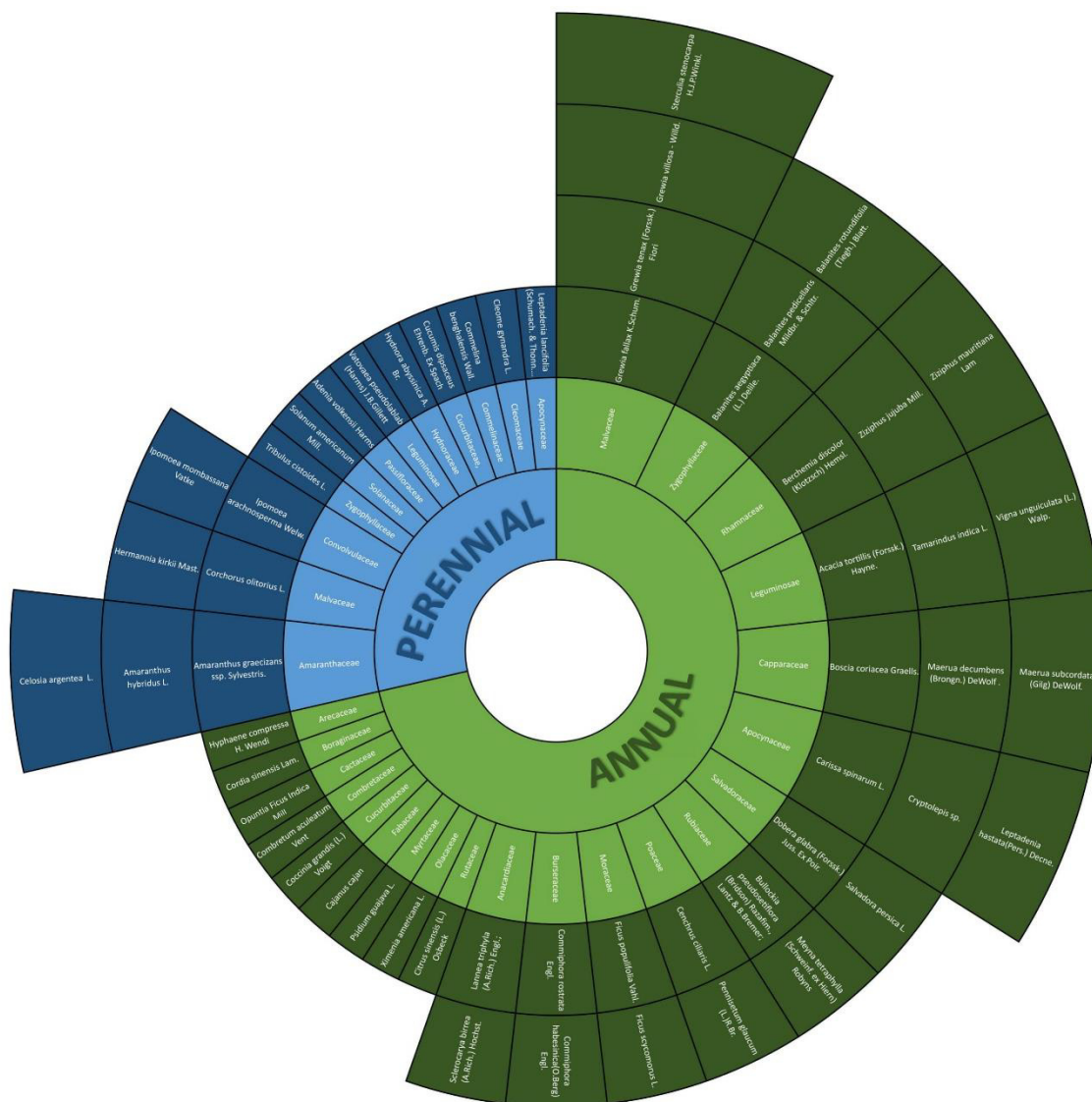
Out of the 56 wild plants, 13 were identified as multipurpose crops and a list of underutilised (shown in Figure 2) but potential crops for a drier climate were identified. The ranking used indicators such as availability in community and length of season, likeness, uses, and marketability.

Figure 2: Ven Diagram for wild species categorised into uses.
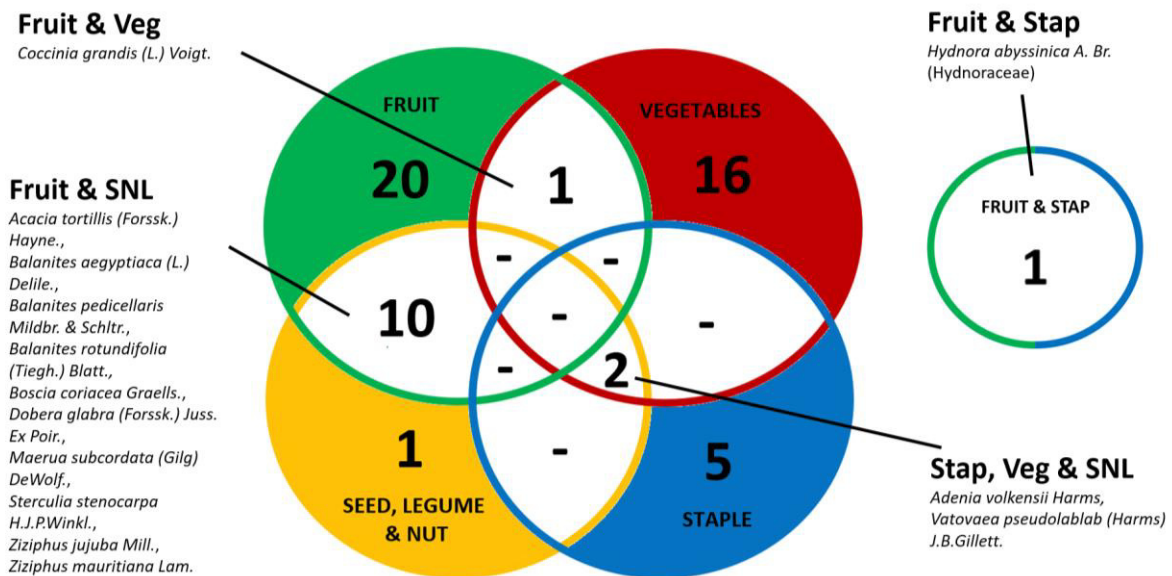
Final Remarks

This experience of being a CGIAR ATSAF Junior Research scholar has been a rewarding experience. It has allowed me to develop new skills and provide important information to the research centre. From this experience I would like to continue working in research in underutilised food crops. The following data will benefit The Alliance's future activities in the region and hopefully give a more in depth look into consumer preferences and availability in the region for future research.