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DeVlieg Taylor Undergraduate Research Scholar 2012

Research: "Lotic Variations in Wildfire Recovery: An Assessment of Fish Productivity, Species Interaction Strengths, and Biodiversity in Streams of the Central Idaho Wilderness"

October, 15th 2012

Dear Janet and DeVlieg Foundation,

I would like to thank you all for providing me with the great opportunity to both work and live in one of the world's most premier wilderness research areas throughout the past summer. Although the summer has past, I would like you all to know that I am still hard at work and making good progress on my research project.

As you might recall from my proposal, one of the primary objectives of my study is to estimate rates of production of fish populations across a variety of stream types and to determine the degree to which these populations are fueled by aquatic vs. terrestrially derived organic matter. With this objective in mind, I set out this summer with a plan to collect fish tissue samples for stable isotope analysis as a means of determining the relative contributions of aquatic vs. terrestrial organic matter to fish production rates. Once I arrived at Taylor Wilderness Field Station however, it became evident that a few modifications to the project were

necessary. Instead of collecting tissue samples from fish Dr. Baxter and I decided to formulate an alternative plan of action involving direct, non-lethal sampling of fish gut contents. This was accomplished by "pumping the stomachs" of nearly 150 fish. This approach is allowing me to accomplish the same fundamental objectives outlined in my proposal, but it has also allowed me to collect the data necessary to evaluate exactly which prey items contribute most to fish production rates in a given stream and the potential relationships that may exist between fish production rates and the production rates of their insect prey.

As I mentioned above, things are going well with this project and I am learning something new from the data each week. Currently, I am in the process of identifying, measuring, and calculating the weights of the insects found in these fish gut content samples to determine the overall composition of fish diets for each stream studied. I have also been constructing graphical representations of these data for each stream site to visually assess the ways in which variation in habitat among streams



influences the diet composition of trout. By December I will have all of the fish diet samples processed and fish production rates calculated. On December 14th I will be presenting a brief summation of my results to the students and faculty of the Stream Ecology Lab at ISU. I will spend the following months writing a complete report and will disseminate the results at the ISU Spring Undergraduate Research Symposium in late March. On April 15th 2013 I will be presenting my final results at the annual American Fisheries Society meeting held in Boise. Once I have a complete write up of my research findings a final report will be sent to you!



*Bleak Interns: Jenna McCullough and Tyler Jack
Allysa Winkler (middle) and Matt Lyon (right)
DeVlieg Taylor Undergraduate Research Scholars
Summer Taylor 2012*

Overall, this summer has really meant a lot to me and has contributed immensely to my understanding of field research and the life sciences as whole. Having the opportunity to design a research plan and to go out in the field to put that plan into action enabled me to learn many skills. One lesson I learned fairly early in the season was that being able to adapt to unexpected circumstances is often times a crucial component to a successful season in the field. I also learned how important it can be to make the time to collaborate with other researchers in the field. It was really great to be able to help others collect field data and to include others in the collection of my own data as well. This allowed for the great opportunity to learn about other research projects at Taylor Ranch and to teach others about my own. I learned so much from the people I worked with this summer and made some good friends along the way. Having the expertise and advice of Dr. Baxter throughout this whole process has proven to be invaluable and has really made this a fun and educational experience. At the end of the summer I came away from Taylor Ranch with a new enthusiasm for stream ecology and a greater level of confidence in my pursuit of a career in ecology and conservation biology.

Again, thank you so much for your support! It was really great to have the chance to meet you Janet and to be able to extend to you my enthusiasm for stream ecology. This project would not be possible without your interests in supporting undergraduate research endeavors like my own. I have attached a few pictures of my summer along with this letter. I hope you all enjoy!

Sincerely,

Matt Lyon