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Fall 2019

# The Effect of Stray Dogs on Urban Arusha Residents and Existing Preventative Measures

Brooke MagliaBatista  
*SIT Study Abroad*

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The Effect of Stray Dogs on Urban Arusha Residents and Existing Preventative Measures.

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Biology

Africa, Tanzania, Arusha, Urban Arusha

Submitted in partial fulfillment of the requirements for Wildlife Conservation and Political Ecology, SIT Study Abroad, Fall 2019



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## **Abstract**

The study at hand encompasses interviews and observations conducted in three areas of Urban Arusha. The areas of choice are Njiro Complex, Sinoni, and Kaloleni areas, in addition to interviews with individuals situated at Clocktower, input from a veterinary practitioner and information gathered from the organization Mbwa Wa Africa situated next to the Arusha National Park. The study took place from Nov. 7-Nov 26, 2019. The interviews include random sampling of local populations and encompassed pre-formed survey questions for each level of person interviewed. The question being addressed ask: what is the dynamic between Arusha residents and stray dogs, and what preventative measures are being implemented across different disciplines that deal in this regard? The purpose in studying these areas and among these individuals is to get a more rounded view of attitude and action towards stray dogs from these different areas in Urban Arusha. The objective in studying this topic is to better understand the full dynamic between communities around Arusha towards the excessive number of canines present, and in doing so, to ascertain what the relationship is, where the problems lie, and how people are mitigating them. Results from this study find that currently all parties spoken to are aware of the risks and associations with living in proximity to strays. All individuals interviewed have had some sort of experiences with dog biting's, though specific interactions among individuals vary. People in the business of selling dogs find their buyers to be from a variety of economic backgrounds and find that the presence of stray dogs has done nothing to affect their breeding and selling of more sought after western breeds of dogs. Veterinary practitioners are in short supply of resources and funding, and many solely work in the field of livestock health. Organizations like Mbwa Wa Africa are currently in the process of trying to implement long term solutions, and in the meantime do large work in tagging, vaccinating, and sheltering some of these stray dogs. In the future it looks like the stray dog populations will need to be dealt with, either by Mbwa Wa Africa or some other third party in order to mitigate human health risks present within communities.

***Key words:*** *Stray dogs, tourism, rabies, economic degradation, perception, interaction, shelter, dog sellers*

## **Introduction/Background:**

The prevalence of stray animals is not an uncommon phenomenon in a world where populations as a whole are constantly in fluctuation. Even in developed regions like America, fast breeding species such as canines are frequently seen roaming cities, running amok in people yards, eating anything and everything, and sometimes even attacking unsuspecting passersby when the circumstances arise. It is not a secret that stray dogs inherently provide a risk to the communities they inhabit. In the world alone, developing countries such as Bali, Tanzania, Baghdad, and India to name a few, are especially among the states to face substantial issues with large stray dog populations. According to The World Health Organization (WHO) as spoken about in an article written by the NAIA (National Animal Interest Alliance) there are an estimated 200 million stray dogs worldwide, and in correlation with this, an approximate 55,000 people die due to rabies, while another 15 million receive post exposure treatment. About 95% of these cases in the world occur on continents such as Asia and Africa. (Strand P. 2011)

Within these countries, Tanzania alone has faced considerable adversity. As of 2017, Tanzania's population lied at 57.31 million. In looking at an article written by an organization known as Mbwa Wa Africa, 1,500 deaths are due to rabies alone in Tanzania. In a city like Arusha, with a population of 416,442 people, some of the figures regarding deaths due to rabies are unknown. Though this is the case, in looking at places such as Arusha, we can gauge what sort of effects this type of situation is having on local communities' perceptions, what is being done to mitigate such clear challenges, and what could possibly be done in the future. (Fissenbert J. 2016)

Previous studies address that the risks commonly associated with stray dog populations are environmental pollution, economic degradation, dog bite injuries, predation, traffic incidences, and zoonotic transferring of disease. Urban rabies is especially a problem and Africa is among one of the continents, along with South America and Asia that have an important role in trying to manage their dog populations because of such factors. In looking at previous studies done in Sao Paulo, stray dogs were studied in urban fragments and the relation between populations perception of presence along with socio-demographic factors were analyzed. This was done by interviews via the method of systematic random sampling of households in each standard area. Certain illegal factors such as abandonment were difficult to gather data on, but it was clear that the problem did lie in high frequency with such actions of desertion. Along with this, density of

population was dependent on area, and food source availability. It found that with the regular presence of food and shelter resources provided by strangers that conclusively, it led to an attitude of protection towards the area on part of the dog. It was concluded that mindset on the issue was dependent on welfare of the public space, seeing as some found dog presence as unacceptable and some saw it as a natural fact, and those perceptions are what ultimately contribute to the overall situation at hand. (Guilloux et al, 2018)

Other areas of issue involve the tourist industry, and how their presence can have a negative effect on travelers looking for a peaceful getaway. Those who have encounters with mangy and emaciated strays commonly do not return to said destinations, and are likely to share the experience with others, affecting the economic benefits gained from tourism in certain areas. In another study conducted, it addressed the concept of conscious consumers “voting with their wallets” in an effort to refuse travel to places based on the premise that they do not want to see starving and unsheltered animals roaming. The tourism industry takes a dip in such cases where individuals see such life quality and then act accordingly, usually in a way that affects the economic implications of tourism by simply refusing to travel to those places. This coincides with information gathered from Arusha, seeing as it is a major stopping point for tourism, as many people travel here before or between safaris. By conducting a survey of 1,200 US and Canadian tourists, and what impact it had on their future decisions for travel, it was found that while not all comments were negative, that there were lasting impressions. This conscious impression can be linked to either caution on part of the traveler and where/when they walked about, or just overall emotions of sadness towards the influx of strays witnessed, affecting the mood of their trip altogether (Webster 2013).

The relationship between a community and its dogs is not always an entirely positive aspect of society. Many cultures will identify similar problems associated with having dogs in their midst. In South Africa, the Soweto community identified the problems caused by dogs as road accidents, barking and fighting, biting children and killing livestock, and uncontrolled fecal contamination. Some diseases associated with such dog prevalence are rabies, echinococcosis and toxocariasis, things detrimental to human health. (Reece J.F 2005) As both human and dog populations continue to increase, it can be anticipated that dogs will continue to play a part in the ecology of urban settings. Free-ranging dogs originate from a combination of occasions,

including pet releases, pet escapes, breeding, pet abandonment, and pet release after stealing. (Beck A.M. 1973) In many developing countries, efforts to control the often large populations of free-roaming dogs typically focus on mass removal of dogs, in most cases by killing via means of poisons and other such methods. (Reece J.F 2005)

Arusha currently reflects much of the issues encompassed. People are being bitten, infected, stolen from, and made fearful by the presence of this four legged counterpart. In conducting a survey in three areas of Arusha known as Sinoni, Kaloleni, and Njiro Complex, along with meeting with Mbwa Wa Africa, dog sellers, and a veterinary practitioner, there is a way to link these issues with current perceptions on part of the communities. In understanding these views from such a stratified body, future measures can be employed to further the understanding we have on not only the impacts, but the insight that these people have into the issue as a whole. In addition to this, we can further acknowledge preventative measures implemented, the strength and weaknesses provided by them, and future movements towards mitigating increasing populations of stray dogs.

*Objectives:*

- 1) To determine the effects of stray dogs in Sinoni, Kaloleni, and Njiro Complex
- 2) To examine the existing preventative measures for dealing with stray dogs

*Site Description:*

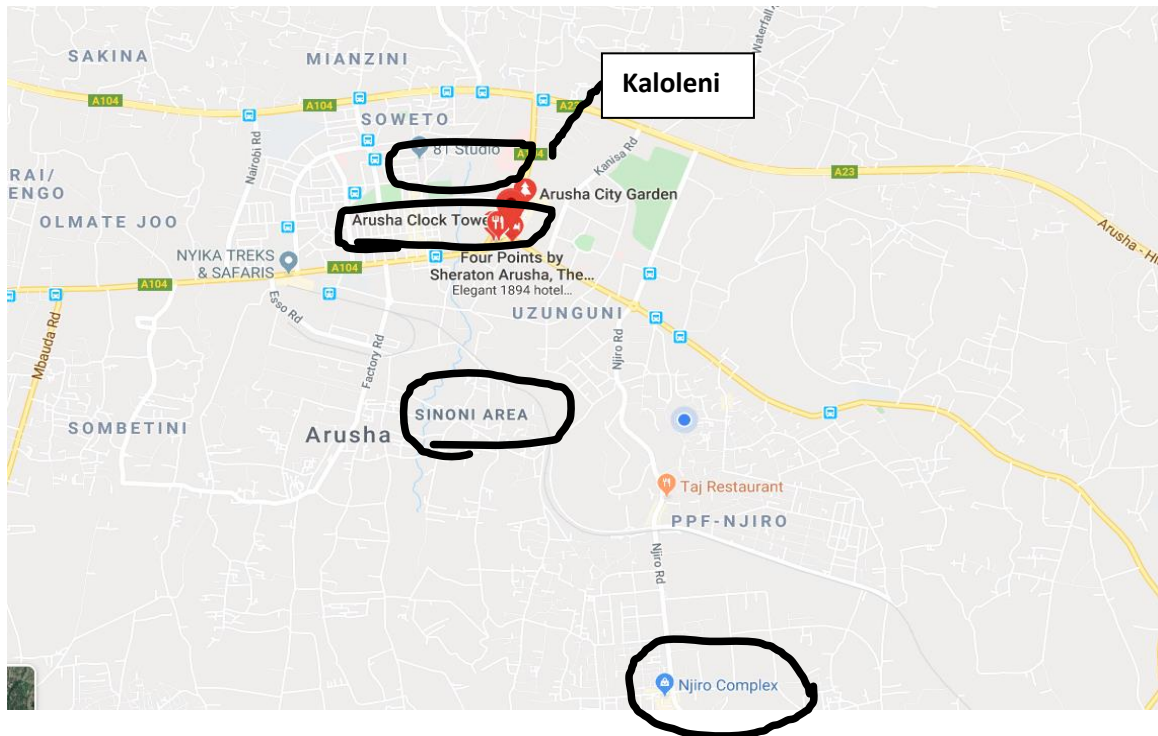
This study took place in Arusha, specifically in Urban Arusha, in the areas of Njiro Complex, Sinoni, and Kaloleni, with additional trips to USA River, and Clocktower sites. (Refer to Fig 1.) Njiro Complex is a bustling area where many shops and eateries are set up. It lays southeast of the Sinoni area. Activity varies from the factory across the street, to the very modern Njiro Complex, to SIT headquarters, auto shops, barbeque joints, and other small shops set up by locals selling plastic bins, shoes, fish, and other such goods. The road itself is paved, before branching off to other dirt roads leading to where most of the local shops are. Most of the interviews were had off the main road, and on these dirt side streets.

Sinoni is located south of Clocktower and also is a dirt road met with locals opening up makeshift as well building shops to sell all kinds of goods and services. People frequently sit

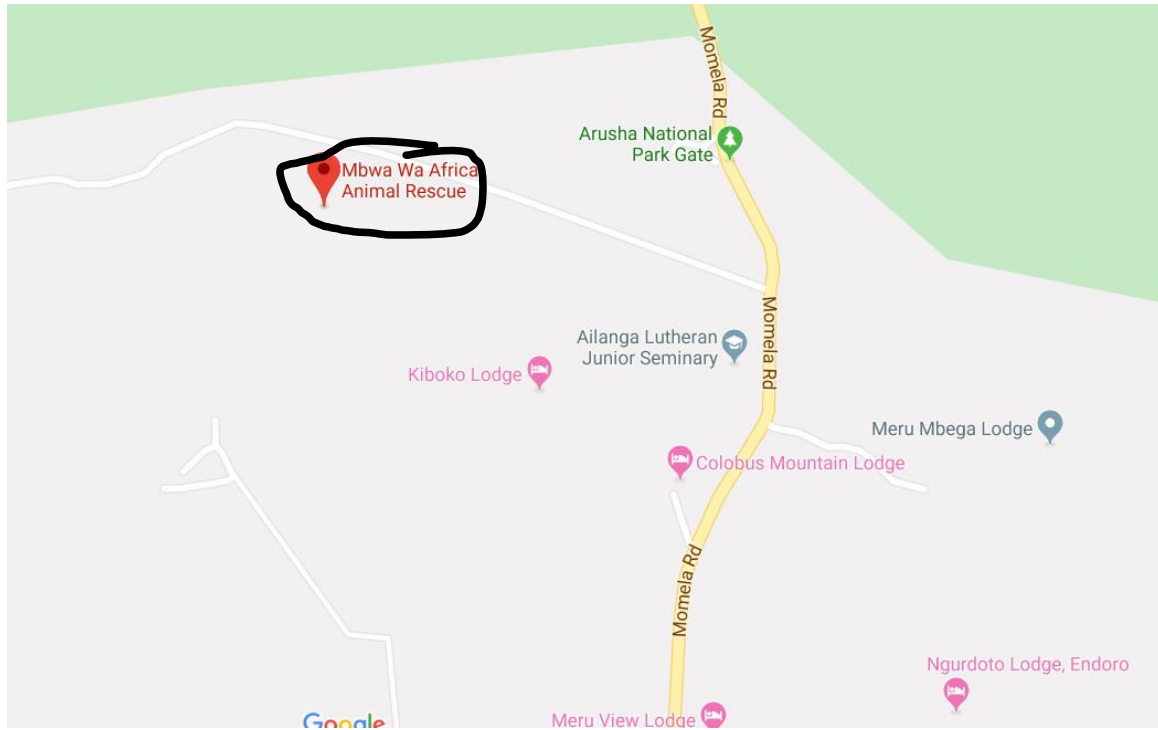


outside and line the streets and piki piki drivers are ready to be of service to anyone willing who walks by. Kaloleni is located southeast to Mianzini, south of Soweto and slightly northwest of Clocktower. It is also a long stretch of dirt road, lined with shops similar to things useful to the community as in Sinoni. Here too, people were sat outside their businesses working, selling goods, talking, and frequently piki piki's and trucks drove by coming either to or from the main road at the end of the street. Clocktower lies in the middle of these regions; it's north of Njiro and Sinoni, and southeast of Kaloleni. Being at a roundabout, it is a very busy area with people selling different goods. There lies a gas station, a post office, eateries, and a very nice hotel, at the center of which dog sellers were present.

Mbwa Wa Africa lies in the mountains above the USA River, and next to Arusha National Park. It is a 1-acre compound 1 kilometer west of Momela Road. There is a small surrounding village next to a timber forest, where one can buy vegetables and other necessities. (Refer to Fig 2.)



**Fig 1.** Indicating Njiro Complex, Sinoni, Clocktower, and Kaloleni areas within the Urban Arusha Region. (Base map from google maps)



**Fig 2.** Indicating the location of Mbwa Wa Africa Animal Rescue in Arusha. (Base map from google maps)

## **Methods:**

In conducting this research, the methods used consist of observational analyses and prepared survey questions for each category of person. This was conducted in three locations, respectively mentioned as Njiro Complex, Sinoni, and Kaloleni. There were 10 interviews conducted at Njiro Complex, 9 interviews conducted at Sinoni and 9 interviews conducted at Kaloleni. In addition to this, an additional interview of a veterinary practitioner was conducted while in the field, along with interviews of the local dog sellers at Njiro Complex, and a very informative booklet was given to me via the Mbwa Wa Africa organization upon a meeting at their shelter near USA River. For the interviewees, each category of person has questions addressing their specific situation (Listed in Appendix A section). Convenience sampling was used to conduct this study. Convenience sampling is a, “non-probability/non-random sampling technique used to create samples with ease of access, readiness to be a part of the sample, and availability at a given time slot or any other practical specifications of a particular element.”(Bhat A. 2019) This was due out of the ease to find a general consensus of overall feelings and interactions among communities. A descriptive analysis was then used to analyze the data by perception, interaction, and knowledge of any kind of outside help, which was then quantified by counting the amount of people out of the total interviewed in that area, and separating them into the three groupings stated previously before implementing them into Excel for a visual representation.

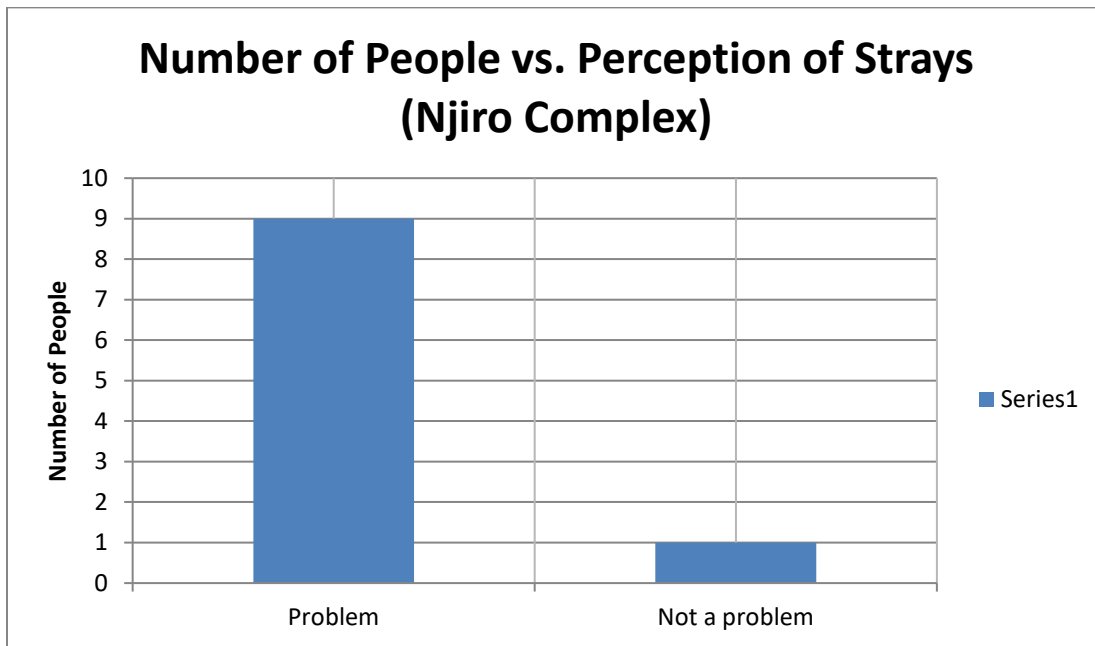
Individuals who seemed free at the moment were chosen at random as my translator and I walked along the roads of the regions of Njiro Complex, Sinoni, and Kaloleni. It was made clear to all participating parties that this study was to be shared with teachers and classmates along with an organization, and that it would remain anonymous. It was also stated due to the anxiety on part of participants that this was purely subjective and based on their own experiences. The first day of the study was spent at Njiro Complex, using the above mentioned means, and 10 interviews were conducted that day. All interviews varied in gender, though it will be noted that during this study women were more likely than men to decline an interview based on what was expressed by the translator to be due to uncertainty. In these cases we would give thanks and then carry on. No participants were made to participate if they did not feel comfortable to do so. In the following areas of Sinoni and Kaloleni, 9 interviews were gathered respectively. This was

due to having to promptly leave one of the sites because of possible danger, my means of recording data, and in one of the interviews being deleted.

## Results

### Community Perceptions

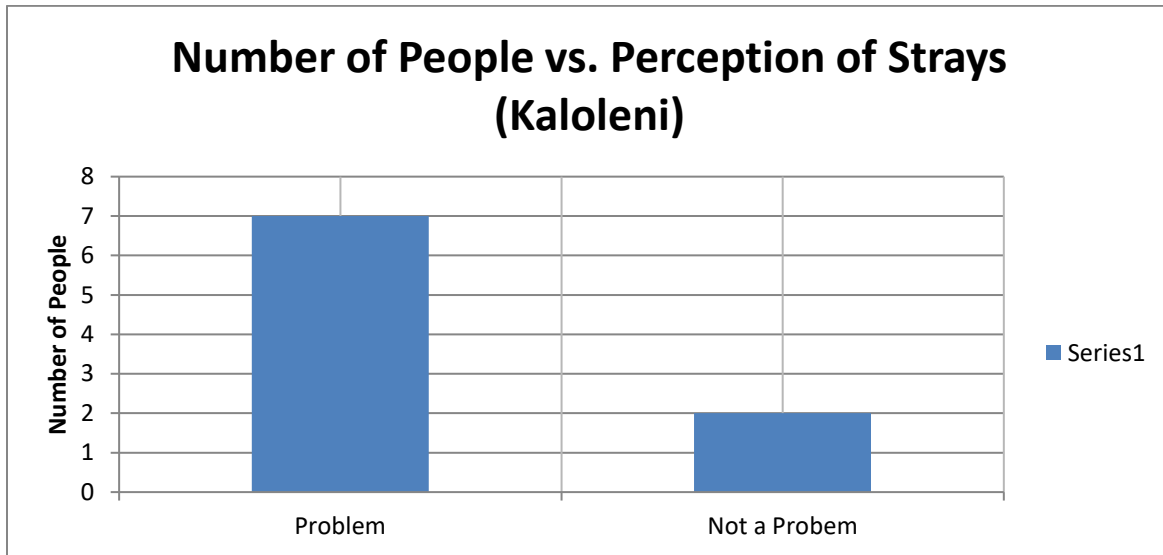
The results regarding the communities of this project revolve around three sections. The first being people’s perceptions on the amount of stray dogs, the second being the types of interactions individuals have with dogs in general, and the third is the knowledge of outside sources coming and either helping to limit dog populations, or to treat them by vaccinating or spaying/neutering



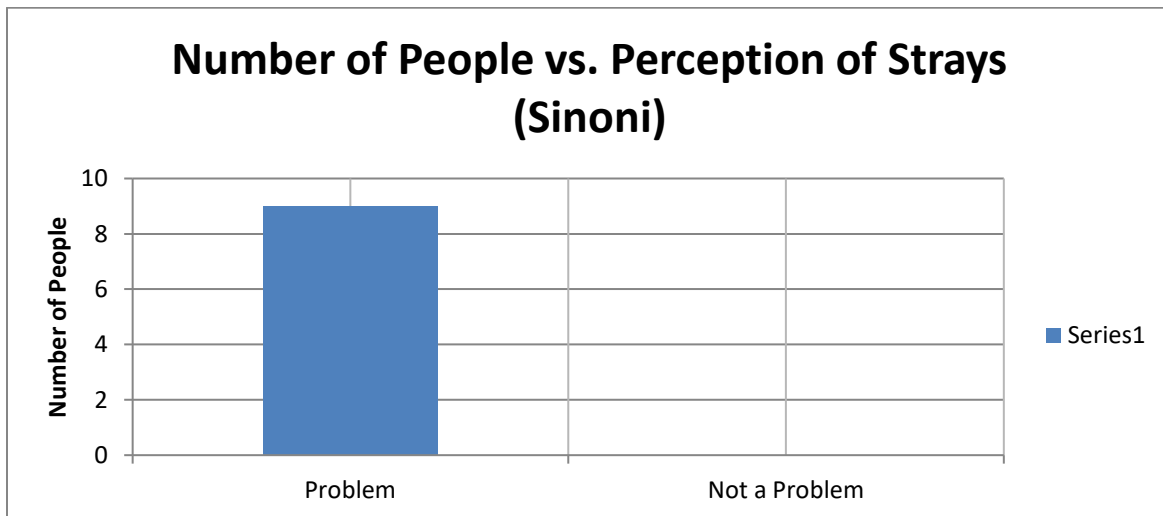
*Fig 3. Indicating that 9/10 people perceive the presence of stray dogs to be a problem in the area of Njiro Complex*

In looking at overall perceptions (Refer to **Fig 3.- 5.**) from the three locations of Njiro Complex, Kaloleni, and Sinoni, we can see that more often than not the people interviewed clearly state that they felt the presence of stray dogs was a problem in some way to their lives. Individuals were clear that these problems stemmed from the dogs stealing food from local shops, chasing people, and even attacking at random. It was explained that children were the largest targets, and that walking at night was highly advised against. Often time’s people would refer to the rabid animals as “mad”, and one man was very fearful when he explained that there was a dog inflicted with madness just down the street that had already bitten three people. Many of the people also

expressed a general fear of the animals because of the unpredictability of the entire situation. A woman even told a story of watching a child walking home get attacked out of the blue. Only once did a person state that they believed the strays were not a problem, and that they were friendly unless provoked to attack. The other people who thought it was not an issue saw it as a fact of their daily life, that they just wander looking for food, and that there was nothing much more to it as long as people did not mess with the animals.



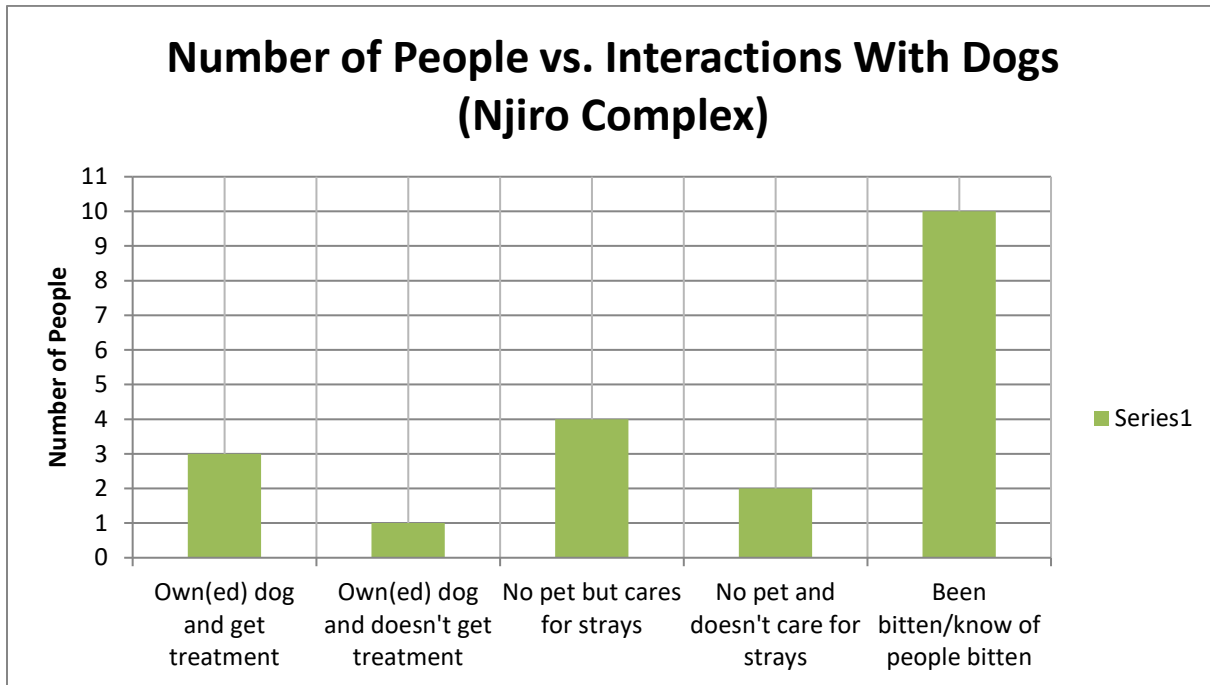
**Fig 4.** Indicating that 7/9 people perceive the presence of stray dogs to be a problem in the area of Kaloleni.



**Fig 5.** Indicating that 9/9 people perceive the presence of stray dogs to be a problem in the area of Njiro Complex.

## Community Interactions

In referring to (Fig 6.) we can see the types of interactions present between the communities and the stray population present in the area of Njiro Complex.



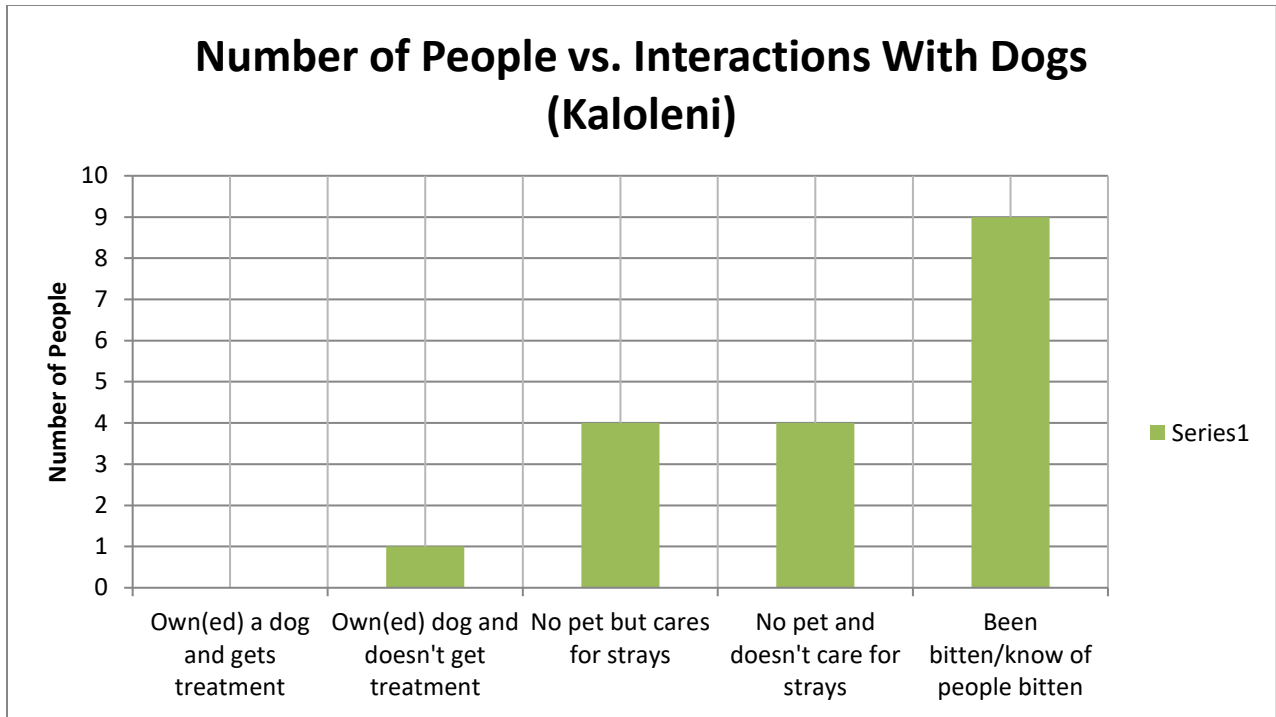
**Fig 6.** Indicating that 3 people own or have owned dogs and have gotten some sort of treatment (vaccinations or castration), 1 person own(ed) dogs and has not gotten treatment, 4 people have no pet but care for strays (ie. Feeding or sheltering), 2 people have no interaction with dogs, and that all 10 people interviewed have either been bitten or know of people being bitten.

The types of interactions in the area of Njiro Complex varied. Three out of the nine individuals interviewed either have a pet currently or had one previously, and got treatment for it in the form of vaccinations or castration. Only one person interviewed had a pet and received no treatment for it at all. More often than not people who did not have any dogs as pets, would still socialize with the stray animals in some way in the form of feeding, sheltering, or playing with them, while two of the people interviewed expressed having no interactions with dogs at all, neither owning a pet nor caring for the strays. All 10 of the interviewees had stated that at some point they knew someone to have been bitten, had seen someone get bitten, or they themselves had been bitten in an encounter with a stray dog.

In looking at (Fig 7.) in the area of Kaloleni, unlike at Njiro Complex, there were no participants interviewed that owned a dog and got it treated. Only one individual interviewed expressed having a pet dog, and this animal was not treated. There were four people who had no dogs as pets, but still cared for the street dogs in terms of feeding, sheltering, and playing, much like in the area of Njiro Complex. While this was the case, there was also an equal amount of people who did not own dogs, and had no interaction with strays either. They instead wanted nothing to do with their four legged neighbors. All nine of the individuals interviewed expressed that at some point they knew someone to have been bitten, had seen instances of attacks, or they themselves have been attacked and bitten.

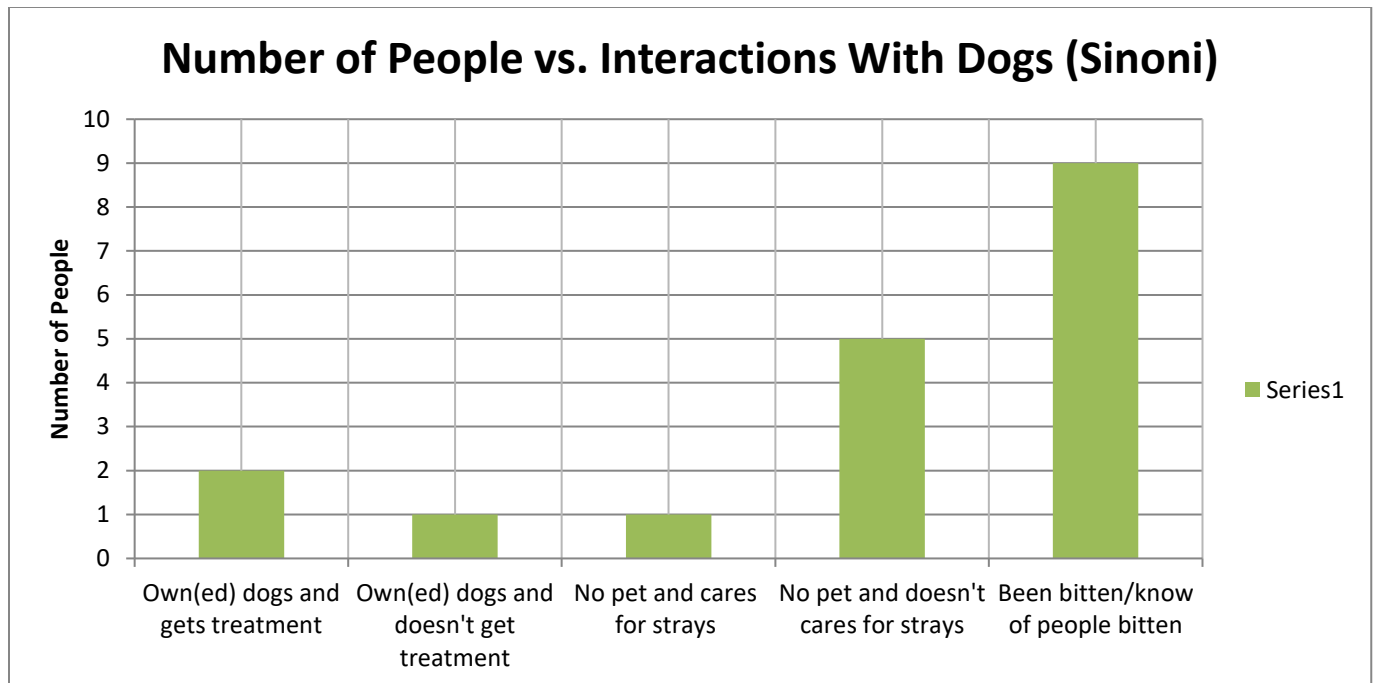
During one instance of interviews, my translator and I were approached by a man on a piki piki who had said that he actually has a shelter for the dogs at his workplace down the street, and invited us to come and take a look. Upon arrival to this auto shop, the amount of dogs increased, and one could find them lying under cars, roaming around and things of the like. He had said that while the animals provide protections from people attempting to steal parts that they also just simply cared about the wellbeing of the animals, and wanted to help in any way they could. They had made a makeshift shelter from a bent door and some metal sheets, and would try and find leftovers to feed the dogs, though they could not always find enough food and the dogs would more often than not be on their own to fend for themselves. They additionally said that when the vaccination center opens on Saturdays that they bring as many dogs as they can down to be vaccinated. The point will be made that while they thought the living situation to be an issue that they further stated that the increasing population was not a problem, and that they should increase just as human populations increase. The only issue they saw was the lack of money to fully care for the lot.





**Fig 7.** *Indicating that of the 9 people interviewed, 1 person own(ed) a dog but did not receive any type of treatment for I in the form of vaccines or castrations, 4 people had no pets but still cared for the strays, 4 people had no interactions at all, and all 9 people have either been bitten or know of people being bitten.*

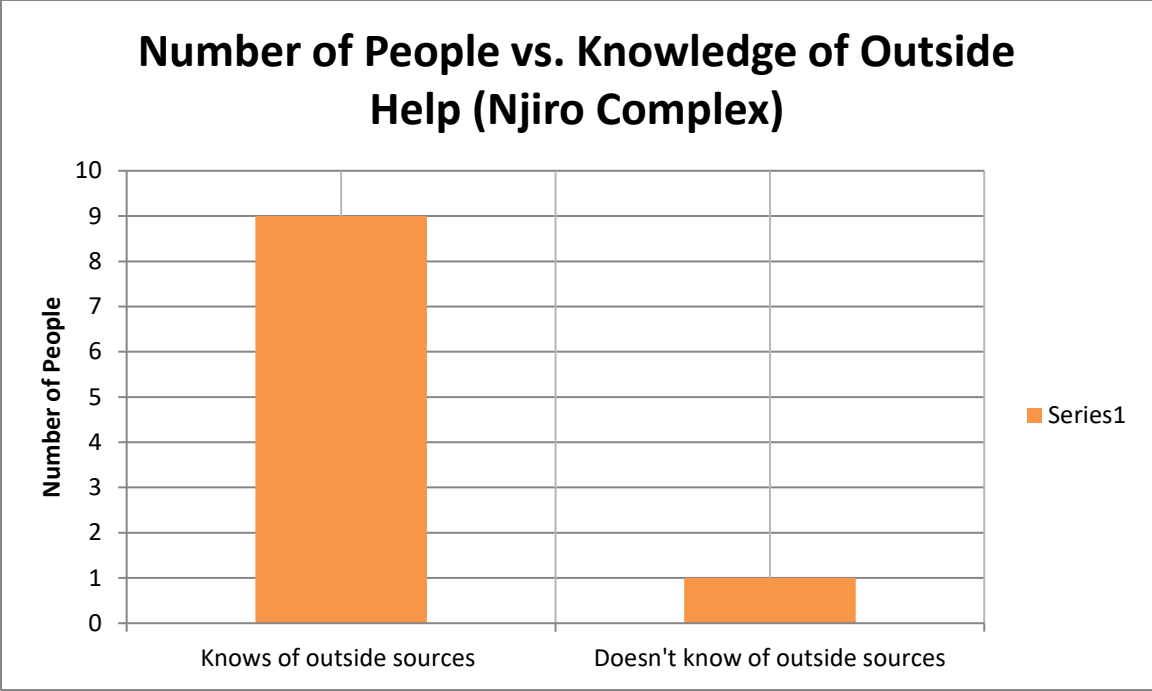
In now taking a look at **(Fig 8.)** in the area of Sinoni, we can notice that instances of caring for the stray dogs are much lower. Only one person said they cared for the stray dogs even though they themselves had no pet, while five people expressed having no interaction with the animals in any way. In terms of the people who had pet dogs, two of the individuals got their pets treated, while only one got no treatment at all for their animal. All nine of the participants, similar to Njiro Complex and Kaloleni, expressed having some experience with having known, seen, or being bitten by a stray dog.



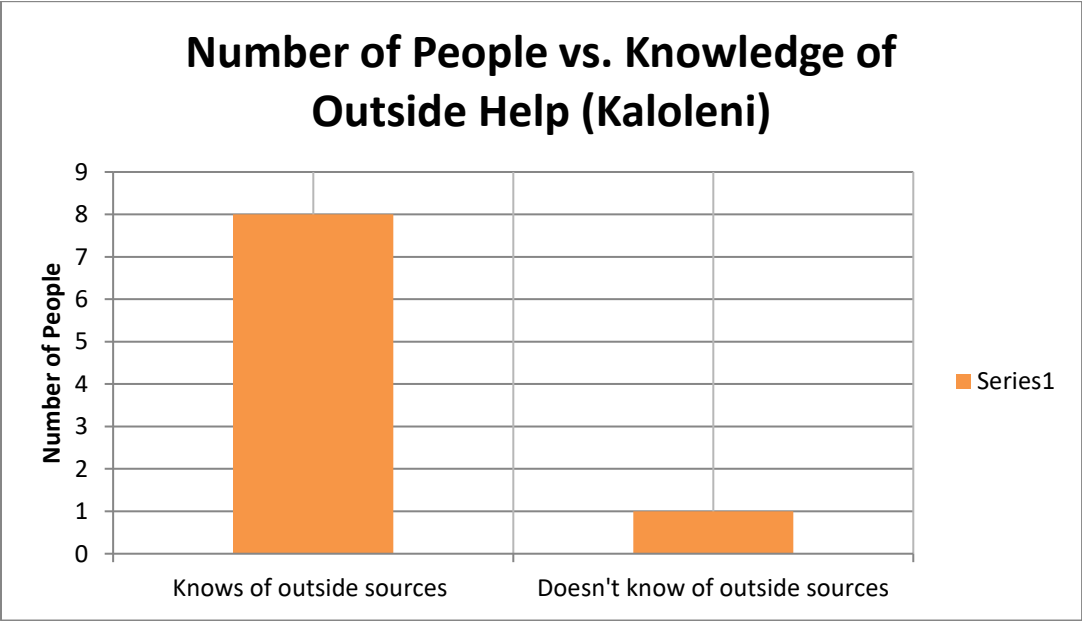
**Fig 8.** Indicating that of the 9 people interviewed, 2 people own(ed) dogs and got treatment for it, 1 person own(ed) a dog but did not receive any type of treatment for it, 1 person had no pets but still cared for the strays, 5 people had no interactions at all, and all 9 people have either been bitten or know of people being bitten.

Community Knowledge

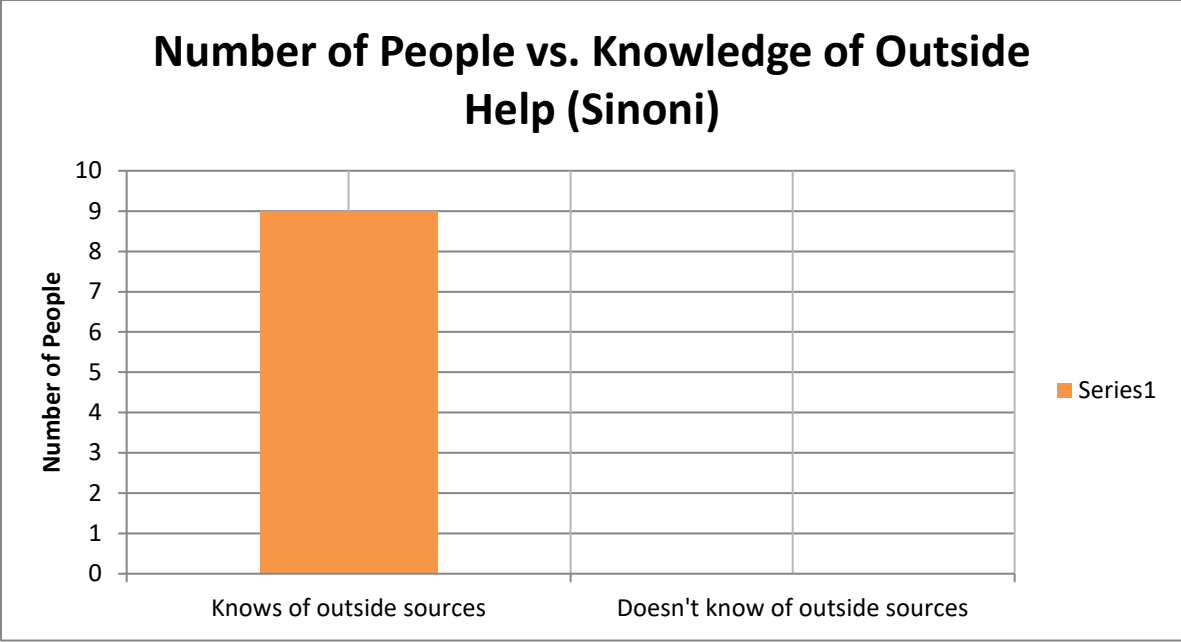
In looking at (Fig 9.-11.) we can ascertain to what degree of awareness people have in terms out outside help coming in and assisting with the stray dogs in some way. Only two people out of the 28 interviews and three locations had stated they knew of no outside help. Others would specifically name the municipal, Wa Mbwa Africa, or even vets nearby that they knew. To varying degrees these resources would come in and either castrate and bring back the animals, have mass vaccination days, or on part of the municipal specifically, poison and shoot the animals. More often than not, it was this latter method that people knew most about, expressing that the municipal would shoot any dog they saw wandering without an owner, regardless if it was owned by someone or not. Many people also expressed sympathy towards the animals, instead saying how they wished there was a way to shelter the animals and provide for them because they believe that the situation is not the dogs fault, but the fault of a neglectful owner. Others thought it was helpful to have the dogs shot, as it lowered populations immediately, and they were tired of the problems that the strays brought to the community.



*Fig 9. Indicating that 9 out of 10 people knew of a type of outside source to help with the stray dog issues, and 1 person out of the 10 did not know of any outside source to help with the stray dog issues.*



*Fig 10. Indicating that 8 out of 9 people knew of a type of outside source to help with the stray dog issues, and 1 person out of the 9 did not know of any outside source to help with the stray dog issues.*



**Fig 11.** *Indicating that 9 out of 9 people knew of a type of outside source to help with the stray dog issues.*

Amongst these three areas of Urban Arusha, it is clear that everyone knows the physical dangers of having stray dogs in the vicinity. Regardless of owning a pet, and regardless if the individual took care of the strays, all had experienced instances of dog biting. Rabies was a common topic spoken about, being referred to as, “madness” even if people did not know the exact terminology for rabies. People were aware that these dogs were hungry more than anything, and they claim that neglect on part of humans is a large part of why there is such prevalence of street dogs. It is unclear as to why individuals in the Sinoni area specifically had low numbers in regards to caring for the stray animals when the areas of Njiro and Kaloleni at least had four people at each site care enough for the animals to try and help them in some way. Some of the people spoken to, while acknowledging the dangers, also said that the presence of stray dogs was beneficial to protecting their home and businesses, as the dogs would bark at any signs of intrusion. More than one person also had expressed that they had gotten their animal from the street, and that it became their pet after they had fed it for a time. Others that owned dogs said that they got it from a friend who knew a breeder, or that they owned western breeds instead for protection from the street dogs and possible robbers.

## Dog Sellers

Stationed at Clocktower are men who work in the business of selling dogs. These men were born and raised here in Arusha, and found that the work they did was not only a good source of income, but it fulfilled their love of dogs and their ability to work with them. They mostly sell western breeds, seeing as in the past they had a female dog and would pay people they knew to have western breeds to have the two mate. These men actually don't do any work with the stray dog population, and say that while this demographic is an issue to local communities, that it has no effect whatsoever on their livelihood. Referring to (Fig 12.) this is an example of the type of dogs they would commonly breed and sell. This dog specifically went for 300,000 TSH, but there is always the option of bargaining. As pups they get the animals vaccinated but not castrated; they would even teach some tricks to the animals. When asked what kind of audience they catered most to, they had expressed that they sell to all economic classes, and that it depended on what the buyer wanted. People may come with the inquisition of having a good breed for protection for their farms, or even sometimes simply to have a pet.



*Fig 12. Two dogs being sold at Clocktower by dog sellers.*

Upon arrival to where the animals were kept when not being sold, it was clear that there were too many. Looking at (Fig 13.-15) the dogs were kept in chicken coops, and many of them were incredibly skittish towards people. Dog fights are common amongst the animals and even during my visit there was a fight that had to be broken up. I also was bitten during this excursion by the same dog that started the previously mentioned dog fight. The care of the animals entails baths every Sunday and a meal every evening which can vary of rice, sardines, beans, and ugali. They held the belief that in giving the animals any kind of meat, that it would give them the taste of flesh, which then would make them want to bite people. A vet is brought to the compound with medication, but none are spayed or neutered. The max amount of dogs kept at one time was 15, because of the difficulty of taking care of such a large number of canines and having to provide for them. When asked about some challenges in their work, they expressed that one was geographical location, that the place they stayed at was very sunny, and it made them and the dogs tired very easily, but that otherwise they enjoyed their work and they enjoyed the animals.



*Fig 13. Dogs running around at the complex where the dog sellers kept their animals to sell*



*Fig 14. Chicken coops used to house the dogs at the dog sellers complex.*



*Fig 15. A chicken coop showing a dog inside at the dog sellers complex*

## Veterinary Work

Upon interviewing and shadowing a veterinary practitioner, much became clear about not only the availability of medications, but veterinary services and the veterinary world as a whole. The man interviewed will be referred to as Dr. Z for the point of remaining anonymous. Dr. Z has been a vet for 31 years, and in referring to (Appendix A), the questions asked varied from his opinions to his experiences in working in a field like this in a place where majority of canines run free. Dr. Z works in making house calls to people, and the reason for this is because of the simple difficulty of getting animals on transportation to get to the vet in the first place. He has a car and his day is filled with meeting people at one location or another to meet whatever needs of the owners. The excursion started as we got in his car and headed to meet a client. It was an older mzungu woman in need of flea medicine for her two dogs. The two tablets altogether cost her 180,000 TSH, and upon my inquiring of the types of flea medicines used, Dr. Z told me that they cannot get much of the newer and better treatment options as they are too expensive to ship, though they are much more effective. When asked how much different treatments cost, he gave me the following breakdown:

Spaying- 120,000 TSH

Neutering- 60,000 TSH

Rabies Vaccine- 10,000 TSH

DHLP- 21,800 TSH

Following this meetings, we embarked on a journey to meet the second client. A man appeared to breed Rottweilers, and one of the puppies, for aesthetic purposes, was to have its tail removed. Upon arrival Dr. Z turned over a plastic barrel, set up his equipment, and with myself serving as the assistant, we promptly removed the tail and vaccinated this dog along with five others the man had in the back. (Refer to Fig 16.)





**Fig 16.** *Myself and Mr. Z in the process of removing the tail of a Rottweiler puppy*

Upon speaking to Dr. Z, the questions highlighted in (Appendix A) were encompassed on. As a whole, Dr. Z feels that the presence of these animals is indeed a problem and majority because they have no way to control it. He went on to say that money and equipment is in short supply, and that while vets are trained to do mass treatments of animals, that because of these lacking resources, that people simply cannot do it. He further went on to explain that many people that become vets actually want nothing to do with the work he does, and instead want to work with livestock and things of that sort. He himself stated that he works for the government, and that he doesn't work to do any sort of mass vaccination days, or spaying and neutering of strays, and that he doesn't work with stray animals. He did clarify though that if he was called upon to help, he would help, but he usually has a busy time table and would need to check up on it. People don't bring the strays to him either; he only has ever had clients bring their own pets to him, and

when asked what he thought should be done to mitigate this problem, he simply stated education. He believes education is important to teach people not to take on or breed animals that they cannot care for, and further thinks a fund should be raised to deal with the rising populations currently at hand. He additionally stated that the situation is dire and something needs to be done, especially because of not only the health implications towards humans, but also because of the overall effects this population has on tourism.

### Shelter Organization

Mbwa Wa Africa is an organization set next to Arusha National Park. They work in not only sheltering animals that would otherwise have died due to disabilities, but they also do research in how to further handle the problem, in addition to going out in the field work and vaccinations of stray populations. Primarily though their issue of concern is rabies, population control, and education. Their objectives aim at assisting in the creation and maintenance of a rabies free population. This includes but is not limited to, improving overall welfare of the animals, as well as managing risks to human health, and overall boosting the economic implications towards sectors like tourism that suffer due to this large demographic being in the vicinity. A journey was made to their compound, where I met and spoke with the head of this organization, Mr. M. This Mr. M gave me a tour of his shelter, and immediately it was noticed how many lame dogs he had from different forms of abuse or traffic accidents. They correctly partitioned pieces of their land to certain groups of dogs, whether it be that they needed extra care, they were more energetic, or they were simply young. The animals all looked incredibly healthy, and whenever they needed any type of treatment they would need to have a vet come to the compound to treat them. He spoke on the methods used by the government to attempt to control rising populations, and this was in the form of shooting and poisoning. He adamantly disagreed with these methods, and was even clearer on the fact that it was not a permanent solution. In order to fully manage this increasing problem he formed a proposal he thinks will help control these issues in the long term.

His proposal starts by explaining the importance of rabies elimination, the control of the dog population, and in educating and changing the mentality on how people view and interact with the animals. The proposal then goes on to speak about the importance of the roles of the stakeholders in making this plan come to fruition, as it needs the support due to its size, cost

involvement, and sustainability. The project will start by creating a baseline survey in order to gather more accurate data on current dog populations. In tandem with monitoring, a plan then can be implemented to hold annual rabies vaccination clinics for the entire area. This will last approximately 4-8 weeks. The hope in this step is to reduce instances of human deaths due to zoonotic diseases. This baseline data will also be used in order to plan the use of neutering clinics. This would take a gradual approach and would working going ward by ward, starting on the outer bordering areas of the Arusha City council. In implementing monitoring with this gradual approach, the idea is that then they are able to bring both levels of rabies down, along with dog population growth. The stakeholders in this project include the Prime Minister's Office, Ministry of Agriculture, Ministry of Natural Resources and Tourism, Ministry of Health, Ministry of Education, Regional Administration, and Arusha City Council among other sectors that can prove to be helpful by using their hand in this cause.

## Discussion

All the individuals spoken to pointed out that at one point or another they either had personal experiences with stray dog bites, seen someone get bitten, or know of someone else who has gotten bitten by a stray dog. Many additionally emphasized that these dogs threaten children the most. Kids will be chased by whole packs of dogs, and bitten, at which point they may have to be taken to a doctor that their parents may or may not be able to afford. In accordance with a recent issue encompassed by *The Washington Post*, “six children between 5 and 12 years old were killed by strays while more than two dozen other children have been injured in attacks.”(Doshi V. 2018) The why as to these types of attacks happen frequently to children is uncertain, but as a whole there is an explanation as to why dogs attack people, it is never simply “out of the blue”. Dogs can attack people based on circumstances such as to put distance between themselves and potential aggressors, misinterpretations on part of people mistaking a dog for “friendly” when it is actually anxiety on part of the animal, not knowing the animal’s body language, moving too fast towards them, and standing too quickly after having an interaction while sitting. (Reisner I. 2014) Many times I have seen children playing with the animals, and based on personal observations; appear unknowledgeable of the dangers and risks due to lack of understanding of body language. Upon asking the vet, Mr. Z, about it, he had said that they were small and easy targets for the animals. One gentleman on Njiro road specifically had recalled an instance many years ago of when his daughter was attacked and bitten by a group of three stray dogs, it stood out to me because the man had said that even until this day he got nightmares about it.

People expressed such wariness and fright because they felt they could never tell what was going to happen with these dogs. It is interesting then to have had these same people express such sympathy when it is clear that they have had many bad experiences when it comes to their community’s stray dog population. People wanted something done, yes, but a majority wanted something done in a humane way. This is why speaking with Mbwa Wa Africa is important, because if people complain to the government, the municipal sends men with guns to shoot and poison them, so as to give communities immediate relief. Mbwa Wa Africa’s strategy is a short plan, 3 years in fact, but in the long term people are on the same page it appears with how they want to deal with the problem. They do not want to be stolen from, or hurt, but they also want

justice for these animals they feel have been done wrong by people in society. Everyone appears to be on the same page for the most part in this regard.

In speaking with the professionals during this study, I was interested to find that they too worry for the tourism industry. Arusha is a major hub for tourism, and people coming through while on safari. Tanzania as a whole is an even bigger tourist destination because of all of the natural wonders and beautiful national parks. Many people's lives here are incumbent upon the presence of foreigners willing to spend money on experiences that last a lifetime. According to one article, "In many "tourist paradises", to see stray dogs and cats - hungry, sick and suffering - is something very common. And according to statistics, people experiencing this kind of meetings, are less likely to return to that particular destination and share the incident with friends, colleagues and on websites such as TripAdvisor."(Webster D. 2013 ) Thanks to the internet especially, it is no much easier for people to broadcast such information worldwide and even easier for people to access and then pick another destination.

When tourists do not visit, people's livelihoods suffer; the economy suffers, and as a result, families go hungry. This issue of money in general though is what appears to be the reason for why many people are unable to care for their animals. According to one source, "A large share of the Tanzania population is clustered around the poverty line, vulnerable to fall into poverty but also likely to escape from it. (World Bank Group 2015) Although a rabies vaccine is 10000 TSH, that's 10000 TSH that a family may not be able to spare. Communities work day in and day out to provide for themselves and their loved ones, and protection is a must in some of these areas to ensure that they can continue to generate an income. From the information gathered, there is this perception of the dogs being a tool, rather than animals, which creates a bigger problem. At that point the animal is no longer taken care of, and if it gets sick and needs treatment; Useless and abandoned to the streets. This is not to say that this is every case of stray dog, but in terms of neglect in a poverty stricken country, it is feasible.

In speaking with the dog sellers stationed at Clocktower, I expected to find that for easy money they would catch one of the many abundant stray dogs walking on the streets, clean it up, and sell it. It was to my surprise then to find that they actually want nothing to do with the stray dogs, and only deal in western breeds. When I had asked them if the presence of stray dogs affected their business, and they had said no, I was a bit skeptical. My reasoning was because I had been

under the impression that with such easy access to dogs, that people would have no need to buy a dog for 300,000 TSH when they could walk outside and catch their security for free. I was then proven otherwise though when in conducting my interviews I ran into a woman who owned three of her own dogs, all of which were western breeds. From my understanding people prefer these breeds because it was explained they can get bigger and stronger animals, “good” animals. While I found no sources to support this claim, we can see at hand there is a complicated relationship at hand with Tanzanian people, and the dogs that inhabit the same space. In moving forwards with such issues, I feel that I agree with the proposition sent by Mbwa Wa Africa, and that everyone needs to have a hand in this if it is going to work. In having these multiple stakeholders hold a role, then costs and benefits of the project can be managed, seeing that not only one group is carrying the project, rather those who are affected can share the responsibility of the issue.

### Limitations

In using convenience sampling I believe there could be more biases present due to myself and my translator picking the individuals. A majority of the interviewees were male, and the time of day at which interviews took place varied, which could have inadvertently affected people’s willingness to respond, especially after the post lunch tiredness.

### Biases

Some biases encountered could be that most of the participants in my study are male. Women often times did not want to participate in the study, and when approaching a woman to ask, often a male would stand in the conversation, and in my opinion I feel this made the women more nervous to be asked certain things. Sometimes I too would not ask all the questions because I would get long winded answers from people at times, and in this conversation I would feel as though they answered the other questions. Another bias is that I only had one veterinary practitioners input, and although it was a very good and helpful experience, he did not work a lot with stray animals.

### Ethics

The participants in this study from the community were made aware from the beginning of the interview that I was a student, and that this was a project. When asked what I would do with it I

told them that it would be used to gather data in the hopes that someone could do something with it later, but that generally it was to see how people felt on the matter. I also was clear that it was to be anonymous and no names would be used in this study. Additionally it was expressed that no one was made to contribute if they felt they did not want to, or that they didn't have anything to add.

### Future Research

Had I the opportunity to develop this research further, I would meet with government officials, and some of the stakeholders mentioned in Mbwa Wa Africa's proposal for preventative measures. I felt that this research merely opened a door into a much larger issue and possible project at hand. In conducting this further research I would obtain more interviews, and from a wider scale of places, and I would try to incorporate more women as well as men into this study. I also think that reaching out to people who work in conjunction with Mbwa Wa Africa would be an important piece of data, to see who else is doing something and what that may be.

### Personal Reflection

This research encompasses on perceptions I feel as if people forget about when they are doing studies about certain urban issues. It felt at times that when individuals spoke about local people that they generalize. I was especially surprised to hear about how sympathetic people were towards these animals. In some places I would see rocks thrown at the dogs, and people shoo them away. I also saw though people willing to feed them, and even during my home stay my mama told me that they had taken care of a stray dog and that it became theirs. People vary in their feelings towards the issue, and rightly so, but I don't think I expected such compassion from people who clearly were so wary and unsure. I absolutely loved getting to see all the healthy animals in the hands of people who just wanted to fix a problem humans created. Especially in seeing the Mbwa Wa Africa complex, it was so refreshing to see all these lame dogs live such happy lives. Overall I truly enjoyed the knowledge gained from conducting this research, and I hope that while I did not have the time to gather any real useable figures, that someone can use the knowledge gained about the community's feelings to extend the work being done.

## **Conclusion**

In conclusion, people are very aware of the dangers provided by the proximity of stray dogs in the community. There are portions of people that have no interactions with the stray dogs, but more often than not people feed, shelter and care for the dogs in some way. Surprisingly enough people's feelings were mixed, from fearing and hating the animals, to having feelings of sympathy towards the animals. As a whole individuals interviewed would at some point express that the reason for the large population problem was not the fault of the animal, but on part of the people. It was explained that community members would often not properly care for the animal, and that desertion was common. It was because of this neglect and even sometimes abuse that these emaciated animals became so awful in their opinion. Individuals such as Mr. Z, and Mr. M. both brought up points of the strays not only being a detriment to human health, but both agreed on the push for education on the matter. In conjunction with stray dogs being an issue to communities, they also have economic implications that affect sectors such as tourism. In having this large amount of free roaming canines, it elicits not only a fear and uncertainty for the people that visit, but for people coming from countries where dogs and cats are a huge part of a household environment, it brings about feelings of sympathy and sadness, possibly affecting the willingness to come back for future endeavors. In the future I am hopeful that Mbwa Wa Africa will gain the support it needs in order to have their long term mitigation plans come to fruition. This is a small world, one of which needs a lot of work, but it can start with gradual changes, so as to build a better and easier life for the ones heavily affected in this regard.



## **Appendix A: Survey Questions**

*Below are the survey questions asked to all participating parties from the various levels.*

### **Survey Questions for Vets:**

- 1) How long have you been a vet here in Arusha?
- 2) Do people come often in regards to spaying/neutering their pets?
- 3) How do you feel about the number of street dogs present around Arusha?
- 4) What are some issues that arise from having a large number of street dogs around?
- 5) Do you think people can benefit from having street dogs around?
- 6) Do you work with any shelters/organizations in working to spay/neuter or vaccinate the street dogs?
- 7) Do you have a lot of people on their own, bringing in street dogs to your clinic for spaying/neutering/vaccinating? Or is it mostly pets?
- 8) Do you have a number of dogs/cats come in from street dog attacks?
- 9) What do you think should be done in the future?

### **Survey Questions for People:**

- 1) How long have you lived here in Arusha?
- 2) Do you have a pet dog? If so where did you get it, and have you spayed/neutered/vaccinated your pet?
- 3) How do you feel about the number of street dogs present here in Arusha?
- 4) What kinds of interactions have you had with the street dogs? Have you ever been bitten, are they nice for the most part, do you feed them, do they provide protection where you live?
- 5) Do you think that the presence of the street dogs can be a good thing?
- 6) What are some issues that arise from having a large number of street dogs around?
- 7) Do you know of any methods or organizations that try and help limit the number of street dogs?

### **Survey Questions for Dog Seller:**

- 1) How long have you lived here in Arusha?

- 2) How long have you sold dogs here in Arusha?
- 3) What was your reason for going into this business?
- 4) Do you get the animals spade/neutered/vaccinated before selling them to people?
- 5) How much do you sell the dogs for?
- 6) Where do you get the dogs from?
- 7) Do people buy your dogs for the purpose of having them as pets, or for protection and other means?
- 8) Do only wealthy people buy your dogs, or are there farmers and people from different social classes buying your animals?
- 9) How do you feel about the number of street dogs here in Arusha? Do you feel like it is a problem, or is it beneficial in some ways to people/yourself?

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