**Belize**

**Rio Bravo CMA, Orange Walk District**

**McMaster Fellows**

**Mary Ann Studer, Faculty, Physical Science –** The research components of this project include:

1. **Agricultural Soil Monitoring:** Continuing to work with indigenous and Mennonite agricultural communities on the periphery of the Rio Bravo Conservation and Management Area;
2. **Sustainable Forestry Support**: Determining soil compaction levels at logged sites within the Rio Bravo Conservation and Management Area in support of Programme for Belize’s sustainable forestry and continued SmartWood certification by the Rainforest Alliance; develop and assess the validity of correlations between canopy cover and compaction within the Rio Bravo;
3. **New River Lagoon Sub-surface Nitrate Assay:** Continuing analysis of nitrate levels for water at depth in the New River Lagoon to explore possible source or pattern of nitrate contaminants including specifically targeted locations including feeder spring sources and tributaries that drain marshlands into the New River Lagoon to explore possible source or pattern of nitrate contaminants;

**Rena Rager, Associate Fellow, –** Rena has a vested interest in returning to Belize to focus on health education in the village. Rena will provide the women in the village with information and personal testimony on the importance of early detection of breast cancer.

Past surveys have shown that because of the community’s lack of education, the women of the village become so sick with disease before seeking medical attention that their late diagnosis impedes appropriate and effective treatment. By providing them with literature, demonstration, and testimony as a breast cancer survivor, their chances of survival may increase.

**McMaster Scholars**

**Melina Alexander, Senior, Molecular Biology –** The purpose of this project will be to continue the ongoing water quality analysis of the New River Lagoon, its tributaries, as well as surrounding potable water sources. The testing will consist of both chemical and biological tests, with the advance in total water quantity in mind. Tests will be performed to collect data on nitrogen levels, orthophosphates, free chlorine, dissolved oxygen, pH levels, ammonia level, and bacteria harmful to the human body. These test have been previously tested by McMaster’s scholars and the project’s intention is to test all the sites previously tested in the 2013-14 trip as well as any newly requested sites. The information will be collected and complied and will then be conveyed to community partners.

**Lindsay Bubnick, Senior, Exercise Science –** San Carlos community’s main health concerns are heart disease, hypertension and diabetes. The community is unaware of the importance of nutrition for well-being and how it plays a role in preventing or delaying the onset of these three main health concerns; along with how these health concerns can be remediated through proper nutrition. Information will be provided about these main health concerns, what causes them, along with the cost effective management that may be beneficial for them. The expected outcome of this project is for individuals to be more aware and known about these three main health concerns and for them to be able to improve their overall health.

**Amanda Fooce, Sophomore, Integrated Language Arts and English –** The functional literacy rate in Belize is very low, which has the potential to negatively affect the community as a whole, as well as individuals. By starting a Pen Pal project and continuing to implement the e-readers initiative that was started in 2013-2014, this project will give students more availability to books written in English, which is the country’s national language. The Pen Pal project will give the students practice using the English language in a functional way with students who are very familiar with the language already. These projects will work together to achieve fluency in English, and in turn, raise the functional literacy rate in Belize with the school in San Carlos.

**Caroline Hesterman, Senior, Psychology –** The issue being addressed in my project includes continuing education through building self-esteem, obtaining information on attitudes towards healthcare, and making women of San Carlos more aware of the prevalence and importance of early breast cancer detection. This project’s plan is to implement self-esteem building activities, conduct a health survey, and teach self-breast exams in the village of San Carlos, Belize. The hope for this project is that by implementing these projects the young women of San Carlos have a better understanding of breast cancer and ways to detect it.

**Joseph Braden Perry, Junior, Early Childhood Education –** The need for a preschool program in San Carlos, Belize is incredible, but it is something that is not going to be implemented by the Ministry of Education in Belize because the village is too small. Parents are an important asset in preparing their child for education, but only if they have received proper training and have the resources to do so. By providing the people of San Carlos with the training and resources to help prepare these children, it will set them on the path to a longer and more successful education at a young age.

**Megan Roberts, Junior, Early Childhood Education –** There is a lack of parental involvement in the school and with the students education overall in the rural villages of Belize. I will be teaching lessons on soil components and soil health, thus creating a common element between family life and school. Due to the diminishing resources available to schools, this project will mostly require natural resources. From this project, I expect to enhance the academic achievement levels of the students involved by increasing their parental involvement and academic support. This project will also educate teachers on lessons they can create utilizing natural resources and cheap supplies.

**Zach Roush, Sophomore, Digital Forensic Science/ Criminal Justice –**

* **CPR, First Aid, and Water Safety –** The closest hospital is about three hours away from the village of San Carlos,. This project will continue the CPR, first aid, and water safety training that has been provided to the people of San Carlos for the past six years. This training will help the people of the village in the event of a traumatic injury.
* **Computer Maintenance and Basic Repairs –** Because technology is so new to the village of San Carlos the people there do not know enough about computers to repair the basic problems that they have. Education on the computers will be provided to the librarian and provide him/her with a good resource to use to fix the problems. The librarian or the people may or may not pick up everything the first time that they hear it, but hopefully, by providing a booklet with instructions can help them fix problems.

**Tory Savage, Sophomore, Digital Forensic Science -** Technology has become a major part of the education system for children. There have been tests done that conclude that children learn more easily with technology. In order for the students in remote villages to be on par with their peers who are educated in urban schools in Belize, they also need access to technology. This project will bring additional computers to Belize for the schools to use and connect how the computers are being utilized by students to the national curriculum standards. If possible, this project will also include exploration on different ways to connect these computers to the internet.