

## Conservation Science in South Surrey, British Columbia

I became a small piece of the international puzzle-of-an-organization called A Rocha. Originally founded in Portugal, A Rocha is a conservation science group which has now expanded to having field study centers in 19 countries. The term *a rocha* is Portuguese for “the rock,” emphasizing the organization’s faith-based component, as it unites Christians who are aware of the negative effects of climate change and work to ameliorate the environmental harms of such anthropogenic activity. Across the globe, Christian conservationists are working on projects such as conducting bird research in Lebanon, evaluating human-elephant conflicts in South India, and scuba diving off the coast of Kenya. This summer, I had the privilege of working with the team based in Surrey, British Columbia, living at the field study site called Brooksdale and researching various species within the Little Campbell River watershed. I joined two staff members in their ongoing conservation projects. These projects included monitoring the water quality of the river, searching for an endangered toad species and an endangered snail species, monitoring barn swallow nests, recording phenology of various native plants, recording weekly bird counts, restoring areas around the river by clearing out nonnative, invasive plants, as well as miscellaneous afternoons spent looking at bryophytes and tree cores. Exploring a wide span of projects and studies, I got a taste of many aspects of the natural environment in British Columbia. I was also assigned my own project, which gave me responsibility for monitoring an endangered species which I had never encountered before.

The research project I adopted had started in 2006, when scientists found empty snail shells of a red-listed endangered species, *Allogona townsendiana* (the Oregon Forestsnail). Continuing their research, I spent many afternoons searching for the snail and mapping areas of suitable habitat where a population could thrive. This involved organizing consistent surveys, entering data and GPS information, and creating maps using ArcGIS, which culminated into a final project and presentation. Thus, I improved my methods in conducting field work, analyzing data, and sharing findings with others. I was ultimately responsible for all data collected and my final presentation, so I had to make decisions

about scheduling, surveying, and analyzing data. I was also unfamiliar with the ArcGIS program, so I learned a considerable amount about mapping. The project was highly successful when we found 19 individuals of the snail species on our last day of conducting surveys (the snails are mainly active during the month of June, and we happily found them on the last day of the month). The previous researchers were concerned that the population had been wiped out by human development in the area, but my research showed that they survived, encouraging the team to continue working to protect them. Although they are small and seem insignificant, snails are important indicators of overall ecosystem health, contributing to biodiversity and breaking down detritus and organic matter in forest and edge habitats. Another species our team had been monitoring was the Western toad, which we found and followed through their migration. I contributed to the toad project by surveying the pond weekly with another intern, navigating the water in waders, and photographing the habitat and egg masses we found. I particularly enjoy photography, so I was naturally inclined to take this responsibility. I also contributed to the group photographically during community events, such as a day called RiverFest, where community members and their children learned about the importance of the river and our need to maintain healthy habitat around it. Kids also enjoyed releasing salmon fry into the river, contributing to the population of this keystone species.

Our work was often focused around supporting salmon species, which included long afternoons focused on clearing areas where invasive plants had taken over. One of the low points of my work was during such afternoons, when my mind was muddled with confusion. I couldn't figure out why we persevered in hacking away at beautiful blackberry bushes, with sweet, juicy berries just asking to be eaten. However, I was informed about the need to preserve these stream-side areas with native plants in order to maintain good quality of the river. With native trees growing along the banks, the shade maintains a consistent, healthy temperature of the water, also providing branches which extend over the stream, from which insects can drop off and fall into the water and provide food for the salmon. After I learned about these deeper-rooted reasons for spending hours clearing away invasive English ivy,

lamium, and Himalayan blackberry bushes, I felt much better about the work we were doing, and I was grateful to help salmon populations in the area. Salmon is an important species to such areas along the Western coast, so I enjoyed doing work which contributed to their health and survival.

Aside from my daily work, my favorite moments came from living in community. I was one of ten interns, and I was the only American, which made for many jokes and laughter around cultural differences between the UK, Singapore, America, and Canada. A Rocha also focuses on sustainable agriculture, so many of the interns worked on the farm, growing the vegetables we cooked and enjoyed at community meals each day. I had the happiest routine of waking up each morning in a cozy home with other students (who became my close friends), walking along the path to the chicken coop to pick up eggs for breakfast, working along the water and in beautiful old-growth red-cedar forests, enjoying fresh vegetables at dinner time (shared with the families and interns who lived on site), and spending long evenings by wandering in the woods or exploring the local beach town of White Rock and city of Vancouver. Each weekend was an adventure, whether we ferried to Victoria or took a road trip to camp in Manning Park or Whistler, making the most of our time off. The rainy afternoon when we found the Oregon Forestsnail was a moment I'll never forget, as another intern and I found ourselves rolling around in the sticky cleavers, laughing so hard that we were crying with the unexpected way we would turn around and find one snail after another, after spending a month and half with no findings. In considering a future career, this summer strengthened my desire to live within a community which values similar principles as me, making choices which help the earth instead of harming it. I also want to understand more about sustainable agriculture and conservation work in other regions and climates. I hope that a future career could include exploring ways in which we can become more connected to our physical surroundings and improve biodiversity. I would love to continue working for A Rocha, possibly becoming a permanent staff member. Even if that doesn't work out, I'm certain that my relationship with A Rocha will continue to grow somehow.

