Goal 1.4 Paper

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Acquire depth of knowledge in the macro-level of biology

This is the third and final topic in the biology curriculum. The curriculum is designed to section the material so students get a foundation for biological topics at each level. The first two topics were biology at a micro and organismal level. This topic of biology really focuses on biology as a whole a how the other two underlining topics work together to create this bigger picture. Since this topic involves so many components, many if not all my classes at Longwood have helped to develop and build on this foundation; however, there are two classes that really stick out to me when I think about biology at macro-level. These classes are my biology 251, introduction to ecology and evolution, and my biology 330, conservation biology. These two classes really helped to bring the smaller components of biology together and show them working in a higher level.

In biology 251, one of the main things we talked about was evolution. Many lectures were spent discussing Darwin and the components of evolution. We discussed the underlining principles of evolution, but we also talked about the bid picture of evolution. We talked about specific individual examples of evolution, but also about ecosystem based evolutionary processes. With these concepts, we decided to perform an observational research project in which we studied age demography. For this project we surveyed a cemetery where we made a list of death dates and ages of people from the early 1900s all the way the late 1900s. This project really highlighted the evolution of the world not only in a scientific aspect but also in an industrial aspect. You can see in the attached paper how the project highlighted the evolution of industry and medicine and many other things that led to an increase in life expectancy. This project really helped us to see biology from a broader perspective.

The concepts that we learned in biology 251, really helped to lay a foundation for the concepts that we learned in conservation biology. In this class we took all the information about ecology and evolution that we learned in our foundation course and we used it to help us understand and comprehend the big concepts of wildlife conservation. One of the main concepts was conservation management and we saw that conserving of one species is much more than that and that saving one species could lead to the conserving of many others. In this course we two big group projects, the first project that my group presented on was menhaden fish in the Chesapeake Bay. Just from this one example you can see how important one species is to a whole ecosystem and how they work with other species within the ecosystem. This project can also be linked to my big semester research project in that class. For my project I used IUCN Red List data to study the endangerment of sharks. In doing my research I found how important species like these are to an entire ecosystem and how the balance of an ecosystem is so important. From my research paper, which is attached below. I found that many sharks are in danger of becoming extinct or endangered due to fishing and many other biological factor and how this depletion of sharks is causing a disruption in the balance of the oceanic food web.

These classes and the projects we performed in them really helped open my eyes to the big picture in biology. I am now able to think on a higher level of biology. I am now able effectively and critically think on this scale and am able to plan and implement tools techniques to help conserve biology at this level. These skills are very useful in the world of biology and finding a job and could be very useful in a land management and wildlife management job.