

When I first came across the Charlie Blumenstein Internship on the Biology Department's website, I was perplexed as to what exactly the job at The Nature Conservancy Silver Creek Preserve entailed. The description provided on the website was vague; it explained that interns would be "assisting stewardship staff with protection and enhancement of wildlife habitat and natural resources on the Nature Conservancy's preserves in Idaho." Then, as I researched the region and the preserve, my search yielded only one common thread: fly-fishing. Having never been to Idaho, fly-fished, or worked in the field directly related to my major before, I applied to the program in hopes of finding a unique summer experience. I was accustomed to the high stress lifestyle dictated by the Block Plan, and thus, a summer of no TV, movies, cell phones or school work was appealing to me. As the summer progressed, I fell in love with area surrounding Silver Creek Nature Preserve and of the absolute peace of mind that it brought.

What would a summary of the Silver Creek internship be without a discussion of fishing? I arrived at Picabo with no real fishing skills to speak of and certainly no equipment. However, I had decided long before I actually got to Silver Creek that one of my summer goals would be to learn the art of fly-fishing. Upon arrival, I immediately realized the extent to which fishing would consume my summer. After taking a tour of the office, I went to the visitor center (it happened to be opening day) and was instructed to tell anyone who asked that "PMDs were hatching" and that they were roughly "size 16". Looking back now I wonder why I didn't get more laughs when the first few fishermen I met were greeted with a "boy, these size 16 PMDs are really hatching right now!"

However, the acquisition of fly-fishing skills was not technically an aspect of my job description. When I first arrived at the preserve, I had a broken collar bone. I remember sheepishly calling Dayna, the preserve manager, to explain that I wouldn't be able to do any serious lifting for my first couple of weeks on the job. She explained that at The Silver Creek, the "to-do list" is virtually never ending and keeping me busy until my shoulder healed would *not* be a problem. As a result, my summer started out sluggish as my duties were curtailed to working at the Visitor Center (greeting fishermen and enlightening them on my infinitely limited knowledge of stream conditions), the office (cleaning and entering visitor information into spreadsheets), and one-handedly doing whatever I could around the Preserve.

About two weeks after opening day, a dozen scientists came to Silver Creek for the Silver Creek Symposium. The goal of the group was to discuss restoration techniques, stream health, and ecological threats in an attempt to evaluate Silver Creek and decide what should be done, if anything, to improve it. As part of my major, I am required to take courses from many fields, as they relate to the environment. Before this summer, I had taken many chemistry, ecology, and hydrology courses and found that as the Symposium proceeded, many concepts that had since become covered with cobwebs were dusted off.

The general consensus of the summit was that although the Stream was being affected by a number of anthropogenic sources (most notable alterations in the waterway-dams and irrigation runoff, as well as the buildup of toxins and mercury in the ecological food pyramid), it still was considered to be generally healthy and capable of supporting a large ecosystem. From a conservational standpoint, this is not only acceptable, but a shining example of multiple-use management. One thing that I learned this summer is that while nature and the environment need to be looked after, it is unrealistic to assume that they can be given the highest priority. Many of the families that live, ranch, and farm in the Wood River Valley have been there for generations upon generations. Buying land to put it behind a pane of glass as an untouchable preserve does not produce an understanding of the land, it merely protects it. While this saves the land, it is not conducive to teaching the population about the importance of the land, and of the ecological processes that occur within it. That is not to say that we should abandon the issue of protection, but a more effective approach would be to develop mutual awareness needs. That is exactly the goal of the Nature Conservancy: “protecting nature, preserving life”. Throughout the summer, we worked with local land owners who had donated portions of their property as “easements” to the Preserve. This means that, in exchange for certain tax benefits, the owners promise not to develop the land. In this way, the family that owns the land is offered a sensible alternative to development and simultaneously protects the local ecosystem.

This multiple-use management is at the heart of Silver Creek operations. The Preserve is open to the public so that people can visit and enjoy the pristine beauty of the land; learn about its ecological role as an oasis in the middle of high-altitude desert; or simply bask in the wonderfully primitive spring-fed stream.

Maintenance

Many of my day-to-day duties were related to sustainable management of Silver Creek. The number of visitors that come to Silver Creek on any given day can range from ten to over one hundred. As a result, trails constantly needed to be cleared to minimize the ecological footprint of these visitors. This resulted in many hours of sunny, sweaty, and dusty weed-whacking to establish and maintain a system of cleared trails throughout the Preserve. Additionally, as a public destination, Silver Creek needs to be kept clean, and so once a week, the Interns and the Preserve Manager took turns cleaning the three outhouses. Invasive species are also a pressing concern. Silver Creek currently has a minor infestation of New Zealand Mud Snails. Though they only live on a few sections of the Creek, they are a serious problem in other waters in the area. To combat this possible invasion of Silver Creek, wash stations are set up at various access points throughout the Preserve. These stations are large tubs filled with grape seed extract, which has been proven to be a safe, biodegradable alternative to harsh soap.

Noxious Weed Removal

When I tell people about my experience this summer, it usually comes across as sounding too good to be true. That is, until I mutter the words “spray week.” Dramatics aside, noxious weed removal plays a vital role in maintaining the biodiversity that

currently exists at Silver Creek. Noxious weeds are defined as human-introduced, non-native species that thrive in a foreign region and as a result, out-compete native species, and thereby disrupt the ecological balance that exists there. If the invasive species spreads out to the point of threatening livestock, agriculture, or native species, it might get put on the respective State's list of "Noxious Weeds" and thereafter be defined as an enemy of the state. Again, the theatrics aside, these species seriously threaten the livelihood of any species that competes for resources. On Silver Creek, the major invasive species that had hundreds of gallons of water-soluble herbicide applied to it is the Canadian Thistle (*Cirsium arvense*). This species has deep, wide spreading, horizontal roots that prevent the plant from being removed by hand. As a result, removal is limited to the application of herbicides by hand (to be most effective). The ideal times to spray this weed is during the late summer and fall when the plant has fertilized its seeds and is dispersing them in the wind. This is because it is at this time that the plant opens up to let its seeds go and will absorb the herbicide down to its roots. The first few outings spraying this seemingly immortal devil weed were fun: plenty of sunshine, the water that fills your backpack sprayer keeps your back cool, and you get to walk around the area where you are spraying all day long. However, this novelty quickly vanished as the temperature rises and the mosquitoes/flyes/bees come after you and your sweat. But when the day is done you can say that you have put in an honest day's work and actually feel good about what you did because you helped ensure ecological health (at least for this season).

Irrigation

Two springs ago, an alfalfa field adjacent to the Creek's main office was re-seeded with a native grass/shrub mix. Previous interns were responsible for a strict watering regiment that would guarantee that in a few years the field would look as it did when the first settlers reached this fertile Creek. When I got there, the field looked like a meadow of struggling grass. However within just a few short weeks, the field transformed into a simply breath-taking, never-ending sea of blue phlox that could be seen for miles. Though I did not personally seed it, I did start every morning with an ATV/four-wheeler trip out to the irrigation lines to disconnect them, move them, reconnect them, and turn the water on to give them a drink. By the end of the summer, I had helped move, fix, replace, and unfortunately broke just about every piece of that system. It really is indescribable, the feeling that you get when you work on a piece of land so much and you get to a point where you really *understand* the land and all that it has to offer.

Water Monitoring

Twice a month, the Preserve staff walks out to five specific sections of the Creek and takes physical as well as chemical readings of the Stream. This was, by far, the most intellectually stimulating duty that the interns performed. It involved first, a reading of

the chemical properties of the water. This included pH, temperature, dissolved oxygen, Nitrogen, Phosphate (though not at the twice monthly intervals that the general water monitoring was performed), and conductivity. Next, we read the depth and velocity of the stream every two or four feet (depending on which section we were examining), all the way across the stream. At one section (transect 2), this meant a quick swim; as the water depth was always well over 3 feet. This proved to be beneficial in two ways. First, I really began to appreciate the hydrological side of the Preserve and the delicate balance that exists between temperature, dissolved oxygen, and ecological longevity. Fish rely heavily on dissolved oxygen, which is more abundant the colder the water. For a fisherman, this means casting into deeper waters, shaded waters, or waters near spring vents. Ecologically, this means that any fluctuation in chemical or hydrological inputs (increased rain water, surface area runoff, or certain minerals found near pastures and/or crop fields) can severely alter the quality of life for the inhabitants. This is very important to understand and to monitor because of the aforementioned implications.

As every other intern discussed, work at Silver Creek is incredibly varied. I struggle to adequately describe what I did this summer because it really was not limited to any single duty. I monitored the water quality, I carried out monthly bird surveys with local volunteers, I cleaned outhouses, I floated in canoes, I hiked, I fished, I watered re-established fields, I removed noxious weeds, I entered data, I was hired out to the Boise office to help them with Project Toolbox (which is a sort of calibration program, to make sure that satellite imagery is correctly interpreted), and most importantly, I came to appreciate Silver Creek for so much more than the fishing destination it is often seen as. I can honestly say that this past summer has been one of the most relaxing, educational, and worthwhile I have ever had. I briefly discussed the peace of mind that Silver Creek brought me and putting aside all the wonderful people I met, the rewarding work I did, and the copious amount of Canadian Thistle I exterminated, that is something that I will absolutely never forget.

Lastly I would like to thank the Blumenstein family. Obviously, I would not be writing this letter without their support. I had the chance to meet most of the family this summer and was delighted to show them around the Preserve via a canoe float. Mr. Blumenstein received an inflatable raft for his birthday and even though it was not the most ideal watercraft to take down Silver Creek, he managed to still smile as he emerged soaking wet from the Creek at the end of the float. I truly value the experience I had this summer, and again would like to express a deep gratitude to the family for allowing me this extraordinarily unique experience.