

Silver Creek Preserve
The Nature Conservancy of Idaho
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Introduction

When I began thinking about what to expect from this internship, I truly had no idea what might happen. I was ready for anything from cleaning outdoor toilets to, in my highest hopes, scientific research opportunities and anything in between. Looking back, I realize this is almost exactly what happened. I encountered dirty toilets, black-headed grosbeaks, wading in water that flooded my chest waders, bald eagles, research design, invasive snails ranging in size from 3-5 mm, and much more.

This internship tested me socially, mentally and ethically. Success demanded that I learn to follow direction from my supervisor while still integrating my own ideas about educating the public and modifying research methods. I accumulated experience regarding sensitive environmental issues and policy snafus. It was fun as well as terrifying to untangle the politics and get to the real issues behind the ecological and biological goals of The Nature Conservancy of Idaho. Overall, I think I received a good understanding of the general management systems and environmental preservation practices of an international ecology-based organization.

My various responsibilities included:

- Create and Conduct Research on Lethal Tolerance of *Potamopyrgus antipodarum* (New Zealand mudsnail, aquatic invasive species).
- Recover and analyze Sediment Data for Stalker Creek Restoration Project.
- Coordinate Volunteers and Organize Volunteer Days.
- Supervise Silver Creek Preserve Visitor Center.
- Miscellaneous: Maintenance, Classes, Informing the Public.

Create and Conduct Research on the Lethal Tolerance of *P. antipodarum*.

My favorite aspect of the internship was the opportunity to create and conduct research on this invasive snail. It was an exciting enterprise involving research of experimental findings to date, method design and analysis, and recording of results and coming to unofficial conclusions. The *P. antipodarum* is a 3-5mm ovoviviparous, parthenogenic prosobranch. One important vector is reported to be anglers. To help control spread of the snail, The Nature Conservancy decided to put out wash bins filled with citricidal (grapefruit seed extract) at access points along Silver Creek. The citricidal was thought to kill the snail, thereby reducing the possibility of it transport to and from the stream.

My assignment was to design an experiment to test the effectiveness of this citricidal. Current research indicated that snails would “revive” in cool, clear stream water within ten minutes in these conditions. For each trial, I placed two batches of 100 snails in equal volumes of clear stream water of the same temperature from which the snails had come. Then I added a certain volume of citricidal to one tank and the same volume of clear stream water to the second tank. Then I waited for set amounts of time

and removed the snails to place them in recovery tanks. I came up with techniques for determining behaviors and mortality. I revised methods several times and eventually ran out of time to form any conclusive or publishable results, but I was able to give my supervisor a general idea of the lethal effectiveness of grapefruit seed extract.

I am very grateful for this research opportunity, specifically, because I learned so much, not only about *P. antipodarum*, but also about the frustration, work and ingenuity that comes into experimental research. I developed a newfound appreciation and fascination for biological experimentation.

Recover and Analyze Sediment Data for Stalker Creek Restoration Project

One of my first assignments was to restore the research that had been done in the past couple of years on a project regarding sediment data. Stalker Creek, a stream that feeds into Silver Creek, was badly damaged by cattle several years ago and The Nature Conservancy had been making efforts to restore it to its 'original' condition. I went through old files kept in the Silver Creek Preserve office to find baseline studies and post restoration studies. In addition to this information, I went out in the field and gathered current data. This involved splashing in the stream and measuring water and sediment depth. I was having quite the time until I found out the hard way that one section of the stream was deeper than the top of my chest waders. To wrap it all up, I integrated all of the information (found and collected) into a comprehensive report with a standard operating procedure and graphs depicting change in sediment depth over time.

This task taught me the necessity for good baseline studies and record keeping. It is very difficult to assess what a restoration project has accomplished if no records pre-restoration activity were kept. Also important are, at the very least, detailed standard operating procedures so that the original studies can be accurately reproduced after restoration activities.

Coordinate Volunteers and Organize Volunteer Days

This was by far the most stressful of my duties. I (with the very valued help of my co-intern) called everyone that had ever been recorded as being a volunteer for Silver Creek Preserve or had ever thought of being a volunteer. Then with a small list of the faithful, I organized two different volunteer days with lunch provided. Fliers were sent out along with phone messages. It ended up being quite fun. The people we had come out were very enthusiastic and interesting. We were able to plant baby willows while staging friendly arguments and enjoying warm conversation. While being a volunteer coordinator was stressful, it was also rewarding.

Supervise Silver Creek Preserve Visitor Center

I was put in charge of running the preserves little visitors' center. This covered everything from cleaning and keeping our education materials up to date to greeting visitors and selling merchandise. No one had programmed the cash register for a few years, so I learned to program it and wrote a procedure so others would be able to as well.

Talking to the anglers, hikers and bird watchers was very educational in several ways. I learned about differentiating between various species of birds from the avid birders that had their binoculars shinning on the deck. The anglers taught me the difference between wet flies and dry flies, and the subtle differences between a dun, a

spinner, and a spent-winged spinner. Also, people came from all over the world to visit Silver Creek, so I spoke with people from New Zealand, Japan, South America, Germany and many other places.

Miscellaneous: Maintenance, Classes, Informing the Public

These tasks were what broke up the day and added more flavor to the internship. The wash stations had to be regularly checked and refilled, lawns needed mowing, the cabins and the office needed to be cleaned, fences and sign repaired, hundreds of baby willows needed watering. All of these things were just the day-to-day running of the preserve. We also took classes on identifying fish species found along the Silver Creek water shed and classes on identifying invasive weeds. Then we took all the information we learned and transposed it into a form that was easily accessed and understood by the public.

Conclusion

Overall, I am extremely grateful for the opportunity to do this internship. I got a unique education and experience. I owe a special thank you to the Blumenstein family for choosing to honor their son by giving students like my self this once in a lifetime opportunity. Thank you!