

A Day in the Woodland Park Zoo

By Kristin Wilmes, 1st Year MES Student

On an unusually warm Friday in March three students from the Wildlife Conservation and Policy class, professor Dina Roberts, my two-year-old and I met in a parking lot at the Evergreen campus and began the journey to the Woodland Park Zoo in Seattle. When we arrived, we met with Bobbi Miller, a field conservation coordinator. Before this field trip, I was not aware that zoos were involved with conservation efforts outside the zoo establishment. It was impressive to hear that the zoo has 40 different field projects in three main regions: Asia-Pacific, Africa, and the Pacific Northwest. Bobbi told us how their conservation efforts aim to preserve regions for animals and work with local communities in these regions to improve the locals' livelihoods. The field projects strive to create "living landscapes" that consist of human use areas and protected natural areas in the same region. It's good to hear that these projects are taking into consideration the growing global population and working to create healthy ecosystems in which animals and humans can thrive together.

One project that caught my interest is located in the Yopno Urawa Som (YUS) forests of Papua New Guinea. Woodland Park Zoo's Tree Kangaroo program in this region is not only helping to protect the habitat that the endangered Matschie tree kangaroo relies on; the zoo is also working with locals to grow coffee in the region. They have teamed up with Caffé Vita, a local coffee shop, and YUS farmers to grow coffee on small, sustainable plots in the region. The sale of these coffee beans allows the indigenous people of the YUS forest region to afford school for the children and healthcare for everyone, while protecting endangered species. This is the first coffee

you can drink from this region because the area is so remote and there was previously no infrastructure to allow the locals to sell coffee beans. People from Caffé Vita help train the YUS farmers on coffee cultivation techniques.

In the Asia-Pacific region, the zoo has programs that work to protect habitat for cranes, hornbills, elephants, orangutans, and tigers. They have a program in Central Asia to protect snow leopards, and two programs in Africa, one project working to protect elephants and one working with gorillas. The zoo has most of its conservation projects located in the Pacific Northwest with emphasis on Washington. These local programs are working to protect northwest carnivores, the Oregon silverspot butterfly, swallows, Oregon spotted frogs, raptors, and pond turtles. The Oregon spotted frog project works with the Cedar Creek Correction Center to raise frogs, and a few MES students are involved with Sustainability in Prisons Project. Of course, these are not the only species that are being protected by these efforts. These animals are flagship species, which means they are charismatic species that conservationists use to raise money, educate the public, and protect habitat. This conservation work helps protect other wildlife that is in the same region through the protection of the flagship species.

Our group got the chance to roam the zoo and enjoy the animals. The cutest part of the day was watching the three baby

tigers playing together. The snakes turned out to be a big hit with my son and he came out of the trip with a new stuffed snake friend. Watching a child's reaction



Oregon Spotted Frog from the Sustainability in Prisons Project.

to these incredible animals makes one understand how important these diverse conservation projects are. I was able to see his eyes light up with excitement every time we came to a new animal exhibit. It shows me that zoos are not only a way for us to see these remarkable animals. When the zoo goes above and beyond to do conservation work in the field they are giving children today the chance to see these species thrive in the wild tomorrow. 🌱



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Dropping the Base at Taylor Shellfish

By Hannah Trageser, 1st Year MES student

Totten Inlet is home to Taylor Shellfish Farms, which is the largest producer of shellfish aquaculture in the nation. Warming seawater temperatures, storm-water runoff, and anthropogenic carbon dioxide inputs contribute to poor water quality conditions and ocean acidification in Totten Inlet. This puts Taylor Shellfish in an especially vulnerable position. What is in store for the future of the Taylor Shellfish Farm with increasing rates of climate change? How will Taylor Shellfish Farm adapt and mitigate for these changes?

It was a beautiful, vibrant, sunny morning at Taylor Shellfish Farm located in Shelton, Washington just a hopscotch and a few skips away from The Evergreen State College campus. The sun was out and the birds were using much of their energy expenditure reserves rehearsing their songs and showing off vocals to potential mates. The early bird catches the worm right? Our early bird cohort arrived for our tour at Taylor Shellfish Farms. Once our vanpools reached Taylor Shellfish, we all grabbed life vests for our exciting boat ride aboard Taylor's water vessel. Safety first! The wrack line was covered in opaque and pearly hued oyster shells and crunched in

between my boots and I could taste the salinity in the air. I kept thinking to myself that I was stepping on potential opportunities for sequestered carbonate. The captain of our ship called "all aboard" and we hopped onto one of Taylor's finest vessels. The majestic tectonics of Olympic National Park was in our horizon overlooking Puget Sound, looking stunning as always. Far off in the distance a nesting pair of endangered bald eagles were aimlessly flying about showing off their flight feathers, and eagerly awaiting the tasty shellfish prey below in hopes that a Taylor Shellfish employee would drop a tasty morsel in reciprocation for their great aerial show.

Next, as soon as I knew it, I could see shellfish workers at a distance monitoring and creating new muscle socks for the beginnings of shellfish propagation. The muscle farm was completely separate from the oyster and clam farms. I never pictured shellfish aquaculture as an aquatic monoculture, but each species was cultivated separately. It's amazing how Taylor Shellfish is reliant upon species that can tolerate Puget Sound temperature and salinity conditions using hatcheries to incubate juvenile species. They even have hatchery facilities located all the way in Kona, Hawaii.

Next, we were off to the processing plant. The processing plant was a human powered assembly line consisting of workers oyster chucking and oyster cleaning. Here, workers are treated well, paid fair wages, and receive exceptional benefits through the company, which makes Taylor Shellfish an optimal work environment. I was amazed to see that two trucks drive out to feed Seattle's local oyster bars and two huge semi-trucks filled with mollusks are headed for Seattle-Tacoma International Airport for international shipment for consumers in Asia and China. The busiest time for Taylor Shellfish is during Christmas and Chinese New Year. I guess I never realized what an international commodity Puget Sound shellfish are and their importance to the local economy. It's important to consider how these species are being affected by climate change and understanding how the company will have to adapt to changing environmental conditions.

With ocean acidification on the rise in Totten Inlet, shellfish farming in Puget Sound is increasingly threatened and further impacted by low dissolved oxygen concentrations and increased water temperatures. This is where the "Dropping the base at Taylor Shellfish" title comes in handy. Taylor Shellfish is quite literally dropping the base with sodium carbonate in Totten Inlet to make the shellfish water conditions more basic so mollusks such as muscles, clams, and oysters will continue to use their acid soluble shell-formation components to thrive in the changing marine ecosystem.

It was inspiring to see all the innovative progress made to combat ocean acidification and how species continue to flourish even in a changing environment at Taylor Shellfish Farms. The field trip to Taylor reiterates to me that the world is your oyster when it comes to our future opportunities in life after the MES program. 🌱

A group of students tour the Taylor hatchery. photo by Shauna Bittle '98.

