

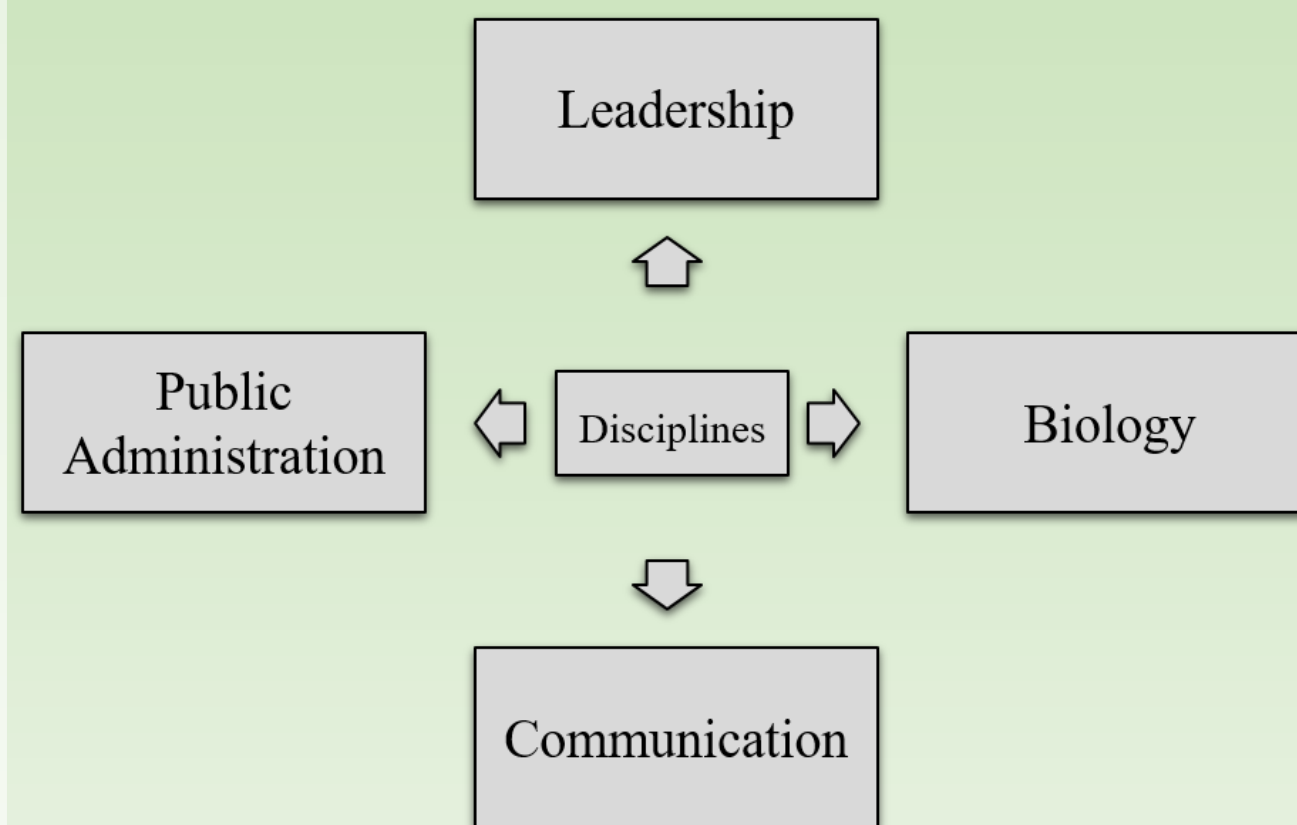
A Multidisciplinary Approach to a Multi-Faceted Problem

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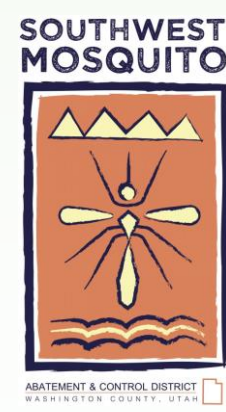
Abstract

This research project combined multiple fields of study including communication, public administration, leadership, and biology. Through the combination of these various disciplines we obtained funding, designed our project, collected and identified mosquito specimens, analyzed the associated health risks, and created a public mosquito management plan for recreation areas. The utilization of multiple disciplines was necessary in order to address the many aspects of the potential mosquito problem in mountainous areas.



Leadership

Leadership was used when designing this project and reaching out to other organizations for funding and intellectual partnerships. If the initiative had not been taken to plan out this project and determine what was needed for it to happen, this research would not have been conducted. A lack of information was noticed and we took it upon ourselves to create a project that would generate the knowledge that was lacking in the area.



Biology

The biological foundation consisted of the physical gathering of data relating to the activity, peak season, and duration of mosquito populations in the mountains in Southern Utah, as well as determining if West Nile Virus was present in these populations. The data was collected using Encephalitis Vector Survey (EVS) CO2 baited traps, which utilize dry ice to attract the mosquitoes. The traps were hung from tree branches approximately chest height or from a stand of equal height in a non-forested area. The EVS traps were set out from dusk to dawn one night each for the duration of the summer. For one week at the beginning, in the middle, and at the end of the research period, the traps were placed continuously for 24 hours and checked every 6 hours. This was an important part of the project to ensure that the mosquitoes displayed the expected behavior and that the trapping method of dusk to dawn would be effective. When the traps were collected each morning the nets were removed from the traps, sealed, and placed on dry ice in a cooler for transport to the laboratory.

Documentation for the data collection included the number and species of mosquitoes sampled, the weather conditions and moisture levels leading up to the mosquito season and during the collection, as well as the general geography and conditions of the collection area. Once documentation was completed the sample was sent to the lab for West Nile Virus testing.



<https://www.bioquip.com/search/DispProduct.asp?pid=2801A>



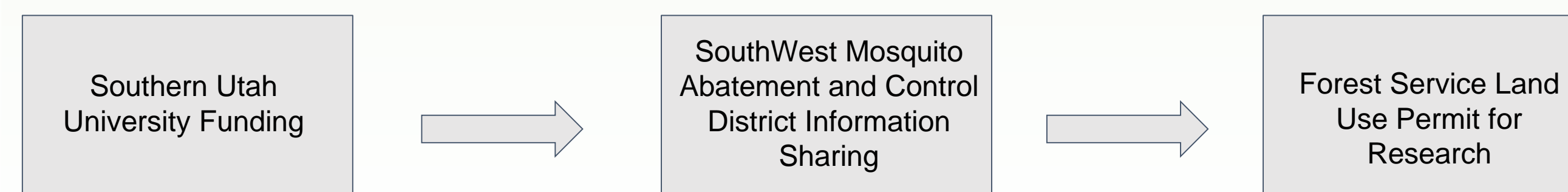
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Communication

To make this project viable, communication was utilized to write grants and apply for funding. Several funding methods were considered and applied to, including the National Institutes of Health and the Colorado Plateau Group, before funding was received from Southern Utah University.

In addition, official land use permits were obtained from the Forest Service for use of land for research purposes. To obtain these permits a supervisor in the local Forest Service office was contacted to determine who the appropriate person would be to contact. A presentation was then given to the Forest Service giving the purpose of the research, the impacts it could have on the land and wildlife, and what relation it had with the Forest Service.

Communication was further used to organize with other local groups in an attempt to share information on what has previously been found on this topic, as well as share what we found during this project. One local organization that was contacted and very willing to help was the SouthWest Mosquito Abatement and Control District. They shared with us information on previous collection data from the area, volunteered their lab for West Nile Virus testing, and offered to help with any stage of the research that they may be needed.



Public Administration

The discipline of public administration was addressed at the beginning of this project by including research on the potential health risks the mosquitoes posed to the public in the initial design. The discipline was further used to create a management plan based on the mosquito collection and West Nile Virus testing data, which was then made available to the public. With the popularity of outdoor recreation in the area it was important to inform the public on how this may impact them.



Connection to the Theme

This project utilized communication, public administration, leadership, and biology when developing the methodologies necessary to carry it out effectively. Each of these disciplines were essential to gathering data and producing useful products. Biology formed the foundation for the project and a base idea to build on. Communication was essential in developing the project to determine what information already existed on the topic and form relationships with local organizations. Public administration was necessary to provide purpose to the project and determine how it would benefit others. Leadership was essential in providing the initiative to identify a lack of information and begin developing this project.

Acknowledgements

We would like to thank Southern Utah University for giving us the opportunity to execute this research project and Jim Pollard for continuously helping us improve our project throughout its entirety. We would also like to thank the SouthWest Mosquito Abatement and Control District for helping us in the planning stages of our project and allowing us to use their testing facility. Finally, we would like to thank the Forest Service for allowing us to conduct our research on federal land.